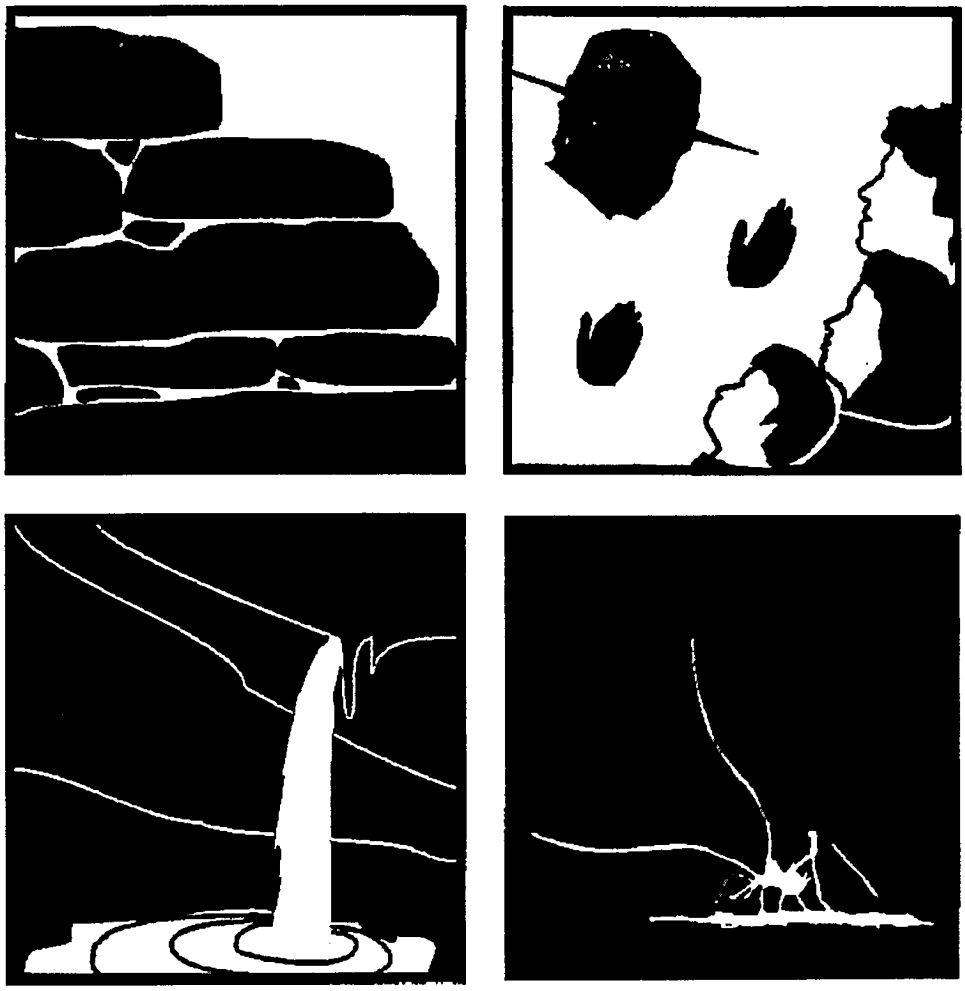
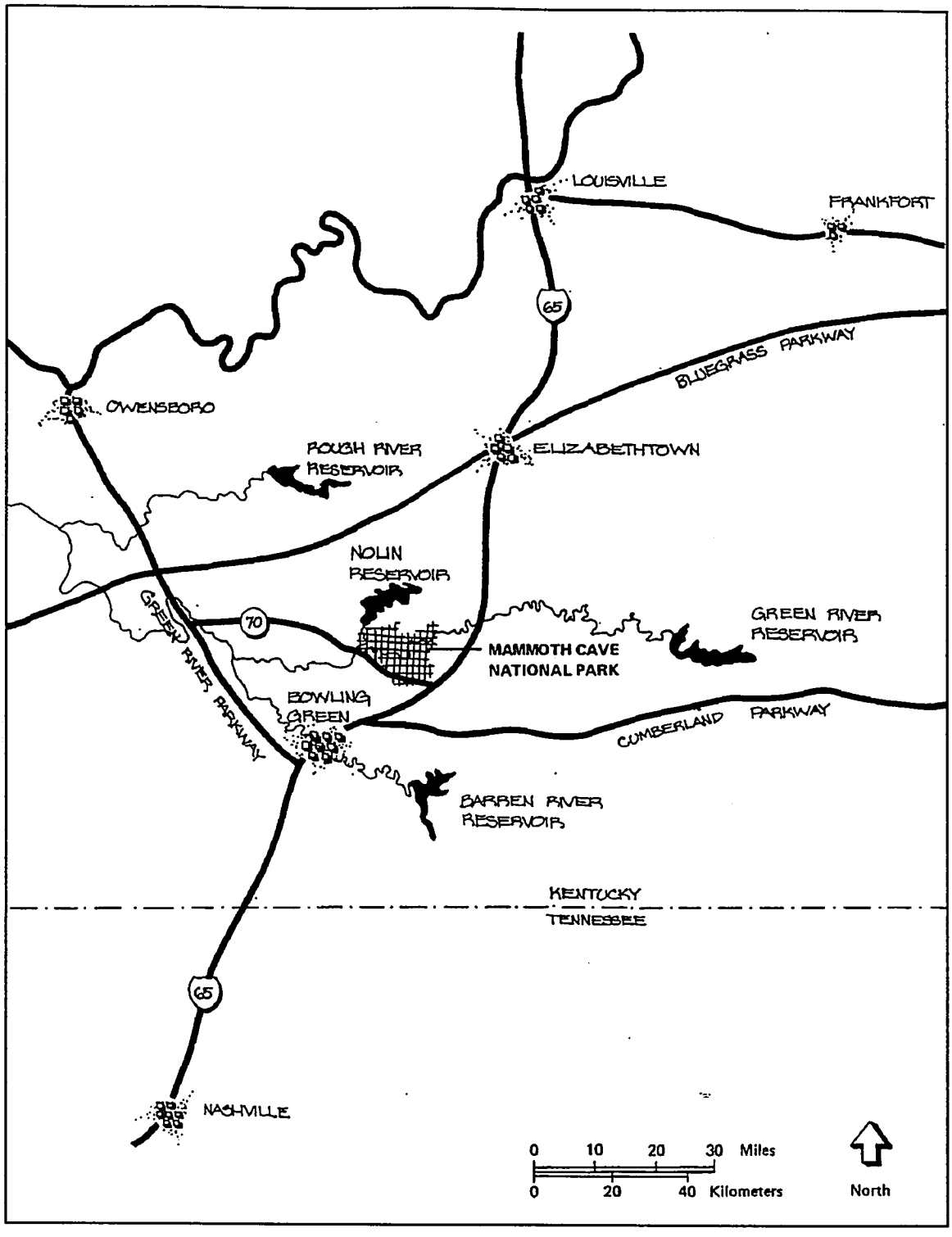
INTERPRETIVE PROSPECTUS



MAMMOTH CAVE NATIONAL PARK

KENTUCKY
1995



VICINITY

MAMMOTH CAVE NATIONAL PARK

EXECUTIVE SUMMARY

The interpretive prospectus for Mammoth Cave National Park will provide interpretive direction for the park for approximately the next 10 years. The basic elements of the plan are summarized here.

A major renovation of the existing visitor center is recommended. The ticketing and information functions will be relocated; a dedicated exhibit space will be reestablished, a first for the park; a new sloped-floor theater is recommended, with a new geology-theme audiovisual program; space for sales publications and related material is increased. The result will be a more functional and visitor-friendly complex with adequate interpretation of those themes which can be most effectively treated by non-personal media.

The visitor center elements will complement the cave experience. Entering the cave for most first-time visitors will become an individual discovery experience in which visitors are free to move through an attended section of the cave at their own pace. Added to this basic introductory attended cave experience will be a number of guided tours for those with time and interest. These programs will be organized and publicized in a way that makes it clear there is a hierarchy consisting of three levels: the *introductory* attended experience which is available to all and does not require reservations; guided *general* tours handling substantial numbers of people and for which reservations are strongly recommended; and guided *specialized* tours which are intended for smaller numbers of people and require reservations.

This plan also recommends ways in which the cave resource can be put into context with the region's karst ecosystem, including the Green River, and surface biotic communities.

The long human history of the area will be interpreted. Visitors will become acquainted with the Native American presence, the patterns of subsequent settlement, tourism activities and the years of exploration, and other aspects. In addition, past, present, and future human impacts on the cave system and related park resources will be interpreted; in this way visitors will understand the park's resource management goals and will use the knowledge to enhance their concern for the environment as a whole.

