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general management plan
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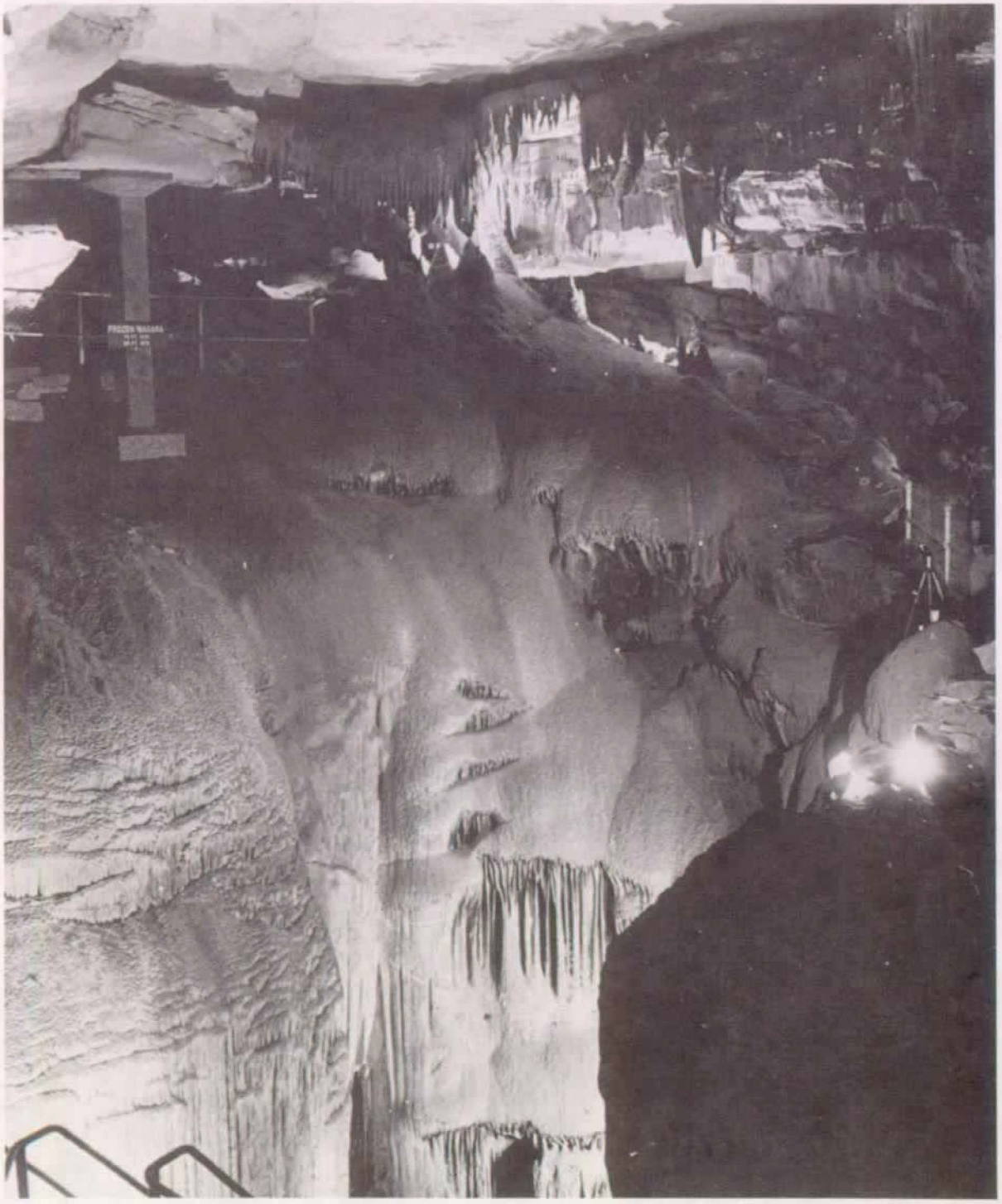
GENERAL MANAGEMENT PLAN

MAMMOTH CAVE NATIONAL PARK



SUMMARY

General Management Plan

Mammoth Cave National Park

Background

Responding to a July 1, 1978, recommendation of the Committee on Appropriations, U.S. House of Representatives, the National Park Service has reexamined its April 1976 Master Plan for Mammoth Cave National Park. The process included citizen input from six public meetings in the local communities and meetings with representatives of local, State, and Federal governments, national conservation organizations and other interested groups. To the greatest extent possible, we have attempted to incorporate suggestions from those who participated. Although full consensus on all issues is impossible, we feel the revised plan represents the best mix of divergent points of view and adequately provides for resource protection and visitor use. The plan proposes little change in existing management programs and policies at Mammoth Cave.

In establishing Mammoth Cave National Park in 1926, the Congress noted three distinctive features of national significance:

Extensive limestone caverns and associated topography;
Beautiful rivers; and
Rugged landscapes clothed in forests.

The area containing these features offered "exceptional opportunity for developing a great national recreational park of outstanding service in the very heart of our nation's densest population and at a time when the need is increasingly urgent and most inadequately provided for." Today the park encompasses approximately 52,000 acres purchased by a combination of donations and public and private funds.

Management Objective

The aim of management at Mammoth Cave National Park is to perpetuate the integrity and diversity of geologic features and life sytems that are associated with the caves, and the aquatic and terrestrial environments, for these have aesthetic, recreational, educational, and scientific values to man. Specific objectives for managing park resources are presented in more detail in the Introduction of this General Management Plan document.

The Plan for the Park

Based on key natural features, the park has been divided in this plan into three major resource areas: The Mammoth Cave Plateau, the River Valleys, and the Hilly Country. This plan seeks to diversify park use so that visitors will have an opportunity to see more of the park by experiencing each of these resource areas. Traditionally, the great

majority of visitors have come to the park only to see Mammoth Cave. Visitors congregate near the Historic Entrance where facilities were built for their use. From 1965 to 1975, the Historic Entrance area was heavily congested with cars and people throughout the summer season and on peak travel days in spring and fall. In an attempt to relieve congestion occurring at that time, the 1976 Master Plan evaluated several alternative solutions. Based on existing conditions and available information, a preferred alternative was selected that proposed developing a staging area at the periphery of the park near Union City. In concept, this staging area would concentrate parking and basic visitor services in a less fragile area of the park away from the entrances to the primary cave system. Shuttle bus service would transport visitors to and from cave entrance areas thus reducing the adverse effects of congestion to the resource and the visitor's experience.

Although visitation climbed steadily from 1960 to the mid 1970's, since then it has declined at Mammoth Cave, as it has at many other national parks in rural areas. Thus, the immediate need for developing a peripherial staging area has been relieved. In addition, recent discoveries indicate that the proposed staging area site is underlaid by cave passages and underground streams that are interconnected with the overall Mammoth Cave System and may be more susceptible to pollution than the present visitor use area at the Historic Entrance. Since the need for a staging area is no longer critical and the proposed Union City site appears much less suitable than originally thought, the staging area concept has been eliminated from the plan. However, should visitation return to levels experienced several years earlier and problems associated with traffic congestion, resource protection and visitor enjoyment occur, the Park Service will initiate a study to identify the best solutions to these problems.