FOREWORD

The Interpretive Prospectus is the key to interpretive planning. It is primarily a media prescription, selecting the media that are best suited for the interpretation of the national park's themes. The prospectus deals with wayside exhibits, audiovisual programs, museum exhibits, publications, and to some extent personal services. Personal services to be provided by the park's interpretive staff will be treated in greater depth in an operations plan, prepared by the staff and called Annual Statement for Interpretation and Visitor Services.

The prospectus is a concept plan. It lays the groundwork for subsequent planning and design. No funding comes automatically as a result of the plan. Rather, it is the responsibility of the park staff in conjunction with the regional office, to use the programming process and other sources to fund implementation.

CONTENTS

INTRODUCTION

THE RESOURCES

The primary challenge for interpreting the resources of Mammoth Cave National Park is to place the visitor's park experience within the broader context of the region's karst landscape. The Mammoth Cave system, as the world's longest known cave, will justifiably remain the central aspect of the visitor's experience. However, if the cave is to be truly understood and *all* the park's resources appreciated, the interdependence of the cave and the rest of the karst ecosystem must be clearly communicated.

THE KARST SYSTEM. Mammoth Cave is situated within a 450-foot thick layer of Mississippian Age limestone which was deposited in a warm, shallow sea more than 300 million years ago. Perhaps as early as 10 million years ago water began forming the early passages of Mammoth Cave within the continuous unit of limestone which connected the higher recharge areas of the ancestral sinkhole plain to the lower primordial springs along the Green River. The Green River, which constitutes the regional base-level stream, has been the major factor controlling development of the cave system. As the river episodically eroded its streambed, the cave responded by creating lower passages to reach the new base level. This relationship, which continues today, has resulted in a vast three-dimensional network of cave passages.

Research has demonstrated that the groundwater of the Mammoth Cave System comes from land far beyond the park boundaries. These privately owned lands, comprising more than 60,000 acres, extend southward across the sinkhole plain and include the drainage of some 20 sinking creeks. Water in this region is channeled underground where it winds its way through the lower levels of the cave, and finally surfaces through springs along the Green River.

The Mammoth Cave System is perhaps the most striking manifestation of this karst region. The cave is characterized by multilayered passages of unlimited size and complexity. Habitats range from very dry upper passages to the underground streams in the lower levels. Vertical shafts

and their associated drains often transect several layers of cave along the present in only a few limited areas in the cave due to the overlaying sandstone and shale caprock. Sulfate minerals such as gypsum are found in great abundance in the dry passages under the caprock.

The ridges of the Mammoth Cave plateau and the Green River also provide a number of karst topographic features of interest. Surface trails lead to springs, karst window sinkholes, and bluff overlooks.

FAUNA. The combination of the topographic variety associated with the karst landscape and the temperate climate of the region provide a number of ecological niches. From the oak/hickory forests of the drier upper slopes to the riparian forest of the Green River floodplain, the park supports the rich biological diversity normally associated with mixed eastern hardwood forests. White tailed deer, wild turkey, and raccoons are frequently seen by even the most casual observers, while a variety of bird life, beaver, or coyotes can be observed by visitors actively seeking a wildlife viewing experience.

The Green River, known to be one of the most biologically diverse rivers in North America, supports an unusual variety of fish—including five endemic fish species and three species of cave fish. Over 50 species of mussels are found in the river, including seven which are on the endangered species list, and four other species which are candidates for the list.

Historically, Mammoth Cave had large populations of bats. Though populations have declined, there is still great diversity. Currently, there are 12 species, including two endangered and three candidate species for which habitat is being managed toward their recovery. The cave provides habitat for over 130 species of animals, making Mammoth Cave one of the most diverse cave ecosystems in the world. One endangered species, the Kentucky Cave Shrimp, is endemic to the Mammoth Cave area.

FLORA. The diverse vegetation found in the park results from a mosaic of forest communities with elements from both mixed mesophytic forest to the east and oak/hickory forest to the west. Additionally, a number of micro-environments supporting remnant plant communities can be found. Northern Hemlock and other northern plants

grow in the mist of ravines or cave entrances. Grasses associated with prairie habitat can be found in isolated patches of open barrens. Small but biologically diverse wetland habitats are scattered around the park in areas with low soil percolation. Some 900 species of flowering plants have been confirmed in the park, and of these 21 are currently listed as endangered, threatened, or of special concern.

CULTURAL RESOURCES. Mammoth Cave National Park has internationally significant cultural resources which include prehistoric archeological sites and objects, as well as historic structures. Cultural resources include many underground cave resources. The "time capsule" nature of dry upper level passages in Mammoth Cave has preserved insitu archeological evidence of early Native American exploration and mining. Chipmarks along cave walls, smoke-blackened ceilings, artifacts—including cane reed torches, handwoven vegetable fiber sandals, and the mummified remains of human beings—indicate several thousand years of human involvement with Mammoth Cave and other park caves. A 1990 survey of aboveground archeological resources identified 1,008 sites dating from the Paleo Indian through the Mississippian Period.

The first use of Mammoth Cave and other park caves by Europeans was as a source for saltpeter. The quantity and quality of the Mammoth Cave saltpeter was such that the cave was intensely mined. The remains of the saltpeter works in the historic section of Mammoth Cave constitute one of the principal cultural resources viewed by park visitors.

Aboveground resources include mostly structures constructed by the Civilian Conservation Corps (ca. 1935) in the development of the park. Pre-park structures include numerous artificial cave entrances; the Crystal Cave Ticket Office, associated house and cave entrance; three church buildings (ca. 1900), and over 70 identified cemeteries, including some large community cemeteries.

The "Hercules" steam locomotive and coach is listed on the National Register of Historic Places as an historic object. Other objects in the park collection include over 5,600 negatives and photographs taken by the Civilian Conservation Corps during the establishment of the park, rare books

and documents, tourist artifacts, and items associated with the rich history of cave exploration and guiding.

MAMMOTH CAVE AREA INTERNATIONAL BIOSPHERE. The 216 square kilometers (52,830 acres) of Mammoth Cave National Park are the core area of a 536 square kilometer (134,000 acres) International Biosphere Reserve that was dedicated in 1990 as part of the UNESCO Man and the Biosphere Program. The transition zone (zone of cooperation) of the reserve is the groundwater recharge area that surrounds the park. The principal monitoring and research themes of the Biosphere Reserve are groundwater hydrology, water quality, the effects of agricultural land uses, the health of freshwater ecosystems, and atmospheric pollutants. The principal goals of the Biosphere program are conservation of biodiversity and economic development on a scale sustainable over the long term.

Within the zone of cooperation, the principal economic goals are sustainable agriculture and the development of environmentally compatible industries including tourism related businesses. Development in this area is coordinated through the Barren River Area Development District (BRADD) in accordance with the broad goals for sustaining the regional ecosystem.

LEGISLATIVE HISTORY

Legislation pertaining to Mammoth Cave National Park extends over the period from 1925 to 1954. The most significant act was passed in 1926; 44 Statute 635 authorizes the establishment of Mammoth Cave National Park.

In addition to this federal legislation, the status of Mammoth Cave as an international resource has been recognized by the United Nations. It was designated a world heritage site in 1981 and an international biosphere reserve in 1990.

THE VISITORS

The primary attraction for visitors to this park is the cave. About 566,185 people went on cave tours in 1992. According to preliminary findings of a visitor survey now underway at the park, 75% of all visitors go on at least one

cave tour. Other activities engaged in by substantial numbers of visitors included driving for pleasure, hiking, horseback riding, picnicking, photography, nature/wildlife observation, taking a boat trip on the Green River, and using concession facilities such as food services and souvenir sales.

The survey provides other information about visitor use:

- Almost 40% of visitors were from the states of Kentucky and Ohio.
- 8% of visitors can be classified as local users.
- 40% stay for one day; 37% stay in the area for two or three days; 13% stay for more than three days.
- Visitors may enter and leave the park multiple times.
- 51% were on their first visit; 48% had visited previously (some as many as three times before).
- For 57% of visitors, Mammoth Cave National Park was their primary destination; 42% visited en route to other destinations.
- The three most popular cave tours were the discovery tour, the historic tour, and the Frozen Niagara tour.
- Almost half of all visitors knew there was a reservation system for cave tours, but a minority used the system.
- Almost half of all visitors remained in the visitor center area while waiting for tours. Of these, 50% waited 30 minutes or less; 34% waited from 30 minutes up to 1-1/2 hours.
- In 56% of the groups interviewed, the highest educational level attained was a college or advanced degree.
- 56% described their household incomes as $40,000 or more.