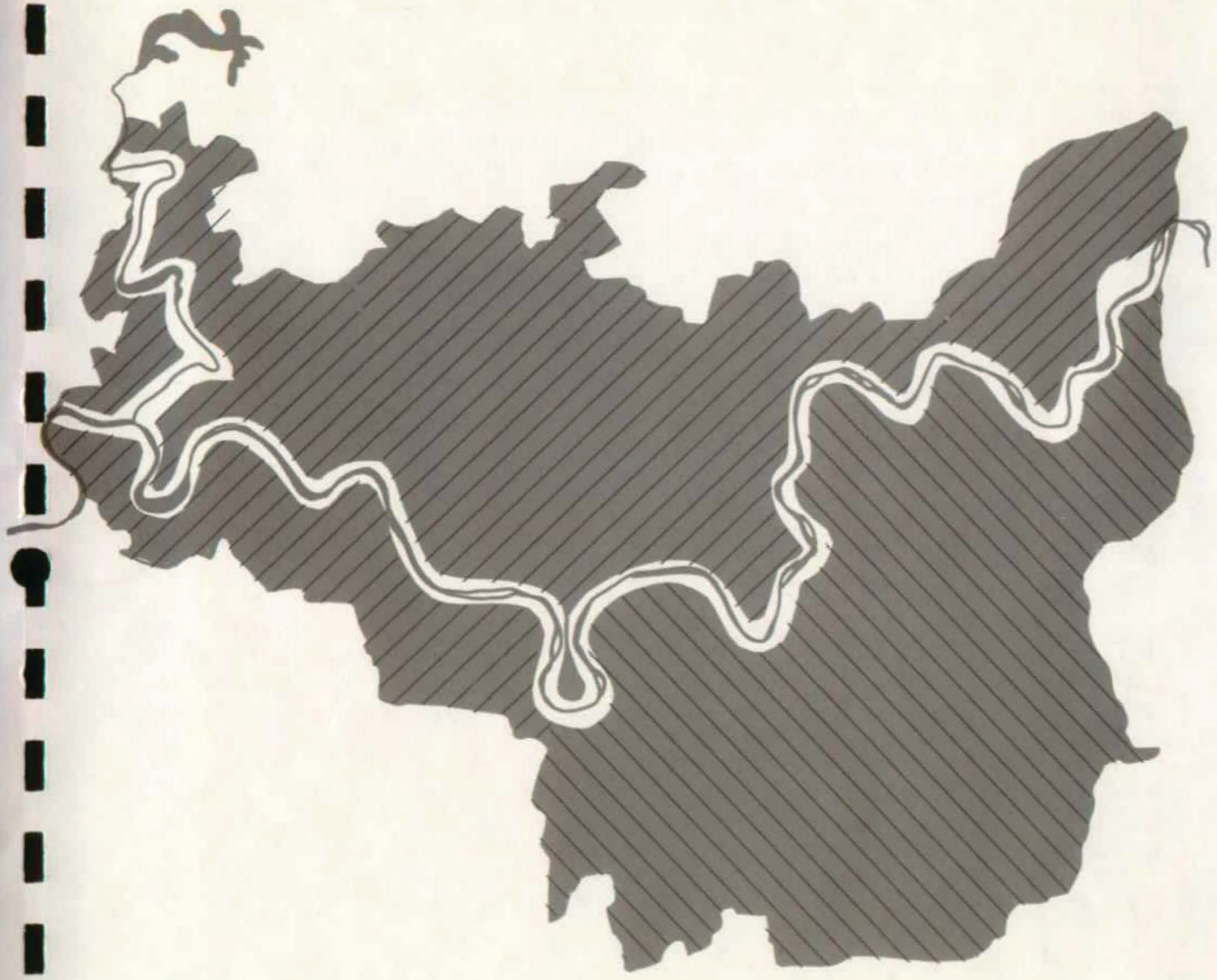
To facilitate visitor flow and enhance the quality of the Frozen Niagara tour, the trail system in the "New Entrance" will be revamped and the entrance reopened.

To protect the outstanding cave system underlying Flint Ridge, the Park Service with the cooperation of the Department of Labor, is relocating the Great Onyx Civilian Conservation Center (Job Corps) to the site purchased in the northwest part of the park.

This plan also recognizes the need for cave-oriented research and exploration and suggests methods for implementing such a program. A cave zoning system is recommended to guide the mangement of subterranean resources.

Access to the Green and Nolin Rivers for boating, fishing, and primitive camping will be improved. Roads now used by the public will remain open and present access to cemeteries will continue.

The Hilly Country west of Turnhole Bend and north of Green River contains shallow caves, surface streams, significant forest resources, and fine scenery for nature study. Several rare and relatively undisturbed ecosystems have been located and will be protected so their value as scientific reserves may be realized.



Hilly Country

Mammoth Cave Plateau

River Valleys

Mammoth Cave National Park

ON MICROFILM

0 1 2 3 Miles

0 1 2 Kilometers

North

MAJOR RESOURCE AREAS

MAMMOTH CAVE NATIONAL PARK

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Two small ferries crossing the Green River provide the primary access to the Hilly Country of the park. To make the Hilly Country more accessible and to facilitate required transpark traffic, it is recommended that a bridge be built across Green River near the vicinity of Houchins Ferry. Before implementing this proposal, a design analysis and environmental assessment will be conducted to determine the project's feasibility and to identify possible bridge sites.

As part of the concept of increasing recreational opportunities in the Hilly Country, a visitor contact area is proposed for the northwest portion of the park. This facility will provide orientation and basic resource information and will complement the park's expanded and upgraded backcountry trail system.

In keeping with the Wilderness Act (P.L. 88-577) the Department of the Interior conducted a wilderness suitability study of Mammoth Cave National Park and in 1974 concluded that due to visible signs of man's activity, the park area was not suitable for wilderness designation at that time. However, the National Park Service must from time to time reevalute the park's suitability for wilderness designation. In the event of any area of the park receiving wilderness designation, no major change in visitor use is expected and existing roads open to the public will remain open and cemetery access will be continued.

Fulfillment of this plan in all its aspects, will require several years. Then the visitor to Mammoth Cave National Park will be able to use and enjoy its natural resources more fully than ever before.

While Mammoth Cave will continue to receive the greatest intensity of visitor use, other cave systems offer opportunities for visitation and scientific research. By encouraging dispersed use of park and associated regional attractions, irreplacable and unique resources of the cave systems will be better protected.

In recognition of the great worth of the park's resources, both surface and underground, Mammoth Cave National Park has recently been included on the World Heritage List.