- A substantial number of children, age 17 or under, are represented in the total visitation.

Most visitors to the park come during the months of May, June, July, August, September, and October, with the peak in July.

More than 600,000 visitors entered the visitor center in 1992 and were provided orientation, cave tour tickets, and opportunities to purchase interpretive publications and view audiovisual programs.

Visitation trends for the next decade have been projected at various rates, with the resulting increase from 34% (low end estimate) to 94% (high end estimate), depending on whether the dramatic increases of the last several years are maintained at the same level, or the more moderate trend of the 1980s prevails. In either case, parking, cave tour capacity, and visitor center capacity are now inadequate during part of the summer months. Any increases in the future will further strain the park's ability to provide a quality experience. Some changes instituted by the staff in recent times have mitigated the crowding to a certain extent (the reservation system, the attended station Discovery Tour), but additional measures are needed in the future.

PLANNING

A number of documents have been prepared to guide management and development of the park. Those documents having a direct bearing on interpretation include:

GENERAL MANAGEMENT PLAN - 1983. Recommends elimination of the staging area concept for relocation of parking and basic visitor services outside the park. Suggests reevaluation of a way to handle these needs when visitation warrants in the future. Other recommendations include relocating the job corps center, improving access to the Green and Nolin Rivers, implementing a cave research and exploration program, and construction of a visitor contact facility in the northern part of the park.

STATEMENT FOR MANAGEMENT - 1990. Describes the purpose and significance of the park. Analyzes existing conditions. Lists major issues and management objectives.

MAMMOTH CAVE NATIONAL PARK - CHALLENGE FOR THE FUTURE - PREPARING FOR THE 21ST CENTURY. Describes goals and an action plan for the period from 1991 to 1996.

MAMMOTH CAVE NATIONAL PARK - VISITOR CENTER COMPLEX DESIGN PROGRAM - 1991 AND 1992. Outlines the goals, character and theme, site and building concept, and preliminary design elements of a substantial renovation to the existing visitor center complex.

The rationale for this major renovation is based on the increasing visitation and the GMP recommendation to restudy ways of dealing with it. The report addresses visitor congestion and limitations of the existing administrative and visitor service facilities.

The report suggests moving information and ticket sales across the plaza to the current administrative wing. Most administrative offices would be shifted to a newly acquired property elsewhere in the park. Exhibits and audiovisual theater and association sales would share the existing visitor center wing, with consolidation of public restrooms. Two sheltered amphitheaters/roofed staging areas would be provided. Building exteriors would be enhanced as well as the landscape design around them. Natural and play sculptures and water features would be added.

STATEMENT FOR INTERPRETATION - 1992. This document describes existing interpretive facilities and services. It provides an annual operating plan, individual service plans for each activity presented by the interpretive staff, and lists goals, themes, and objectives.

EXISTING CONDITIONS

Existing conditions in several areas affect the interpretive program of the park. They set the stage for the recommendations contained in The Plan section of the prospectus.

STAFFING. Like many parks in the National Park System, Mammoth Cave National Park has experienced increasing visitation while staffing levels have decreased. This has affected all divisions. For example, decreased staffing and budget are making it difficult for the park to keep up with

the increased trail maintenance required as a result of increased visitor use of trails.

Another result is that the interpretive staff can no longer provide a personally guided cave tour for all visitors as it did in the past. In a park with a long and proud tradition of personal services, this has been a significant and unwelcome change. The desire to give everyone a guided tour, without increases in staffing, led to a situation in which several hundred people might go on a single tour—increasing the impact on the resource, diminishing the visitor experience, and making it more difficult to provide effective interpretation. The park has since made good progress in decreasing the size of tour groups, with the trade-off being that not all visitors can be accommodated on guided tours. Many visitors now experience the cave through the "Discovery Tour" which offers interpretive messages at stations attended by uniformed interpreters and also in wayside exhibits. In this way no one is turned away and most, if not all, have a cave tour option available to them.

INTERPRETIVE FACILITIES. An exceptionally high proportion of visitors use the existing visitor center. This is where cave tour tickets are dispensed and where people can learn about park features and attractions. There can be significant waiting periods for people who wish to take a guided tour and this time is frequently spent in the visitor center area. This facility also functions to augment interpretive messages provided within the cave. For all these reasons, the visitor center is an important stop for visitors.

Unfortunately, the building as it is currently sized and configured does not carry out these functions adequately. Also, the park experience and orientation to it at the visitor center should be better organized. It is a real effort for visitors to sort out all the different tours to determine their desired experience. They are assisted by information desk personnel, publications, video monitors, and ticket sellers. But the combination of a confusing array of tours, long ticket lines in a crowded space, frustrating sellouts of tours, and interpretive media shortcomings make this visitor center complex in prime need of major renovation.
Exhibits, except for some interim units in inadequate space, are almost completely absent inside the visitor center.
Exhibits outside the visitor center are more convenient for visitors waiting for tickets or tours. Flat panels depicting

the cave system, the relationship of cave and ground surface, hiking trails available, are joined by a diorama interpreting saltpeter mining. Not all subjects suitable to the exhibit medium have been treated and in some cases the treatment is not optimum. Of course, there is a limit to what can be done with exhibits in an outdoor setting.

Current audiovisual programs focus on the park's cultural history, and do not deal with geology or biology—two major themes which are difficult to convey through personal services. The theater is adequately large, seating 150, but it has a flat floor which results in obstructed viewing. The ceiling is too low to elevate the picture to solve this problem. It is very difficult to create an optimum viewing experience in a theater this large when it has a flat floor.

The association sales operation offers a good selection of titles. The items are well-displayed. The chief problem is that the space is not adequate to handle the large numbers of people who wish to use the area. When visitation is heavy, sales volume has been known to decline because the area becomes too crowded. Theft is also a problem during these crowded periods.

At other locations in the park, interpretive devices should be improved. Wayside exhibits have been placed at overlooks, along trails, at historical sites, and other places. Not all appropriate locations have panels. In some cases the design, messages, and siting of existing panels need revising. A series of panels are located in the historic cave entrance area as self-guiding devices. The park has devised a lighting system on these cave-installed waysides that appears to work well. Care should be taken to ensure that lighting on panels does not distract from the cave.

Another major grouping of wayside panels is located on the walkway, between the parking lot and the visitor center. Large vertical panels and three video monitors explain the cave tour choices and display the current status of tours. A problem arises from the complexities of multiple choices—different routes and features, involvement of buses for transport in some cases, varying times of tours, and changing status of tours. This is a lot to try to convey in a wayside installation. Simplifying and organizing the experience options will solve this orientation problem and permit the assemblage to be removed.

RESOURCE MANAGEMENT. Caring for the environment and protecting resources must be interpreted to the visiting public. Enlisted as allies, they will join park managers and neighbors in fostering a sustainable economy here and use this knowledge elsewhere when they leave.

Protecting the park resources involves action and development considerations within the park boundary and beyond. Increased vigilance will be needed to ensure that park staff, concessioner, and visitor activities do not adversely affect the resources both above and below ground. Whenever possible, impacts of past activities must be mitigated or reversed. For example, under the approved plan for the park's new sewage collection and conveyance system, the old sewage treatment will be removed from the floodplain. Extra expense was incurred to ensure that the highest grade of sewage pipe available will be used to protect the cave resource, and an additional 30,000 gallon storage facility was added to protect groundwater resources in the case of major system failure. In another case fungus, soot, and lint introduced into the Snowball Room by food preparation, lanterns, and the presence of large numbers of people had blackened gypsum formations. This area has been successfully cleaned, which has returned the Snowball Room closer to its natural state. Perhaps the most profound change in operations designed to protect cave resources has been the strict enforcement of tour limits. Visitors are often frustrated by the limited capacity of tours, but this is an opportunity to explain the nonrenewable nature of the cave environment, and how it must be managed to provide long-term visitor enjoyment and resource protection. Many of these efforts can be interpreted by wayside exhibits or personal services on cave tours.

Likewise, water movement into the park from outside park boundaries has meant that park staff must work in partnership with landowners who occupy the recharge basins of the karst aquifer. As water is channeled from sinkholes outside the park into stream passages inside the park, water quality is affected by agricultural pesticides and fertilizers, sewage treatment practices, livestock waste, and garbage dumping. The park has initiated a number of projects in cooperation with local, state, and federal (i.e., SCS, NRCS) agencies to change some long held land use practices in the area. The visiting public needs to be made aware of these efforts and encouraged to support similar efforts for the protection of groundwater resources.