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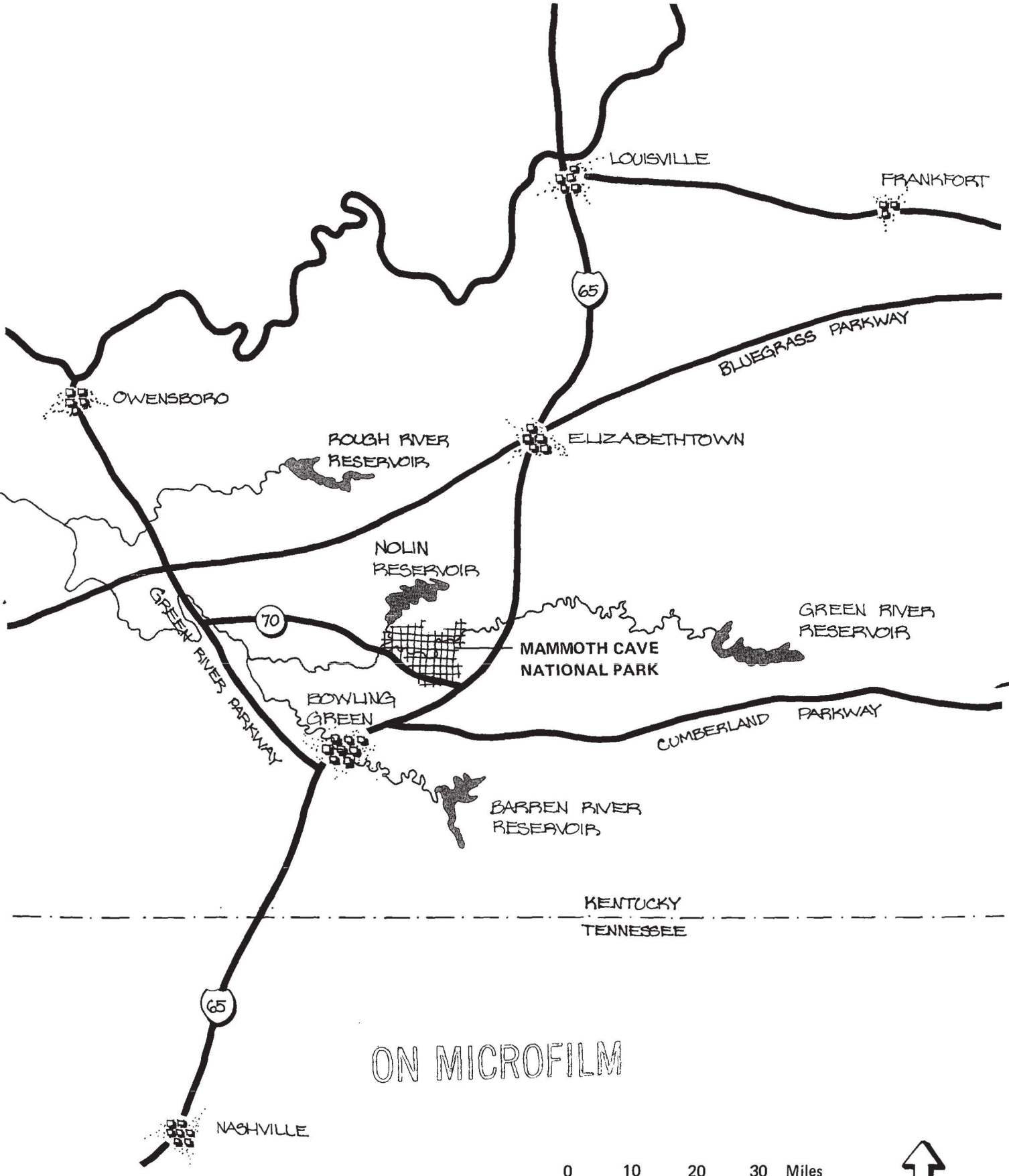

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VICINITY

MAMMOTH CAVE NATIONAL PARK

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INTRODUCTION

INTRODUCTION

PURPOSE OF THIS REPORT

The National Park Service is charged by the Congress (Act of May 25, 1926, 44 Stat. 635) with the responsibility to manage, develop, interpret, and preserve Mammoth Cave National Park "for the benefit and enjoyment of the people."

In recent years, changes in visitor use, the potential for resource damage, and studies required by Public Law 88-577 (the Wilderness Act) have necessitated a complete review of the park's development and management.

This general management plan, formerly master plan, provides for the management and preservation of park resources, expanded enjoyment of these resources, and a mutually advantageous role for the park within the region.

MANAGEMENT OBJECTIVE

The aim of management at Mammoth Cave National Park is to perpetuate the integrity and diversity of geologic features and life systems that are associated with the caves, and the aquatic and terrestrial environments, for these have aesthetic, recreational, educational, and scientific values to man. The management objectives for the park are as follows:

Cooperation

To cooperate with Federal, State, and local government bodies, universities, professional organizations, and interested citizens to ensure that land and water uses within the park environs have minimal adverse effects on park resources, and that public educational and recreational opportunities within and without the park are fully integrated.

Specifically to cooperate with:

- Local, State, and Federal governmental bodies in protecting the park's resources from intrusive developments, incompatible uses of adjacent lands, and water pollution.

- Private interests in encouraging the development of camping facilties within a reasonable distance of the park.

- The Commonwealth of Kentucky in determining appropriate jurisdiction over lands within the park boundaries.

- Church boards and congregations in ensuring adequate access to and appropriate use of churches and cemeteries located within the park.

- The Civilian Conservation Center (Job Corps) in identifying meaningful and necessary projects for corpsmen training.

- Federal and State regulatory agencies and coal mining interests in ensuring that strip mining activities in the park's vicinity have the least possible adverse impact on park visitors, air quality, aesthetics, and the integrity of the park's resources.

- Kentucky Department of Fish and Wildlife Resources in monitoring and conducting research on the park deer population and other wildlife and fish populations.

- Cave Research Foundation and other interested organizations in the cartography of caves and in support of resource studies.

- Educational institutions relevent to the protection, understanding, and interpretation of park resources.

- Kentucky Department of Tourism and local Chambers of Commerce in attracting visitors to the Mammoth Cave region.

Natural Resources Management

To ensure long-term perpetuation of the cave system, vegetation, wildlife, and other natural resources, and the processes that sustain them, free to the extent possible from the influence of human activities.

To promote in undeveloped lands the reestablishment of natural conditions and processes in areas previously disturbed by human uses.

To initiate research to obtain the information necessary for management, interpretation and use of park resources and the perpetuation of the cave system.

To preserve unique surface features, archeological sites, and lesser-used caves pending the acquisition of scientific knowledge that will define acceptable parameters of use and preservation.

To protect and maintain a stable and healthy surface wildlife population through appropriate monitoring and control techniques as necessary to ensure a balanced ecosystem.

To maintain ecologically balanced aquatic environments through appropriate monitoring of sport fishing.

To minimize to the greatest extent the adverse impacts on water quality in the aquatic environments resulting from waste water discharge, surface mining activities, and the use of pesticides, herbicides, and fertilizers in and adjacent to the park.

Cultural Resources Preservation

To secure adequate information on the park's historical and archeological resources to facilitate their protection and evalution of their significance and suitability for listing on the National Register of Historic Places.

To protect and preserve the park's historic structures, their appearance, and their settings, as well as archeological sites and objects in accordance with legislative and executive requirements and the Service's historic preservation policies.

Development

To ensure that park development is adequate for efficient park administration and essential visitor services, consistent with the park's purpose, Service policies and other park objectives, and compatible with the special requirements imposed by the cave environment.

To minimize impacts on fragile natural resources by locating facilities in areas that are able to support such use without sustaining unacceptable environmental damage.

To ensure that all park developments operate efficiently and that those not economical to rehabilitate are eliminated.

Concession Management

To provide, through the use of concessions, those commercial facilities and services necessary for the visitor's use and enjoyment of Mammoth Cave National Park.

Access and Circulation

To facilitate access to and circulation within the park in consonance with other park objectives, considering a full range of alternative means of transportation.

Interpretation and Visitor Services

To foster public awareness and understanding of the unique cave environment, surrounding karst topography, indigenous vegetation and wildlife, and prehistoric and historic resources in the park.

To offer opportunities for environmental education by school groups and others interested in the cave system and other park resources.

To offer opportunities for special populations to enjoy the park resources.

Visitor Use

To make available opportunities for year-round, resource-compatible use of the park.

To provide opportunties for experiencing the extensive backcountry areas of the park.