RESERVATION SYSTEM. The servicewide reservation service contractor handles offsite sales and advance reservations for the cave tours. People who have been to the park before have the least difficulty in dealing with the reservation system. First-timers, if they know about the system, are inclined to need considerable information before making their choices. The information is provided by contractor employees who have never been to the park and whose chief function is to sell tickets. The complexity of information and lack of firsthand experience by the ticket sellers has led to frustration on both sides. The park management has attempted to improve the system by providing printed information to the contractor and suggesting that visitors be referred to the park telephone number for more detailed information. In the past, some callers have received repeated busy signals; the contractor has recently added personnel and improved this situation.

In arrangements like this, there will always be a certain amount of fine-tuning needed and the staff continues to work with the contractor to this end. The area that needs the most improvement in the future is describing the various levels of visitor experience opportunities available in a simple, easily understood manner. This will help all visitors; those who wish to make reservations in advance will benefit; the park staff will be relieved of some work; and contract services will be used most efficiently.

CAVE TOURS. Cave tours are offered on both an attended station and guided basis. The Historic Entrance is used for some tours. Man-made entrances at several locations are used for other tours. Restrooms and a concession-operated lunchroom are located in the cave. A small elevator has been newly renovated for visitors with disabilities and other visitor access.

> **Attended station tours:** The 30-45 minute Discovery Tour begins at the natural entrance of the cave, the closest entrance to the visitor center. It is the least expensive tour, at $2.00 per adult. Waysides and interpreters at attended stations offer interpretation. It tends to lean toward cultural history in the personal services medium, and toward natural history in the waysides, which may need altering. Logistics and locations of attended station

talks are still being fine-tuned since this is a relatively new approach to cave touring in this park.

Guided tours: Currently nine tours are offered at fees ranging from $4.00 to $30. Some involve bus transportation to other cave entrances by concession vehicles, for which the concessioner receives a portion of the fee. The general tours, handling the largest numbers of people, are the Historic Tour, the Frozen Niagara Tour, the Cleaveland Avenue Tour, and the Travertine tour. A relatively recent addition is the Making of Mammoth tour which focuses on geology and visits the Echo River where boat rides were once available. Other tours are designed for children, for in-depth experience, or special purposes.

The combination of increased visitation, erosion of funds, and the need to hold the maximum number of people on standard tours to 100 has led to the elimination of longer, less cost-efficient tours. Schedules have been steadily reduced in the winter in order to conserve resources for the peak visitation of summer. The fall season is characterized by high weekend visitation through mid-November. Spring is now a very significant visitor season with Easter and spring break experiencing summer-like crowds. Summer remains the primary visitor season, with all guided tours selling out daily by 11:00 a.m.

INTERPRETIVE THEMES

Mammoth Cave National Park and its biosphere reserve comprise an internationally significant limestone karst topography system. This theme includes the following topics:

- connection of the sinkhole plain to the Mammoth Cave system
- the central role the Green River plays in the development of the karst system
- landscape features that are expressions of karst geology
- factors that contributed to the formation of the world's largest cave system
- the International Biosphere and how the natural hydrological boundary defines the biosphere.

The diversity of habitats protected in Mammoth Cave National Park provide sanctuary for a wide variety of flora and fauna communities, some of which are of international significance and endangered. This theme includes the following topics:

- habitats in Mammoth Cave National Park
- unique attributes of cave life-forms
- endangered species found in the park
- the interrelationship of the surface and subsurface communities.

For over 10,000 years people and the Mammoth Cave region have interacted, each leaving their imprint upon the other. This theme includes the following topics:

- human use of the surface and subsurface resources of the park
- attractions of the cave system to people over time

- human settlement of the area
- park and visitor interactions.

Mammoth Cave National Park is faced with many external and internal challenges that affect visitor use and resource protection. This theme includes the following topics:

- human impacts on the cave and surface resources
- threats to groundwater quality from outside the park
- actions by government, local businesses, and private citizens to preserve natural and cultural features in and around the park
- roles, responsibilities, and opportunities of visitors.

GOALS AND OBJECTIVES

MAMMOTH CAVE NATIONAL PARK'S GOALS ARE:

1. To protect unimpaired the park's natural and cultural resources.

2. To increase public knowledge, understanding and appreciation of the park and the National Park Service.

3. To provide *all* visitors an enriching park experience.

4. To achieve excellence by developing human resources.

THE INTERPRETIVE OBJECTIVES ARE:

1. To create public understanding and appreciation of the national and international significance of the park's resources.

2. To demonstrate the park's place within the National Park System, the World Heritage Site program, and the Man and the Biosphere program.

3. To instill an understanding of the interrelationships of the park's primary resources with the karst ecosystem as a whole.

4. To foster within the visiting public and park neighbors a sense of individual responsibility for the wise stewardship of the environment in general and groundwater resources in particular.

5. To provide the information and/or activities necessary for visitors to safely participate in all recreational opportunities within the park.

THE VISITOR EXPERIENCE

The provisions of the plan are intended to accomplish the listed objectives, to interpret the outlined themes, as well as to improve existing conditions. The following general guidelines will shape the interpretive program and the facilities in the future to produce a high quality visitor experience for the many visitors to Mammoth Cave National Park.

- The park's interpretive offering will strive to provide an in-cave experience for as many visitors as possible without impacting the resource or compromising minimum interpretive standards.

- The basic cave experience offered to visitors, especially first-timers, will be in an attended section of the cave, either near the Historic Entrance or in other suitable areas.

- Several guided tours will be designated as the general tours, with others continuing to be available but clearly earmarked as specialty, low-volume tours.

- The cave system will be linked to other features of the region's karst topography so that visitors leave with an understanding of the complete hydrogeological process involved. It will be clear that the surface and subsurface are linked together in a complex ecosystem and both aspects must be experienced to understand the whole. An increase in emphasis on the karst hydrogeology should include an increase in tours that feature geology.

- Cultural history and natural history themes will be appropriately balanced and integrated.

- Layers of involvement will be designed so that different interests and time frames can be accommodated and each additional activity will build on previous ones to create a rich experience. This will better serve visitors who have waiting time before a tour; it will enhance multiple visits; it will provide more opportunities. On the surface, self-

guiding activities can be packaged to combine roads, trails, natural, cultural, and recreational features in a useful way.

▪The visitor center media and other nonpersonal media, will complement the personal services interpretation provided at attended stations and on conducted tours.

▪Efficiency of interpretive operations and the design of a high quality visitor experience should be the goals of the visitor center renovation. Previous space studies of 1991 and 1992 will provide the starting point, with some modifications to better integrate the recommendations of this interpretive prospectus.

The visitor center will be enlarged to offer adequate exhibit space, a high quality audiovisual program, a well-designed and efficient ticket sales area, a bigger sales publications display area, and good spatial relationships between these functions.

▪The ticketing procedure will be expedited.

▪Pre-visit and en route information will be improved.

▪The development of interpretive media on the north side of the park will be consistent with its backcountry character.

▪The parkwide wayside system will be upgraded. Waysides will interpret all themes and complement other media. Appropriate maintenance and trail/site development must accompany wayside development.

▪Protection of park resources will be interpreted in a positive way by outlining resource management programs and achievements, including cooperative activities with neighboring landowners.

▪Visitor orientation will convey an understanding of the basic nature of this cave, as it differs from other caves they may have seen or know about, so that people do not have unmet expectations.

THE VISITOR CENTER

All of the existing functions in this building complex will be expanded and/or changed in some way. The goal of this development is to provide a facility which will accommodate visitor and park needs into the foreseeable future.

Various elements of the expanded visitor center are illustrated in sketches, as a starting point for development concept planning and comprehensive design for this project at some time in the future. The chief differences from the 1991/1992 space study are: (1) Ticket sales and reception are separated, with easy exit to the plaza from both spaces. (2) Restrooms are moved closer to the entry area. (3) A new audiovisual theater is recommended to be built, to provide a better viewing experience.

INITIAL ORIENTATION. The initial orientation at this complex will be provided outside by a large upright wayside exhibit en route to the building. This panel will illustrate a typical cave passage, preferably in an attended station area of the cave. The attended sections of the cave will be described as the basic subsurface activity. In addition, several places on the surface will be highlighted (such as various features along the River Styx and Heritage Trails, Cedar Sink, Turnhole Spring, the Green River, or Mammoth Dome Sink) so that the message outlines a karst topography experience, not just a cave experience. A lesser element on the panel will point out that guided tours are also available and tickets must be purchased for these. Only the general tours should be listed on the panel. Visitors will be referred to the information desk for a description and schedule of the low volume specialized tours.