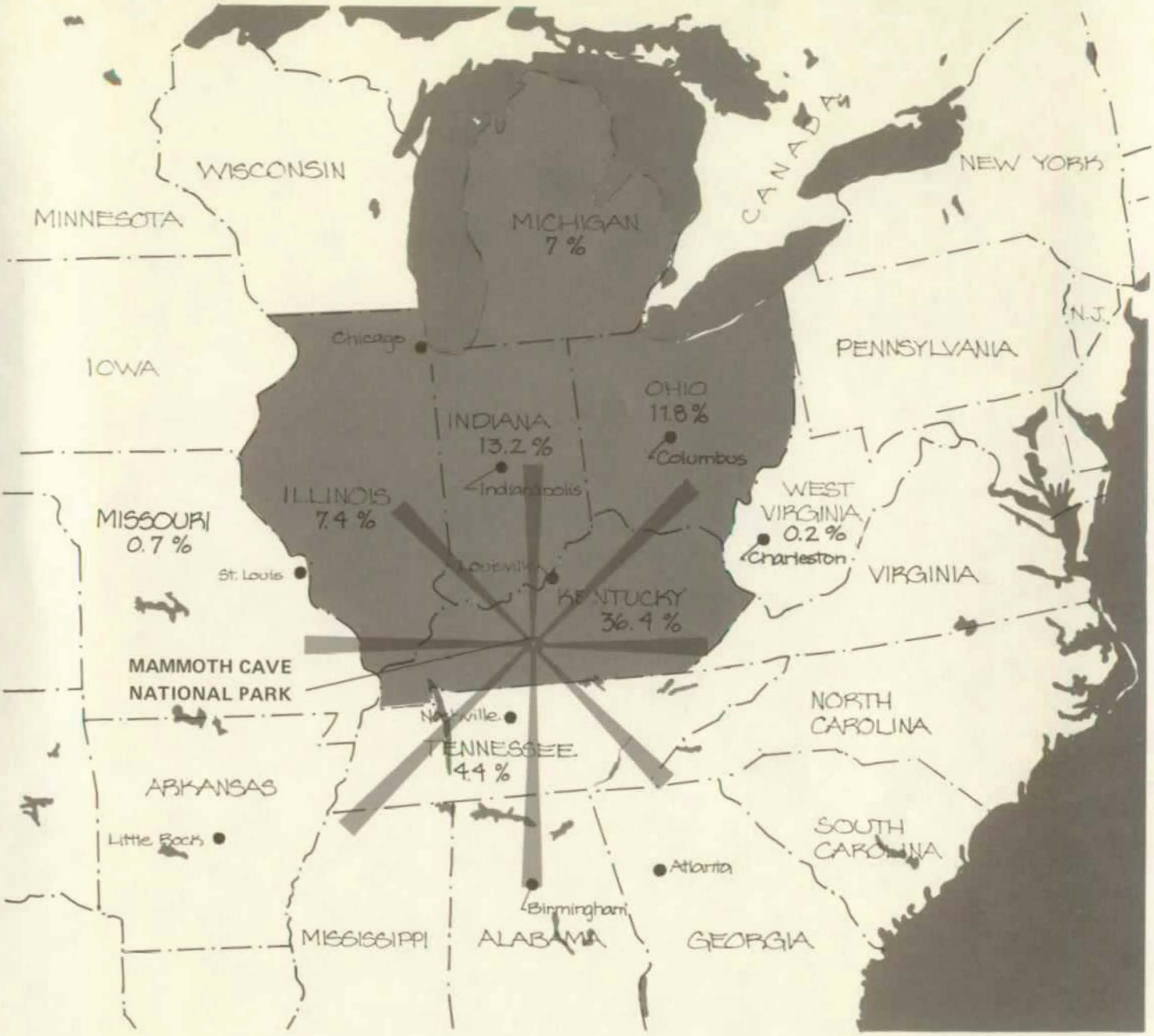
To encourage educational and scientific groups to schedule their visits during periods of light use.

To control visitor use as necessary to protect the park visitor, to preserve the natural and historic resources, and to ensure that meaningful interpretive services can be provided.

Acquisition of Information

To encourage and participate in efforts to acquire information, through research and other means, in order to facilitate development of the best possible strategies for perpetuating and preserving natural and cultural resources and enhancing opportunities for resource-compatible public use and enjoyment.

To secure and maintain through research adequate data and information on the state of the aquatic and fishery resources within the park, both surface and underground, so that the aquatic environments and the life they support can be perpetuated. To encourage and participate in scientific research on the hydrology, geology, ecology, cartography, and archeology of Mammoth Cave and the central Kentucky karst.



Distance for 8-Hour Travel

Travel Influence Area

% Visitation from State (1970)

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0 150 300 Miles

0 250 500 Kilometers

North

TRAVEL INFLUENCE AREA

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THE ENVIRONMENT

THE ENVIRONMENT

THE VISITORS - WHERE DO THEY COME FROM?

A 1970 survey reported that 76 percent of the park's visitors originated within Kentucky and the four heavily industrialized and urbanized states to the north. This is the "Travel Influence Area" shown on the accompanying map. Cave and campground registration figures indicate that Kentucky and the urbanized states immediately to the north continue to account for the majority of park visitation.

Higher population densities and higher median incomes may account for the imbalance of northern visitation. Moreover, some of this northern population migrated from Kentucky and Tennessee and many of them return to their homes to spend their vacation time. Visitors are also attracted to central Kentucky and Tennessee because of large reservoirs, mountains, and extensive tracts of forested public lands.

The 8-hour travel line shown on the maps indicates 1 day's average travel time from the park. Most major metropolitan areas to the north are at such a distance from south-central Kentucky that visitors require overnight accommodations. The interstate highway system provides an expanded time-distance line, but most travelers will still be a day's drive, or more, from the park.

VISITOR SERVICE AREA

The caves of Cave Country, the north/south travel corridor, State parks, two Corps of Engineers' reservoirs, and the national park have resulted in a concentration of visitor services within an hour's drive of park headquarters.

Since the early 1940's, when Mammoth Cave gained recognition as a national park, the tourist industry in this area has expanded to meet visitor demands. Much of this tourism industry is clustered around the I-65 interchanges, near Mammoth Cave National Park, at the towns of Horse Cave, Cave City, Park City, and Bowling Green, where there are numerous motels, campgrounds, and visitor attractions. Most of these facilities were constructed between 1966 and 1971 and were generated by increasing travel to the park during the 1960's and promise of better access provided by the interstate highway system.

The visitor service area does not add significantly to the park's visitation. Population density is low (48 persons per square mile) and has remained stable for the past 20 years. Only 25 percent of the population is considered urban and no significant increase in urbanization is expected in the near future.

The visitor service area lies mostly within the Barren River Area Development District (BRADD) which was established under Kentucky law as a public agency for planning and technical assistance for and through local governments. The BRADD encompasses 10 counties and has prime

responsibility for multi-county planning. BRADD provides an excellent vehicle for joint regional planning and the National Park Services works closely with the district. The Superintendent of Mammoth Cave National Park is a special advisor to the Board of Directors which includes area governmental and civil leaders. Park staff members serve on various committees and planning programs.

A survey of travel in Kentucky (Copeland, 1978) reports annual tourist expenditures of $72 million within this 10-county district. According to the survey, 71 percent of this was spent by tourists from other states.

Within the visitor service area are three principal cities--Elizabethtown, Glasgow, and Bowling Green--and Nolin River and Barren River Lakes constructed by the Corps of Engineers. Both reservoirs have boat ramps, marinas, campgrounds, and related recreational development. The Corps plans to increase the capacity of these facilities in the future.

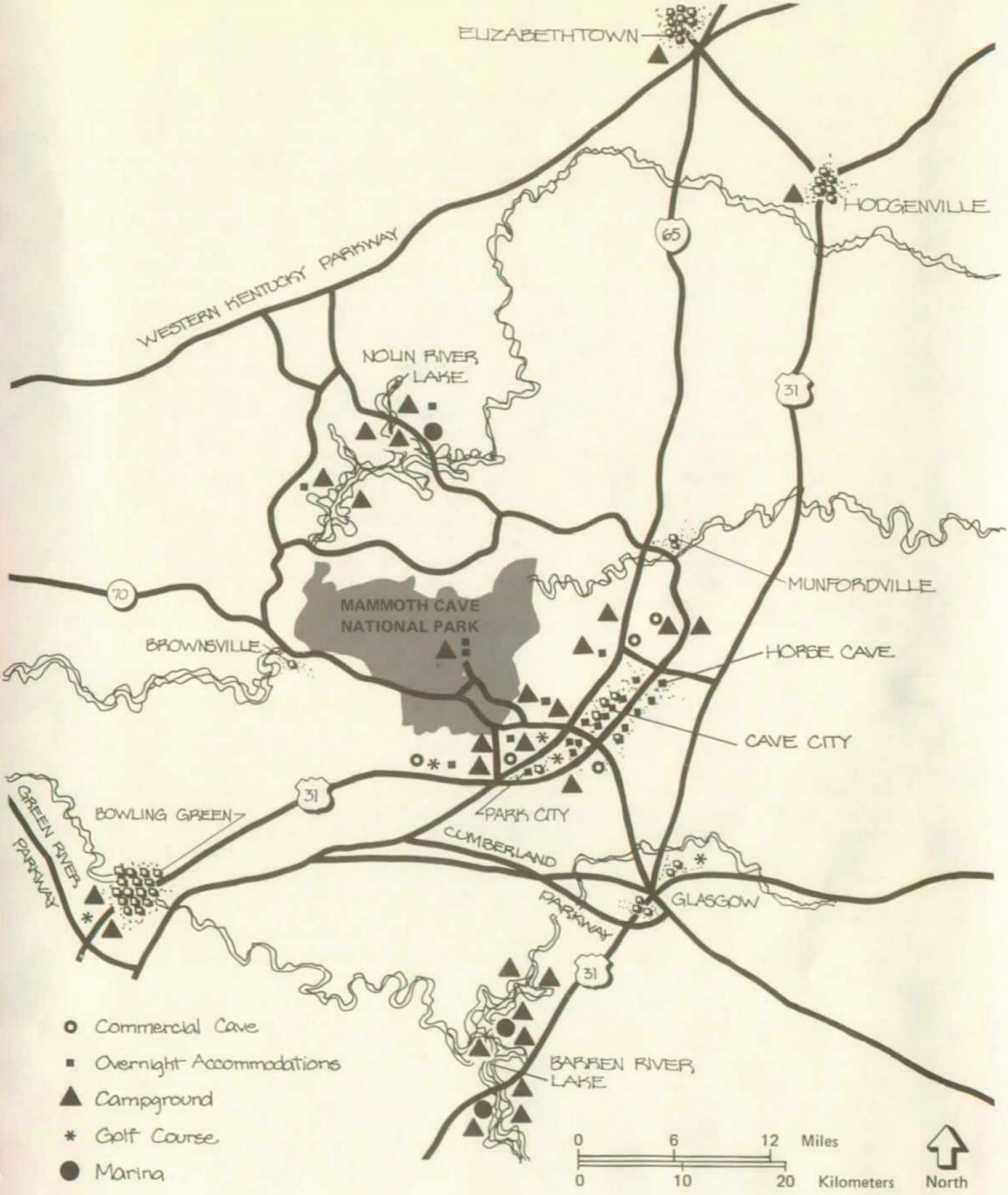
A State resort park has been developed by the Commonwealth on Barren River Lake. It has a full range of overnight accommodations, golf course, swimming pools, and other amenities designed to cater to the out-of-state traveler. Just outside the visitor service area, there is a similar resort park on Rough River Lake. There and at Green River Lake, the Corps of Engineers has provided boat ramps, marinas, and campgrounds. Much of the private land around each of the four lakes is being sold for vacation homesites which will add another dimension to the regional economy.

A proposal is under consideration by Edmonson County to establish a recreation/interpretive complex in the vicinity of Nolin River Lake. The proposal recommends establishing an interpretive facility in the northwest corner of Mammoth Cave National Park as a complement to the resort facility proposed for Nolin Lake.

There are 2,000 motel rooms and over 7,500 campsites within the visitor service area. Many of these are situated on the established north/south travel corridor which facilitates their use by the through traveler.

Within ½ hour from the park, there are several privately owned commercial caves that generally feature dripstone and flowstone formations on 1-hour guided tours that seldom exceed 25 people in a group. Commercial caves usually remain open in the late afternoon after the park caves are closed and some provide evening tours. All caves are open throughout the year.

Other attractions in the visitor service area include the Abraham Lincoln Birthplace National Historic Site and Western Kentucky University. Affording somewhat unique experiences for visitors are the tobacco auctions during December and January (there are 25 tobacco warehouses in the area). Outside of the 1-hour travel time, but close enough to be considered attractions, are My Old Kentucky Home State Park at Bardstown, the 10,000-acre Bernheim Forest and Arboretum northwest of Bardstown, and the reconstructed Shaker Village in Auburn.



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VISITOR SERVICE AREA

MAMMOTH CAVE NATIONAL PARK

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Other influences of the region on the park come in the form of State and Federal projects:

Mammoth Cave Parkway - Two miles of Kentucky 255 from the park boundary to its interchange with I-65 were reconstructed by the Commonwealth in 1968. A 500-foot-wide right-of-way was purchased to maintain the scenic quality of this limited access approach to the park.

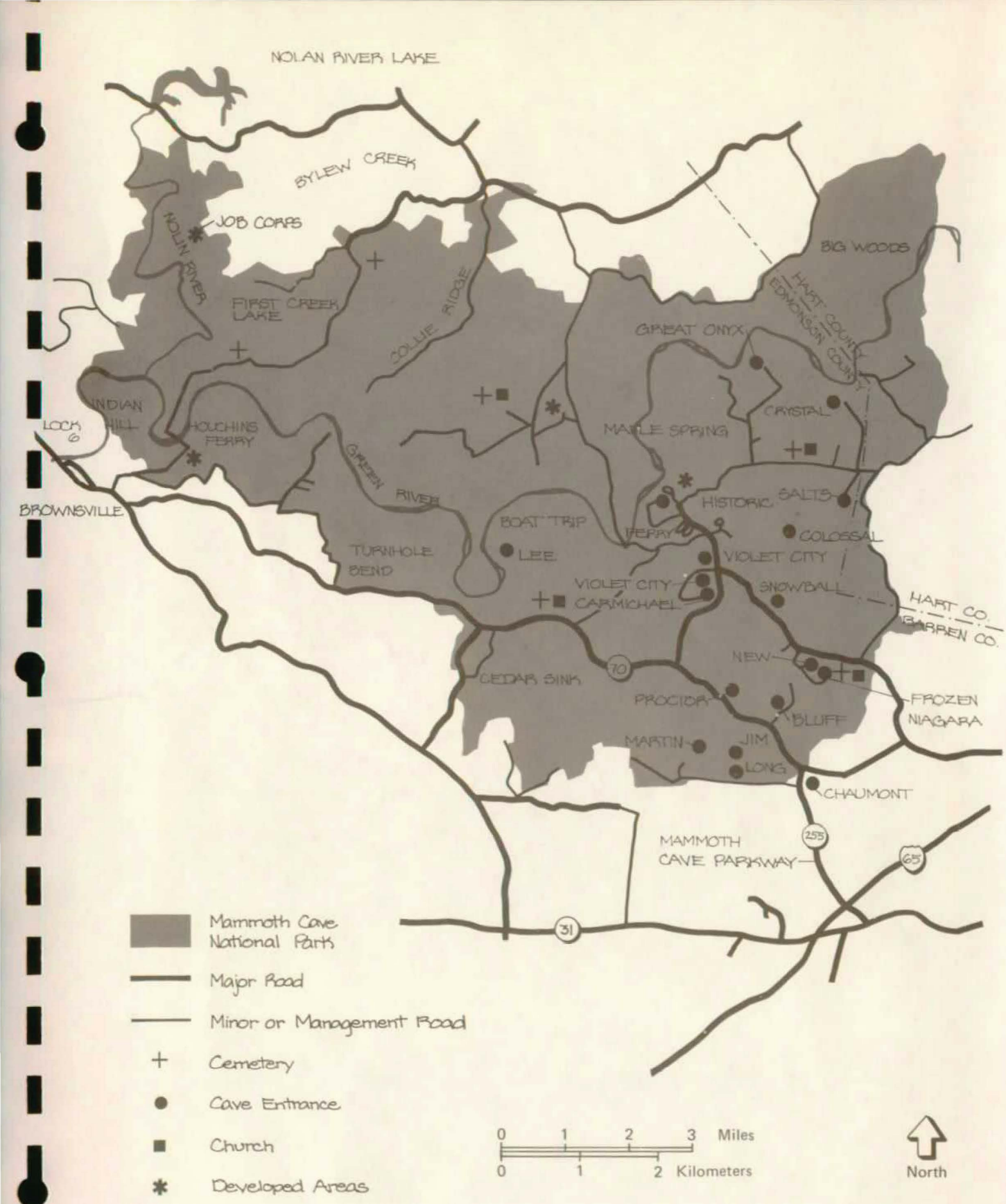
Interstate Highway 65 - Louisville and Nashville were brought within 2-hours' travel time of the park upon completion of I-65 in 1973. One-quarter of the United States population lives within 500 miles of the park via the interstate highway system.