This panel is intended to replace the existing assemblage of vertical wayside panels and video monitors at the entrance of the complex. The replacement can occur immediately; major building changes are not a prerequisite.

RECEPTION AND TICKET SALES. After encountering the exterior orientation panel, visitors will proceed to a building unit which contains public restrooms, an information desk, and ticket sales—all the initial functions needed by arriving visitors. This building will be configured so that it is clearly the point of entry, rather than other building elements. Signage and design will assist in this undertaking. The goal in this building unit is to streamline

the initial contact so that people spend less of their time in the preliminaries and more time experiencing the park resources and the interpretive media and programs.

At the information desk, people will be helped with different orientation needs. Some will arrive with tickets, having made reservations in advance; some will have reservations but no tickets; some will have neither and will need additional information about gaining access to the cave or learning its location. People will want information about acquiring different kinds of tickets (to the guided cave trips and on the *Miss Green River* boat trip). They will also need to learn what else the park offers.

In the information desk/lobby area, a series of information/orientation panels will graphically illustrate various activities one can enjoy in the park and major features of interest. A large map will be provided, showing primary surface roads, trails, cultural and recreational destinations, and cave entrances. This may be an enlarged copy of the proposed new park folder map, if it serves the purpose. These panels will be accompanied by video monitors displaying the current status of guided tours and displaying short, unnarrated clips of different tours, if possible.

These orientation devices may spill out into a sheltered gathering space in the entry area. In addition, a short interview with an interpreter on video might feature a one-minute answer to the question, "How can I see the Mammoth Cave?" Because it will have a sound component that might interfere with information desk operations, the gathering area outside might be the best site for one or more monitors containing this message.

Also in the lobby/reception area visitors would obtain a park newspaper and park folder. These free items are described in the publications section of this plan.

Many visitors could then exit the building, departing for the exhibits, sales publications, and audiovisual theater that are nearby, or leave immediately for either the attended station section of the cave or the assembly area designated for their guided tour.

After consulting the information desk personnel and orientation devices in the lobby, those who wish to purchase tour tickets would proceed into the ticket sales

area. At this point, visitors should be well-briefed. Ticket selling could proceed rapidly without additional information being requested from fee collection personnel. Then these visitors would also exit the building, without backtracking through the lobby unless they wished to do so.

If an entrance fee is initiated at Mammoth Cave National Park and the "Discovery" section (or other attended sections that might be developed in the future) is made available without additional fee or a ticket requirement, then orientation media will display that information. Otherwise, automatic dispensing machines might be provided to expedite the ticketing process. Removing these people from the ticket sales lines, so that only those wanting guided tours are in line, would be the single most important improvement that could be made in the ticket operation. More than half of all visitors would no longer be required to stand in ticket lines.

After exiting the reception/ticket sales area, visitors should easily find other functions in the complex, the historic entrance, or the two major trails in the vicinity which will have interpretive devices. Signing is extremely important and must be very visible so that it is not overwhelmed when large numbers of people are present.

Exterior entrances to public restrooms will be provided, to avoid congestion in the information lobby.

AUDIOVISUAL THEATER. A new sloped-floor theater, with fixed seating for about 150 persons (the same capacity as the existing theater) should be built. This would be an excellent environment for a new AV program that would provide not only a visual orientation to the hydrological processes which formed the cave, but also an orientation to the rich variety of habitats and biological diversity supported by the region's karst ecosystem. The program would be approximately 10 to 15 minutes in length so that it can be shown several times an hour to maximize visitors' opportunities to see it.

Elements that will be contained in the new audiovisual program include:

- formation of the limestone
- the erosion sequence
- the extent and complexity of the cave system

- cave features and speleothems
- movement of water from surface, to underground, to river
- cave exploration and surveying.

There is also an opportunity to reinforce how this cave system does not exist in and of itself, but is an integral part of a larger ecosystem complex. Secondary elements that should be introduced in the audiovisual program are:

- biological diversity of surface and subsurface communities
- vulnerability of groundwater quality in the Mammoth Cave karst ecosystem.

In addition to this program that will be shown frequently throughout every day, the existing cultural history film ("Voices of the Cave") and other programs related to park themes can be screened on a less frequent basis. "Voices of the Cave" should be edited to delete the gypsum mining sequence, because it gives the wrong impression about resource protection. The description of the prehistoric people as "Adena" Indians needs to be replaced by the more accurate description "Early Woodland".

PUBLICATIONS SALES AREA. A new larger sales display area will be designed. It will have a sales counter with cash register and some storage for stock, so that the need to restock is not as frequent during the busy season. The main storage for publications will remain elsewhere, with the business manager's office, in an administrative compound. A small office, however, might be provided as part of the temporary storage area at the visitor center.

Publications, maps, posters, videotapes and other items should have adequate display space. Space for people is especially important. The sales area should encourage browsing and might provide a few places to sit.

EXHIBITS. An exhibit room will be carved out of the existing ticket sales/lobby/AV theater area. Interior partitions will be reconfigured to create the space.

Mammoth Cave will need only a moderate level of exhibitry but requires more than a moderate amount of space for this function, for several reasons. It has a heavy visitor load to accommodate. So, plenty of circulation space must be

included. Also, the low ceilings of the existing building exacerbate the feeling of crowding when many visitors are present, reinforcing the need to include enough circulation space to reduce the impression of crowding. Some exhibit elements recommended will need considerable space because of their size or will require alcoves to prevent sound spill from AV components. Finally, a children's area must be situated in a way that enhances its use.

All the factors listed have the effect of increasing the amount of space that will be needed for the exhibit medium. The exhibit planning and design process should dictate the actual amount of space to be used; however, for general concept purposes it can be suggested at this time that about two-thirds of the existing space will be needed for exhibits and publication sales. The remainder of the existing space in the building can be partitioned off as a reserve for future expansion or for storage or other operational needs.

A focal point in the exhibit space will be a large three-dimensional model depicting the appearance and relationship of surface and subsurface features. The area to be depicted might be a familiar place, such as the visitor center vicinity, and would show the building/parking lot, the historic entrance, a portion of the cave, and perhaps another nearby feature of karst topography and associated trails. The purpose of the model is to help people visualize a three-dimensional resource, as well as link in their minds the above and below-ground worlds. It is very difficult when on the surface to understand where the cave is situated at that point, and vice versa.

This model should be large enough to walk around, should accommodate many visitors at a time, and not attempt to take on the tasks of typical park topographic models. It is intended to cover a more limited area and is more specifically focused in intent.

Another exhibit element will display objects and illustrations related to the long human history of the area—from American Indians, to miners, settlers and their descendants, earlier tourists and guides, CCC enrollees, and explorers. Possibly some audio messages might carry short excerpts from oral history interviews with people in some of these categories or scripted narrations that add information.

A subcategory might treat research and resource management efforts by the NPS and its cooperators. Panels and video units or audio messages might be included. One possible subject is the tracing of water movement by hydrologists; similarly, efforts to improve resource protection by sewage treatment facilities, changes in tillage practices, and animal waste abatement might be shown. The Horse Cave cleanup is a good example outside the park. Associated with this exhibit might be a dispenser containing a free folder connecting a visitor's home situation with environmental concerns here—the similarities, the possibilities. This idea would be continued throughout the park by selectively labeling or color-coding utility systems or other devices that hint at some resource management concerns (water fountains, lift stations, etc.).

The goal is to be as forthright as possible about the responsibility all of us have in environmental protection. As Pogo said, "We have met the enemy and he is us." He might have gone on to say that we can and must also be part of the solution. These days the endless reports of environmental degradation seem to be causing widespread malaise and a feeling that perhaps the cause is hopeless. We want to counter this feeling and empower people to do something about it, by a positive approach in our interpretation.

The ecosystem perspective might be visually communicated through the use of high quality photographs, displayed throughout the exhibit space, of various park habitats (both surface and subsurface) and associated life-forms (i.e., the Green River—a great blue heron; Sloans Crossing Pond—a bobcat; floodplain—wildflowers; oak/hickory forest—white tailed deer, etc.).

An additional exhibit unit would depict cave habitats and their inhabitants. Possibly cave crickets, blind fish, or other animals might be included. Endangered species might enter into this subject as well.

A final exhibit assemblage would select aspects of the topics described above and render them into a treatment suitable for children. They should be the focus of interpretive efforts intended especially for younger visitors, a group not well served in most visitor center interpretation. A large number of children will be present and it is desirable to usefully occupy their time while waiting for tours.

The children's exhibits could have interactive aspects and be handled with an "exploratorium" kind of approach. This concept will be further defined at the exhibit planning and design stage, preferably with the active involvement of children and adult educators. Freeman Tilden said that children's interpretation should not be merely a simplified version of that provided for adults, it should be a different thing altogether. It would be our aim to provide this different thing in an intriguing and engaging way. It would be located in a spacious area in a way that encouraged rather than inhibited active involvement by children, and did not impinge on adult enjoyment of other exhibits. At installations elsewhere it has been observed that adults frequently also enjoy child-oriented interpretation because it is fun and involves them actively rather than passively. As a result, family units may choose to spend time here.

A small area, in the lobby space outside of the formal exhibit space, would be set aside for rotating exhibits. This would be used to highlight special events, special emphasis initiatives, seasonal themes, etc.

INTERIM PLAN. It is recognized that the renovation of the proposed Visiter Center complex is a major construction project and will probably not be funded in the near future. However, significant progress can be made to improve the interpretive functions and move toward the full service facility envisioned.

The exterior orientation wayside panel and video monitors can be improved immediately. The interior space currently dedicated to a traditional film auditorium experience could be more effectively utilized through its conversion to exhibit space. The visual elements needed to convey the information, location, and complexity of the cave system can be provided either as video elements of new exhibits or in a big screen video format, mini auditorium within the exhibit room. This would eliminate the need for the current light baffle/corridor and closed doors. Additional lobby space would then be available for improved circulation, cooperating association sales or local tourism partners.

While there would not be enough space for full development of all primary interpretive themes, the goal of orienting people to the location, information process, and complexity of the world's longest cave can be achieved. Current exhibits—the video aquarium, or the saltpeter

mining diorama—could be utilized if space permits. Care would be taken to maintain enough circulation within the exhibit room to prevent overcrowding.

Brief "mini" talks are currently presented in the auditorium. This service could be continued by converting the exterior covered plaza area now occupied by the saltpeter mining diorama into a small outdoor auditorium.

The interim plan would be implemented with the long-range, full proposal in mind. No major alteration would be made that might impede the implementation of the full service plan.

TRAILS IN THE VISITOR CENTER AREA. Several trails near the visitor center will be developed to serve the large numbers of people who use the area. They will provide opportunities for those who are waiting for a tour; they will add site specific examples of ideas introduced in the visitor center; they will complement the cave experience. Since these trails will be the most used of any in the park, development and maintenance must have a high level of commitment; funding dollars for interpretive media production should have a high priority. The existence of these trails should be highlighted in visitor center orientation devices.

- The River Styx Spring Trail. This trail, following the historic approach of river-arriving steamboat passengers, has twin advantages. It leads to important surface karst features (springs, river, cave entrance) and it is ideally situated for the majority of cave visitors. The combination of the attended station Discovery Tour and a walk on this trail will bring together the pieces of the basic interpretive experience in the most compact area and with the least amount of effort.

  The trail needs an upright trailhead exhibit describing the distance, route, and attractions. The exhibit would be located in sight of the historic cave entrance. A few low-profile interpretive exhibits would be placed at important features along the trail. Directional signing would be installed, with distances indicated to the river and to the springs. These features would be enhanced by careful site design to improve visitor use. A landscape architect

should be consulted for this project. The objective is to make the experience more inviting and rewarding.

- The Heritage Trail. The Heritage Trail is also near the visitor center and has the advantage of being accessible to all visitors, without the elevation changes that are encountered on the River Styx Spring Trail.

  A series of wayside exhibits will interpret specific features along the way. Small labels will identify plants. The trail can be walked as a half-mile loop; this is the portion that most people will use. Spur trails will be used by lesser numbers of people for a longer hike and to gain access to features like the Mammoth Dome Sink.

  Improvements on this trail should include vista clearing, if necessary at Sunset Point, and improved directional signing.

Please consult the wayside exhibit section for a listing of individual panels for these trails and other park waysides.

Other connecting trails near the visitor center could be less highly developed but should still be well maintained and signed. Existing routes need to be simplified in some cases.

CAVE TOURS

Attended station sections of the cave will handle the largest numbers of visitors in the future. Currently, these take place in the cave area reached by the Historic Entrance. They may also occur elsewhere, if logistics and access problems can be solved.

The way the Discovery Tour is currently operated could be modified in several ways to improve the experience:

- Redesign the gathering/staging area at the mouth of the cave to mitigate the conflict between gathering people for the Discovery Tour entrance talk and the movement of guided tour groups through the Historic Entrance.

- Investigate possible ways to improve accessibility—stairs prevent use by people in wheelchairs or others whose mobility is restricted.

- Because this may be the only tour many visitors will take, increase the emphasis on geological topics during the interpreters' attended station presentations.

- Attended station interpreters need to be located where they can easily be seen and heard, and where they can observe the movements and actions of visitors in order to protect the resource.

- Allow wayside exhibits to carry the cultural history topics to a greater extent.

Guided tour participant limits should be set to ensure: safety of all visitors, protection of the cave resource, and interpretive effectiveness. Visitors will find that the current program has a wide array of choices. The staff will continue to experiment and revise tours and routes to improve the experience or offer new options. Orientation devices must be able to accommodate these changes in tours.

Tape tours for the discovery route might be tried by the cooperating association, to see if there is any visitor interest. A trial would also provide data for any serious future consideration of large-scale tape tours if interpretive staffing should decline to the extent that a major change was indicated. This may not ever happen, but it would be a good idea to know how well tape tours work.

OTHER PARK FEATURES

Beyond the visitor center area, scattered around the park, are an array of other features and areas of interest. Some are karst-related, associated with the primary geological resource that gives the park its national and international significance. Churches, cemeteries, scenic drives, recreational trails are secondary resources that are of local or regional significance and add considerably to park enjoyment. Some of these are on the little-used north side of the park.

These places should be developed to enhance visitor use, with specific activities and attractions packaged into self-

guiding visitor experiences. The park staff could select an area and prepare a site bulletin describing these activities and the route and length of time required to accomplish them. Alternatively, the park newspaper could describe three or so packages, with simple maps as well as text and illustrations that show the nature of the experience.

For instance, a visitor could experience the ride on the Green River ferry in a drive to the north side that included the scenic unpaved Maple Spring Loop drive and the Good Spring Church and cemetery. Birdwatching and other natural history pursuits could be joined with a cultural history experience on this route. The Little Jordan Road could also be considered as a possible scenic route.

Another area where this could be done is on the south side, a visit to Joppa Ridge Church and cemetery could be combined with a scenic drive and trail hiking, perhaps on the Turnhole Bend nature trail or to Cedar Sink. Yet another possibility is a loop that includes the Flint Ridge Road (for the adventurous) along with Mammoth Cave Church and Sand Cave Trail. In each case, natural and cultural history themes are combined, driving and walking are mixed, to create a package that will appeal to a variety of tastes.

These features have been available in the past but have not been assembled in easy-to-use packages, with adequate publicity. Many visitors will appreciate help in organizing their time and will be more comfortable with the idea of a specific commitment rather than open-ended rambling based on a park map. It will be easy to determine how such short trips will fit with their other plans, such as reservations for guided cave trips. Other visitors, who wish a less-organized visit, can continue to use a park map and explore on their own.

The north side of the park lends itself to organized group activities, such as those engaged in by school, scout, or other groups: birdwatching, backpacking, horseback riding, or plant studies. Theme events and field institutes would also be appropriate. This part of the park can be described as the "quiet side" with all the appeal it has for people who want to escape the crowds that flock to the park's main developed area in the peak season. It offers a more leisurely and uncrowded experience for groups or individuals.

To make this side of the park more inviting, it would help to have signing on the Green River ferry road to encourage motorists, with distances to features such as the Good Spring Church and the Maple Spring loop. People frequently double back after crossing the ferry, perhaps because that was their only objective, but possibly because they didn't know what lay ahead.

These features will be reached by a mixture of roads and trails needing adequate maintenance and signing. Interpretation will be provided by site bulletins, waysides, and park newspaper stories. The publications and wayside exhibit chapters provide details on those devices.

WAYSIDE EXHIBITS

Wayside exhibits are best used to interpret specific visible features or to provide orientation, such as at trailheads. Wayside exhibits do not work well to interpret broad or complex themes, or to interpret themes for which there are no clearly visible features. At Mammoth Cave National Park, wayside exhibits are appropriate at a wide variety of sites throughout the park, both on the surface and within the cave, and can serve both interpretation and orientation functions.

The waysides will have a family resemblance, contain text and illustrations, be weather and vandal resistant, and be easily replaced. Some will be vertical, high-profile panels; others will be oblique-mounted, lower profile panels. Panel sizes will vary. All will have site preparation requirements.