Green River and Cumberland Parkways - These toll roads, opened in 1973 in combination with an upgraded Kentucky State Route 70 (KY 70) have improved east/west circulation through southern Kentucky into Cave Country and have placed the Corps of Engineers' Green River and Rough River Lakes within 90 minutes travel time of the park. Nolin River and Barren River Lakes are much closer. Public-use facilities around these four reservoirs attract many tourists on a long-term basis. All told, there are approximately 15,000 feet of bathing beaches that will accommodate 10,000 swimmers per day, two major State-oriented resort parks, 10 marinas, numerous ramps to accommodate 4,600 boats per day, and 1,543 formal campsites. These new parkways will also have an enormous impact on counties such as Edmonson and visitor attractions such as the Nolin River Lake, which heretofore have been "off the beaten path."

EFFECTS OF REGIONAL DEVELOPMENT ON PARK PLANNING

Current development in the region is intense and numerous existing and proposed facilities will combine to satisfy a substantial amount of the demand for visitor services. By maintaining a pleasant environment in Cave Country, visitors will be encouraged to stay and enjoy its attractions. The Barren River Area Development District's year 2000 long-range plan, when adopted, will help in guiding the region toward both a quality environment and a strong economic structure by combining the tourism industry with a well-balanced mixture of nonseasonal industry.

Years ago the visitor to Mammoth Cave reached it after a long and tedious journey that required a rest period or vacation. At that time the cave was a destination and in most cases the sole purpose for the trip. During the past 25 years the tourist has become more mobile and the park is no longer an exclusive destination area.



EXISTING CONDITIONS

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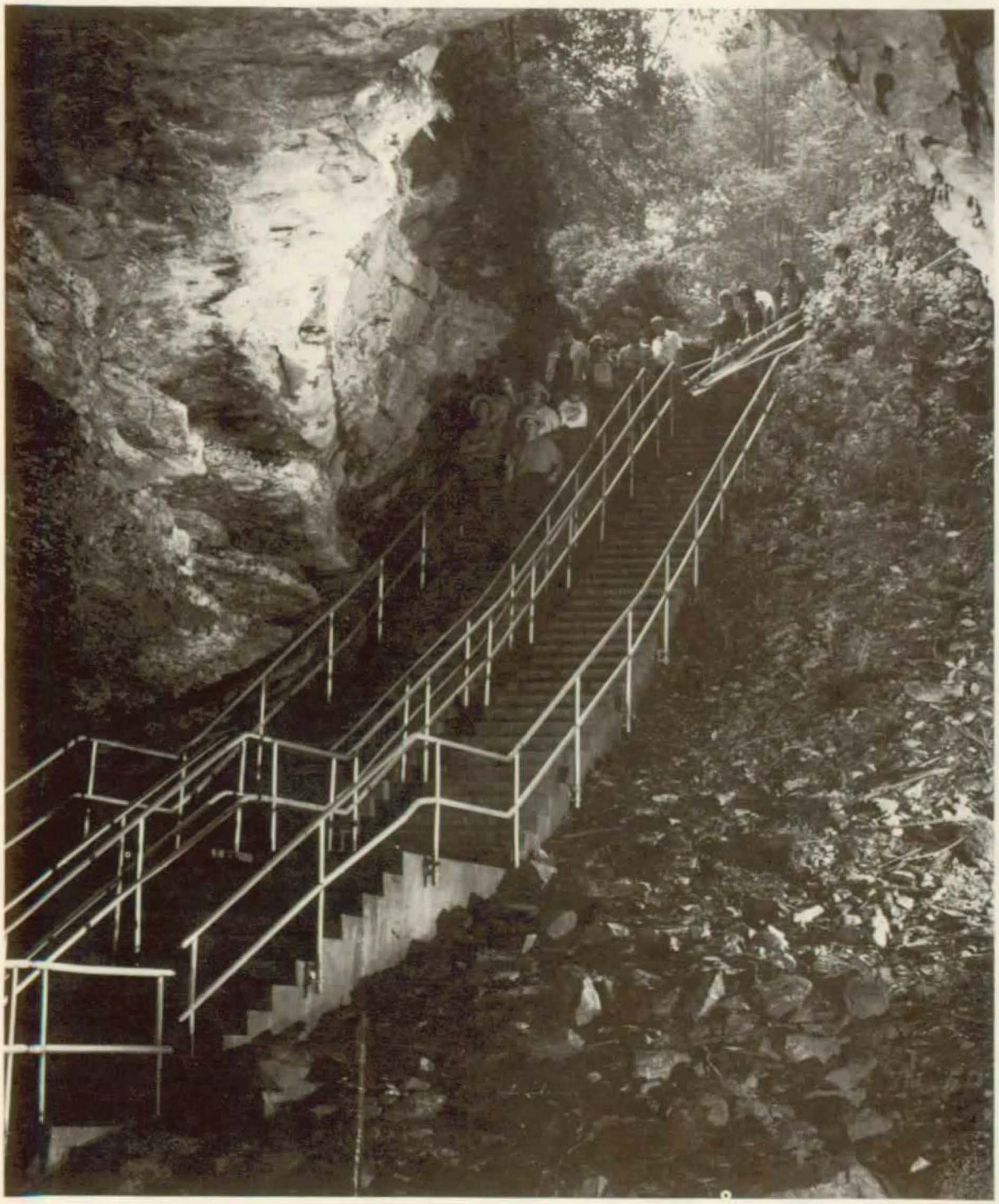


PARK RESOURCES AND THEIR USE

Resource Description

Mammoth Cave National Park is situated mostly in Edmonson County with small portions in Barren and Hart Counties. Within the park are the most extensive caves and some of the finest examples of karst topography in the world, surface and underground streams, fascinating landscapes, an abundance of vegetation and animal life, and artifacts illustrating the life of ancient people.