These panels will incorporate current NPS media accessibility standards to ensure basic interpretation to disabled visitors. Exhibits in the front country and on accessible trails will be placed on hard-surfaced pads at the proper height and angle to serve visitors using wheelchairs. All type faces, sizes, and colors will be selected so that they can be easily read.

In addition to standard size wayside panels, small plant identification panels are recommended for various locations, especially areas of heavy visitor use such as near the visitor center and hotel, and along the Sunset Trail. They would include the plant's common and scientific name, and a brief interpretive statement about the plant.

CAVE INTERPRETIVE EXHIBITS. Waysides within the cave are appropriate in areas where visitors are free to walk on their own. At present this is in the area used by the Discovery Tour. The existing waysides in this area seem to work well, with a self-contained lighting source for each panel. Like all wayside exhibits, wayside interpretation within the cave should focus on visible features.

If other attended sections of cave are initiated, wayside exhibits will also be appropriate to interpret those features.

SURFACE INTERPRETIVE EXHIBITS. Waysides will interpret a variety of features associated with all park themes. The first priority for production would be panels associated with features related to the nationally and internationally significant karst topography landscape. The second priority would be panels which deal with resources of local or regional significance.

In addition, the park offers a series of short interpretive trails which lead to a variety of features. Each trail should have an orientation trailhead exhibit. Waysides are also appropriate at some of the features found along the trails. But, in some cases, it may be more appropriate to handle interpretation along a particular trail with a trail brochure. When wayside exhibit planning is funded, the merits of waysides versus an interpretive brochure should be carefully considered for each trail. As mentioned previously, the highest priority are the River Styx Spring Trail and Sunset Trail, because they will have high volume use.

Orientation will be provided on a panel that is reached en route to the visitor center. It will replace the existing multipanel/video monitor installation.

LIST OF PROPOSED WAYSIDE EXHIBITS. The following is a list of proposed new wayside exhibits and existing wayside exhibits which need replacement. The list reflects the park's review of priorities presented by the interpretive prospectus team.

	Location	Subject
1.	Visitor Center	Orientation
2.	Heritage Trail	Trailhead
3.	Heritage Trail	Hotel

	Location	Subject
4.	Heritage Trail	Historic entrance
5.	Heritage Trail	Cemetery
6.	Heritage Trail	Green River Valley
7.	Heritage Trail	Caprock environment
8.	Heritage Trail	Sewage lift station
9.	River Styx Spring Trail	Cemetery
10.	River Styx Spring Trail	Green River entrenching
11.	River Styx Spring Trail	Underground rivers/springs
12.	River Styx Spring Trail	Water gauges
13.	River Styx Spring Trail	Green River
14.	Historic entrance	Geologic formation of entrance
15.	Historic entrance	Microenvironment
16.	Dixon Cave Trail	Dixon Cave
17.	Mammoth Dome Sink Trail	Mammoth Dome Sink
18.	Green River Bluff Trail	Trailhead
19.	Green River Bluff Trail	Overlook of Green River
20.	Green River Ferry Landing	Green River
21.	Green River Ferry Landing	North Side Orientation
22.	Green River Ferry Landing	Ferry History
23.	Echo River Springs Trail	Trailhead
24.	Echo River Springs Trail	Springs
25.	Sloans Crossing Trail	Trailhead
26.	Doyle Valley Overlook	Karst Topography
27.	Doyle Valley Overlook	Air Quality
28.	Cedar Sink Trail	Trailhead
29.	Cedar Sink Trail	Cedar Sink
30.	Cedar Sink Overlook	Groundwater
31.	Sand Cave Trail	Trailhead
32.	Sand Cave Trail	Cave Wars
33.	Sand Cave Trail	Rescue efforts
34.	Sand Cave Trail	Park establishment
35.	Turnhole Bend Trail	Trailhead
36.	Discovery Tour	Poplar pipe
37.	Discovery Tour	Historic graffiti
38.	Discovery Tour	Rotunda
39.	Discovery Tour	Cave ceiling
40.	Discovery Tour	Bats

	Location	Subject
41.	Discovery Tour	Rock strata
42.	Discovery Tour	Breakdown
43.	Discovery Tour	Air movement
44.	Discovery Tour	Cave passage (location #1)
45.	Discovery Tour	Cave passage (location #2)
46.	Headquarters Campground	Park orientation
.47.	Houchins Ferry	Ferry history
48.	Houchins Ferry	Green River
49.	Good Spring Church	Good Spring Church
50.	Joppa Church	Joppa Church
51.	Mammoth Cave Baptist Church	Mammoth Cave Baptist Church
52.	Walkway to Historic Entrance	Sandstone caprock
53.	Snowball Room	History
54.	Snowball Room	Sewage disposal
55.	Snowball Room	Gypsum
56.	Snowball Room	Tube passageway formation
57.	Snowball Room	Orientation to surface

Plus 15 to 20 plant identification labels.

CONCESSION-PROVIDED MATERIAL

The concession lodge and eating facilities can offer simple interpretive messages and visitor orientation material. This might be done in guest rooms, lobbies, on place mats and menus. The park staff can assist with background information when existing material is revised and updated. It would also be possible to provide a duplicate of an orientation panel or panels used in the visitor center. Or, another possibility would be offering selected photos to be enlarged and displayed as framed images in guest rooms or elsewhere. In particular, the current emphasis on atypical cave features such as stalagmites should be changed to more characteristic scenes.

OFFSITE INFORMATION

A number of offsite locations can assist with visitor orientation and interpretation:

- Travelers Information Station. At one or more locations outside the park a travelers information station could broadcast short messages to car radios. These will be changeable. The main emphasis should be on describing the basic visitor experience, with content similar to the visitor center wayside orientation panel (self-guided tour always available, guided tours need reservations and have a fee, the cave as part of a karst landscape).

- Advance mailings could be provided by Mistix, the park, and others.

- Local businesses and the Welcome Center can be supplied with printed material or a simple information panel.

- The Kentucky Department of Tourism and the state park system central office might be provided with printed information so that their contacts include information about Mammoth Cave National Park, including a reference to the reservation system. This offsite printed material might be jointly produced by the convention center/park concessioner/and NPS or cooperating association in order to defray the cost.

PUBLICATIONS

A number of publications and other items are purchased by visitors as an extension of the interpretive program. There is a free park folder and park newspaper available, as well as a variety of other free handouts on various subjects.

Sales material is handled by a branch of the Eastern National Park and Monument Association. One outlet in the visitor center in 1992 had gross sales approaching $250,000. Although quite a large number of items are offered, site specific material is in short supply and should be increased. A new Mammoth Cave poster is in production now. This could be supplemented by smaller illustrations of animals typical of the cave environment. Children might be the target audience for these items. A road guide might be prepared to interpret features inside and outside the park; since the karst topography is a large area that extends beyond park boundaries, this interpretive concept might work well for a specialized audience with a particular interest in the subject and the time to search out good examples. There is also a potential market for a videocassette of the recommended new geology audiovisual program for the theater. The need for additional or revised trail guides should be evaluated.

The best way to proceed in an orderly manner with change in the sales program is to prepare a publication plan that identifies audience, objective, niche, and priorities for each proposed new or revised item. Such an effort would also help in gaining support and funding.

The free park folder has been converted to the full color unigrid format. It contains a cross-section diagram of a part of the cave, showing commonly used passages. The chief weakness of the folder is the lack of a parkwide map which is only available in the newspaper. A revision now underway will correct this, as well as add other new features.

The free park newspaper offers much good information. One possible change is addition of packaged self-guiding surface activities described elsewhere in the plan. Another possibility is dividing the paper into two color-coded

pieces—for the cave and the surface—partly to emphasize that the park is more than a cave. It might also be easier to use by visitors.

A free interpretive folder (site bulletin) could be prepared that would be distributed with tickets to the boat, *Miss Green River*. It would supplement the personal services interpretation by the concession boat operator. Alternatively, the park newspaper could cover this information.

A site bulletin format or an envelope sized card could supply the mail-out information material provided by Mistix, the park, and a number of tourism entities.

STAFFING AND PERSONAL SERVICES

Conducted cave tours, led by uniformed interpreters, have been and will continue to be an important interpretive activity at Mammoth Cave National Park. This is in part due to the safety concerns inherent with a cave environment and in part because of demonstrated resource damage when visitors are unattended in small passageways. Tour sizes range from 15 persons on specialized "wild cave" tours to 100 on Historic and Frozen Niagara Tours. Capacity on conducted tours is currently approximately 3,000 per day during peak visitation and 450 per day during winter weekdays.