On the bluffs, coves, and steeper slopes throughout the park are beautiful groves of trees with little understory and a wealth of associated wildflowers. The park's checklist includes 84 species of trees, 28 kinds of shrubs and vines, 29 types of ferns, and 209 wildflowers.

Common mammals are deer, raccoon, opossum, grey squirrel, rabbit, woodchuck, muskrat, bat, and red fox. In all, 41 species have been observed. There are 203 species of birds, 18 kinds of reptiles including the timber rattlesnake and copperhead, which are poisonous, and 15 amphibians.

Three of the five physiographic divisions of the central Kentucky karst are represented in the park: Mammoth Cave Plateau, Green River Valley, and the Hilly Country. No part of the Dripping Spring Escarpment or the Sinkhole Plain is included within the present boundary.

The Mammoth Cave Plateau, in the park, is south of Green River and eastward from Turnhole Bend. Beneath it is more than 200 miles of cave passages. They contain minerals such as dripstone, gypsum, and mirabilite; prehistoric Indian artifacts; fossils; and about 300 kinds of animals and plants. The plateau is an erosional remnant consisting of three northwest trending ridges--Joppa, Mammoth Cave, and Flint--separated by valleys 200-300 feet deep, formed when cave ceilings collapsed along the beds of ancient streams. Ridges are capped by impermeable sandstone and shale beds totaling about 50 feet thick, which have protected the caves in the limestone beneath. In cross section, the limestone is honeycombed with passages. Solution of the limestone by flowing water has contributed both to the development of the cave passages and their destruction. Some passages are up to 100 feet in width and height and 400 feet long; other passages form narrow cracks that allow only water and air to seep through.

Since 1959, Cave Research Foundation explorers have been discovering, surveying, and mapping cave passages. Through 1980, more than 230 miles of interconnected passages had been mapped underlying Flint and Mammoth Cave Ridges and the east end of Joppa Ridge. Mammoth Cave National Park contains the longest known linear cave system. Switzerland's Holloch Hohle is the second longest in the world with 85.1 miles of passages explored through 1980.

Most of the park's cave passages are dry, because of the sandstone and shale caprock, yet the deepest passages are flooded by streams and lakes. There are domepits up to 200 feet in height carved by water that pours in from the surface in wet weather.

The 50 inches of annual rainfall goes underground quickly through cracks and crevices in the rocks. Surface streams flow only during the rainy season and for short distances before disappearing in swallow holes. The many springs on Flint Ridge flow into caves beneath.

In the past, the park's domestic water supply was a mixture of water from these springs and from wells. At times, almost the entire surface flow from the springs was diverted into the park's water-supply system, and there was heavy pumping from the wells. This practice was detrimental to the caves under Flint Ridge. Now that water from an outside source has become available, this water system has been abandoned and the normal flow of water into the caves has been restored.

Continued geologic and mineralogic development of the cave and the unique life forms therein all depend on water. Caves are formed when water dissolves the limestone or erodes it away, and mineral precipitated from water developed formations in the passages.

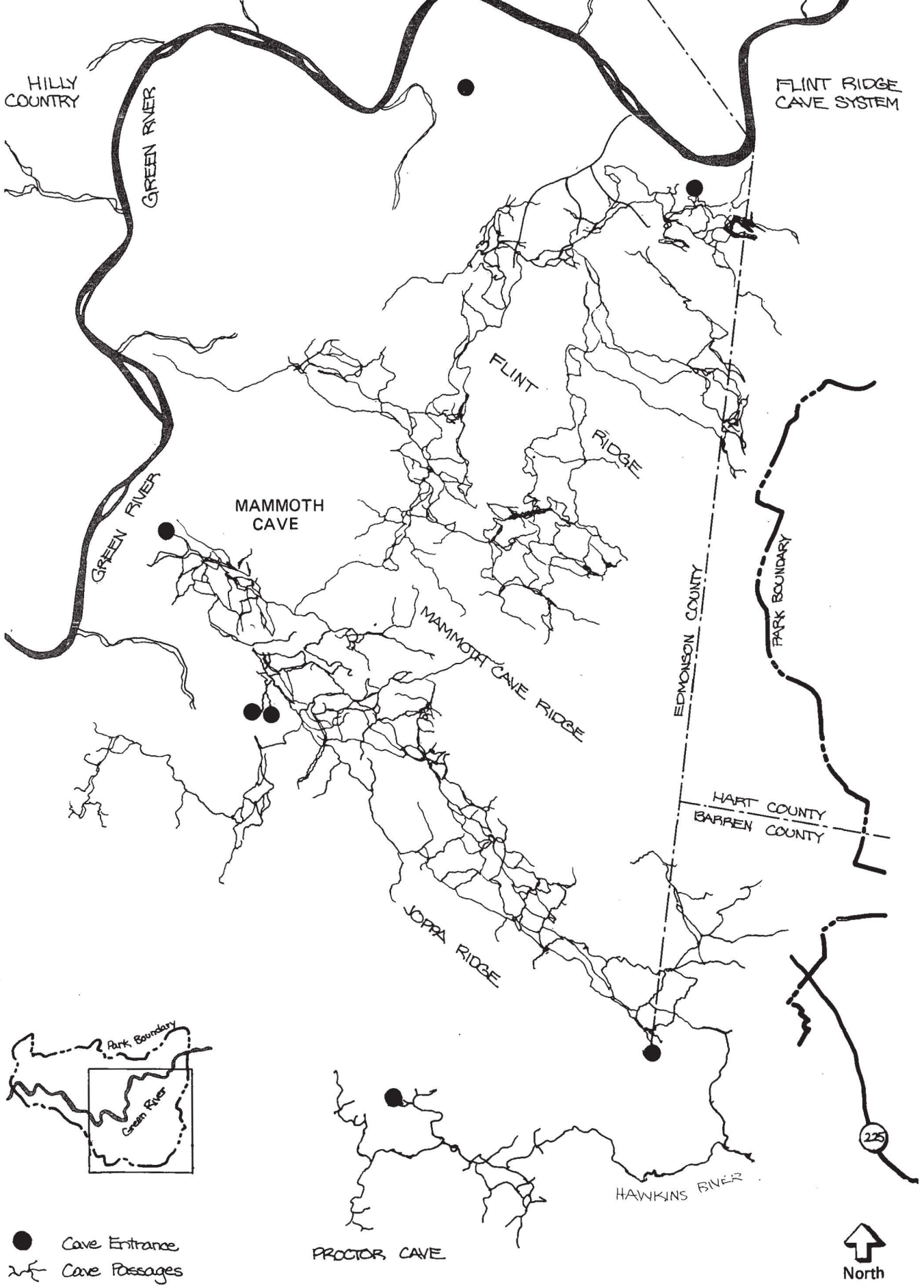
Fauna of the caves comprise some 200 species. Those that spend their entire lifetime in the cave (troglobites) have remained isolated from others of their kind for about a million years. They thrive in an environment of total darkness, high humidity, and at a constant temperature of 54° F. Troglodytes derive their nourishment from nutrients washed into the cave by surface water. Among the animals inhabiting the underground streams are blind cavefish, first discovered in Mammoth Cave. Ranges of two different kinds of cavefish overlap in the park.

The Green River Valley bisects the park from east to west. Near the west boundary, a 6-mile segment of the Nolin River forms a major tributary from the north. Both of these streams flow in incised meanders. Riverbanks are steep-sided because of alluvial deposits, and valleys are often bordered by bluffs 150-300 feet high. In places, outcroppings of limestone and sandstone produce cliffs.