In recent times two changes have affected the cave tour program: longer, less cost-efficient tours have been replaced with a greater number of shorter tours; and a self-guided tour has been developed. An additional 2,000 to 2,500 visitors are accommodated daily during peak season with an attended section of cave through which visitors can move at their own pace in large, less vulnerable passageways. Increasing visitation and erosion of budget are occurring against a backdrop of an increased understanding on the impact of visitation on the cave ecosystem. With tour limits strictly enforced to maintain an acceptable level of interpretive quality, the self-guided discovery tour was added to increase the number of visitors admitted to the cave.

In 1992, about 41 work years of permanent and temporary personnel were available to carry out the interpretation and visitor services activities in the park. This amounted to 82 positions. Fee collection (ticket sales) is also handled by this program. VIP and cooperating association funds augment the appropriated funds.

Mammoth Cave National Park has a long tradition of guided tours in the cave; however, there are some significant limitations to the conducted tour format:

- It is difficult if not impossible for interpreters to effectively describe the relationship between the cave system and the rest of the biosphere without visual aids, and visual aids do not work well with large groups inside a cave.

- The immense size and complexity of the cave system is difficult to convey during a two-hour conducted trip in the cave.

- Cave life-forms are inaccessible for the most part and cannot be shown on tours effectively.

For these and other reasons, nonpersonal services, especially audiovisual and exhibit media in the visitor center are needed to enhance the personal services offered. In defining the minimum interpretive program, personal services in the cave should be viewed as an important part of the experience, but not the whole experience.

Over the years, various attempts have been made to integrate surface themes into the interpretive program through personal services. With significant unmet demand for cave tours, there has been a reluctance to dedicate personnel to surface hikes. Mammoth Cave National Park is more than the cave and a uniformed interpretive presence should be maintained on the surface as well. This will consist of such activities as evening campfire talks in the campground and guided walks on trails.

Beyond those services provided for its own programs, the park's interpretive staff has opportunities to assist with the boat trips on the *Miss Green River*:

- by occasionally assigning an interpreter to the trip

- by helping to train concession operators who usually do the trip narration

- by producing a folder, if possible, as an interpretive handout for passengers. It would deal primarily with the river.

SPECIAL POPULATIONS

Provisions will be made to accommodate the needs of special populations who visit. Special populations are identified as those with sight, hearing, mental, and mobility disabilities; visitors who do not speak English; and the elderly and young children.

Accommodations will be made for physical access as well as programmatic access. Guidelines are available to assist park staff and media designers in increasing their sensitivity to the special needs of these groups. A number of such accommodations will benefit all visitors.

Some specific suggestions are listed here; others will be developed during later operational and design stages and will reflect the state of the art and standard procedures at the time of implementation. Since the Interpretive Prospectus is a concept document, suggestions in it for accommodations for special populations are necessary also at a concept level; they will be developed more fully in subsequent planning.

PHYSICALLY DISABLED

Three federal laws that require facilities and programs to be accessible are:

1. The Architectural Barriers Act of 1968. Official standards for making buildings accessible for physically disabled persons are contained in the 1984 Uniform Federal Accessibility Standards (UFAS).

2. Section 504 of the 1973 Rehabilitation Act (amended in 1978). This law adds programmatic access to the accessibility requirements.

3. The 1990 Americans with Disabilities Act provides standards for accessibility for a wide range of activities.

The 1990 Interim Draft Design Guide for Accessible Outdoor Recreation was prepared by a team of USFS and NPS personnel. It provides a comprehensive set of standards and guidelines for accessible outdoor recreation facilities, programs, and services and is intended for use by planners and designers. After review, it will be revised and issued in final form. This is the most specific guideline issued to cover typical park situations. The goal is to mainstream disabled persons so that they can enjoy park facilities, services, and resources along with other visitors.

An additional guideline has been prepared by Harpers Ferry Center and is entitled "Special Populations: Programmatic Accessibility Guidelines for Interpretive Media, 1991." This guideline deals with audiovisual programs, exhibits, historic furnishings, publications, and wayside exhibits.

In general terms, the accommodations needed at Mammoth Cave National Park will be:

- new buildings designed for physical accessibility, both by visitors and employees
- existing buildings modified for physical accessibility
- some trail experiences available to physically disabled persons
- wayside exhibits which take into consideration such design elements as contrast, type size, angle of mounting, height, etc.
- some accessible cave experiences
- publications which have been evaluated for contrast, type size, etc.
- AV programs which are captioned; when possible a choice should be available between captioned and uncaptioned programs (as in the closed-captioned system for video programs)

- exhibit contents which are situated spatially so that persons in wheelchairs can also be accommodated. Contrast and type size are appropriate for all visitors. Tactile elements are included when possible.

- tape descriptions and enhanced audio descriptions considered for large exhibit areas and for AV programs, perhaps for designated interpretive trails.

- information about accessibility to the park and its programs made available at the visitor center and in a mail-out format.

The park has already made progress in these areas and will continue to improve its accessibility situation for the physically disabled.

SPECIAL AGE GROUPS

Senior citizens coming to the park have varying capacities and interests just as other age groups do. They do not require special accommodation. However, those who have less stamina and agility or sight and hearing disabilities will appreciate the accommodations described in the physical disabilities section. Paved and even surfaced trails in the cave are a good safety feature for all age groups; in low light situations even able-bodied persons need safe footing. Keeping groups to a manageable size in the cave, with both a leading and a trailing interpreter, are also good safety measures. People need to know the conditions so they can judge for themselves whether to go on a particular cave tour; but if they do go, they will be more likely to get needed assistance when group sizes are not excessive.

Children come to the park as part of family groups and also with school classes. The provision of a portion of the visitor center exhibit space dedicated to interpretation for children will benefit and can be used by either individual children in family groups or organized school groups.

The park's designation as a world heritage site and biosphere reserve underscores the educational potential of the site and its surrounding environs. An effective and proactive environmental education program can help to increase understanding about the importance of protecting natural systems—rural communities, intensive agricultural, transportation corridors, and light industry within the

hydrological boundary of the park's biosphere can affect the park resources. For this reason, groups from the biosphere area will be given preference in the organized environmental education program. Other school groups will continue to have access to cave tours, visitor center media, and any other services the park staff is able to provide.

Guidelines for the **Environmental Education Program** are:

- The program will be directed at accomplishing the management objectives and the education goals defined by the Kentucky Education Reform Act.
- Curriculum development will be accomplished with direct input from the educational community to ensure usability and effectiveness.
- Curriculum will present the park and its Biosphere Reserve as a unified ecosystem defined in large measure by the karst aquifer system.
- Neighboring schools will be given priority in the scheduling of available dates.
- The environmental education coordinator will provide a fully accredited in-service workshop for all teachers selected to participate. This in-service training is a prerequisite to participation.
- Classroom preparation will be a fundamental component of the program.
- All schools within the biosphere boundary will be given a minimum of one offsite visit by a member of the environmental education staff. The visit will be integrated with the teacher's classroom preparation.
- Curriculum guides and supporting educational materials will be developed and provided for each grade level.
- Each class will be evaluated by the environmental education staff. Teachers will be required to provide written feedback on the curriculum and staff.

Mammoth Cave National Park is a popular destination for school field trips. The environmental education program is not designed for, and will not accommodate, last-minute requests from such groups; instead, separate strategies and materials will be developed for improving the overall educational experience of these groups. It should also be recognized that these groups have access to cave tours through the reservation system. Consequently, during the months of April and May, a large number of school groups arrive with no advance contact with the interpretive staff and they accompany the general tours offered in the cave. The noise and attention level of these groups can adversely impact the quality of the experience for others. The staff should discuss ways of mitigating the problem.

PARTICIPANTS IN THE PLANNING PROCESS
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United States Department of the Interior

NATIONAL PARK SERVICE
Mammoth Cave National Park
Mammoth Cave, Kentucky 42259

IN REPLY REFER TO:

K18

June 13, 1995

Memorandum

To: Chief, Division of Interpretive Planning,
Harpers Ferry Center

From: Superintendent, Mammoth Cave National Park

Subject: Approval for Mammoth Cave National Park Interpretive Prospectus

This memorandum will serve as our approval of the final draft of the subject document transmitted by Andy Kardos on June 1, 1995.

We understand that in addition to the standard printing of the Interpretive Prospectus, the park will also receive three copies formatted and printed in a manner compatible with the new Comprehensive Interpretive Plan as prescribed by the revised NPS-6.

We appreciate Don Kodak's assistance in bringing this planning effort to a successful conclusion.

for Ronald R. Switzer