The scenery is enhanced by dense forests. Sycamore, elm, and ash trees line the riverbanks; and canebrakes are common. On limestone bluffs there are mixed mesophytic forests composed of beeches, sugar maples, oaks, ashes, and yellow poplars. In the river are many forested islands. Deer, beavers, muskrats, turtles, ducks, and songbirds are common. A total of 107 species of fish have been collected from the Green River, but the principal gamefish are black bass, bluegill, perch, crappie, and muskellunge.

One of the most scenic portions of the Green River and of great interest geologically is Turnhole Bend, a classic example of an incised meander. The bend was named because packet boats used to turn around in the discharge pool of a big spring. Water enters the Green River from numerous springs that drain the caves along both banks of the river.

On the Green River, at the west boundary of the park, is Dam 6 and a navigational lock built by the Corps of Engineers in 1906 and 1907. The pool above Dam 6 extends for 17 miles on the Green River and for the entire 6-mile length of the Nolin River in the park. The remaining 9



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RIDGES AND CAVES
MAMMOTH CAVE NATIONAL PARK

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miles of the Green River, from Mile 199 above Floating Mill Island to the east park boundary, is free flowing.

There is a reservoir on Nolin River just north of the park and another on the Green River about 100 miles upstream from the park. Even though these dams and reservoirs were built for flood control, Green River may crest at 50 feet, according to the Corps of Engineers. High water comes during periods of drawdown at the reservoirs, during seasonal runoff, and may occur suddenly because of local torrential rains.

The Hilly Country, the third physiographic feature of the park, is west of Turnhole Bend and north of the Green River. The many caves that exist here are shorter in length than those south of the Green River. Cave systems in this area are less extensive because of the smaller local drainage areas.

Unlike Mammoth Cave Plateau, the Hilly Country contains several surface streams. The largest and most spectacular is Nolin River. Buffalo and Ugly Creeks, and Cub Run also drain into the Green River from the north. Valleys of all of these streams are forested and contain much wildlife.

Fine views of Nolin River may be obtained from Whistle Mountain and from an overlook at Temple Hill Cemetery. Scenic points of interest in Nolin River Valley include the 5-acre First Creek Lake on the floodplain and red sandstone conglomerate cliffs notable for their height and vegetative cover. These are at the mouth of Cubby Cove and Bylew Creek. The park encompasses only a small portion of the Bylew Creek watershed.

Magnolia trees and mountain laurel thickets are colorful when in blossom along the Wet Prong of Buffalo Creek. Collie Ridge is clothed by a fine hardwood forest. When the forest matures, good views of the surrounding woodland and the Green River will open up from the top of Goblin Knob.

Big woods is the only extensive stand (about 300 acres) of mature hardwoods in the park.

Use - Historical

Park lands are rich in cultural resources, too. Pre-Columbian Indians went into the cave passages to chip gypsum and mirabilite off the walls and ceilings, but their purpose in doing so is not clear. Chip marks, blackened ceilings from smoke of reed torches, sandals and other articles of clothing, and mummified remains of Indians have all been found in Mammoth and Salts Caves and in other cave passages in the park. Indians also occupied cave entrances and rock shelters while engaged in agriculture and hunting.

Mammoth Cave is reputed to have been discovered sometime prior to September 1798 by a hunter named Houchens, who pursued a wounded bear into the entrance. Later, someone noted that the fine, dry cave dirt contained saltpeter; and this valuable nitrate was leached from the

dirt and shipped to gunpower factories at Philadelphia from 1809 t9 1819. Remains of vats and pipes may still be seen in Mammoth Cave.

In 1843 an experimental tuberculosis hospital was established in Mammoth Cave, but it was not successful. Two roofless stone cottages are still standing.

Visitors have toured the cave since 1816. Exploration was conducted and new routes were added from time to time. Exploring wild caves requires great physical stamina and uncommon courage; for tortuous passages and total blackness constitute an environment inhospitable to man. This has given rise to legends surrounding exploits of early guides, many of whom were Negro slaves.

As the fame of Mammoth Cave grew (it was heralded as one of the seven natural wonders of the world), overnight accommodations for visitors had to be provided. Log cabins near the Historic Entrance used by saltpeter miners were the nucleus of a hotel. The present hotel was opened in 1965 with its associated lobby, souvenir shop, dining room, and coffee shop.

Even though Mammoth Cave was the best known, other caves had been discovered and developed for public use, including several on Flint Ridge. Some cave owners also operated their own hotels. Trails were constructed in Crystal, Great Onyx, Colossal, Proctor, and Long Caves. These trails, Floyd Collins' home and ticket office at Crystal Cave, and some of Collins' tools are the only physical evidence remaining today of the period of private cave operation.

In early days, travelers came to Mammoth Cave by stagecoach. An 8.7-mile railroad spur was built from Glasgow Junction (now Park City) to Mammoth Cave and it operated from 1886 until 1931. Forty to fifty thousand visitors came annually.

With completion of a series of dams and locks on Green River in 1906, steamboats brought travelers to Mammoth Cave. A popular excursion trip was the 10-hour run from Bowling Green to Mammoth Cave on the river followed by a return trip by rail. The steamboat era ended in 1917. Shipping on the Green and Nolin Rivers had practically halted in 1951 when the Corps of Engineers deactivated Locks 5 and 6.

Prior to establishment of the park in 1941, about 45 percent of the land area was cultivated or grazed. Tobacco and corn were principal crops. Farmlands were connected to one another and to the market by primitive wagon roads, and several private ferries crossed the Green River. Most of the farms were situated on river floodplains and on ridge tops. Soil had eroded badly in some places. Slopes of valleys and bluffs were too steep for cultivation; they remained forested and were logged. Areas formerly cultivated have returned or are returning to forest. Today, it is difficult to impossible for former residents to locate places once familiar to them. Natural revegetation was assisted by plantings set out by the Civilian Conservation Corps during the period from May 1933 to July 1942 when four camps were operated in the park. The enrollees also did soil conservation work, built roads and trails, and made improvements in the caves.

Adjacent to the park are small farms averaging 100 acres in size. Many people earn their living from growing crops, dairying, and raising livestock, but others are employed in industry (tourism and light manufacturing) and use farming to supplement their other income. Farm populations have been declining since 1950.

Use - Present Day

Visitors proceed by private automobiles or charter bus to park headquarters at the Historic Entrance to Mammoth Cave. All cave trips originate from here. At park headquarters, there is a visitor center, parking lot, a 110-site campground, picnic area, and post office. Park administrative offices are situated in a building adjoining the visitor center. National Park Concessions, Inc., provides 108 lodging units ranging from simple cottages to modern hotel rooms plus food services and curio sales. It also operates a gasoline service station, a bus system to cave entrances, a store, and a laundromat and shower building next to the campground.

The passages of Mammoth Cave have a constant temperature of 54 degrees and visitors come all year. Of the guided trips offered, the visitor can choose from trips from 1½ hours to several hours of duration. Among these are a 4½-hour trip with an underground lunch stop, and a special lantern-carrying trip of 3-4 hours duration. A tour is available for visitors confined to wheelchairs.

Another popular park feature is the 1-hour sightseeing boat trip on Green River. Green River is also used extensively by fishermen who provide their own boats and launch them at old Dennison Ferry site, at Mammoth Cave Ferry, or at Houchins Ferry. Ferries at the latter two locations are operated without fee by the Natonal Park Service and are used mostly by local commuters.

Surface hiking trails lead to Green River near the Historic Entrance, to First Creek Lake, Turnhole Bend, and Cedar Sink, and there is a motor nature trail on Joppa Ridge.

Scientists and explorers, under permit from the National Park Service, are conducting studies in the cave systems. Underground stream conduits are being traced, including those that originate outside the park, and the quality of their water is being monitored.

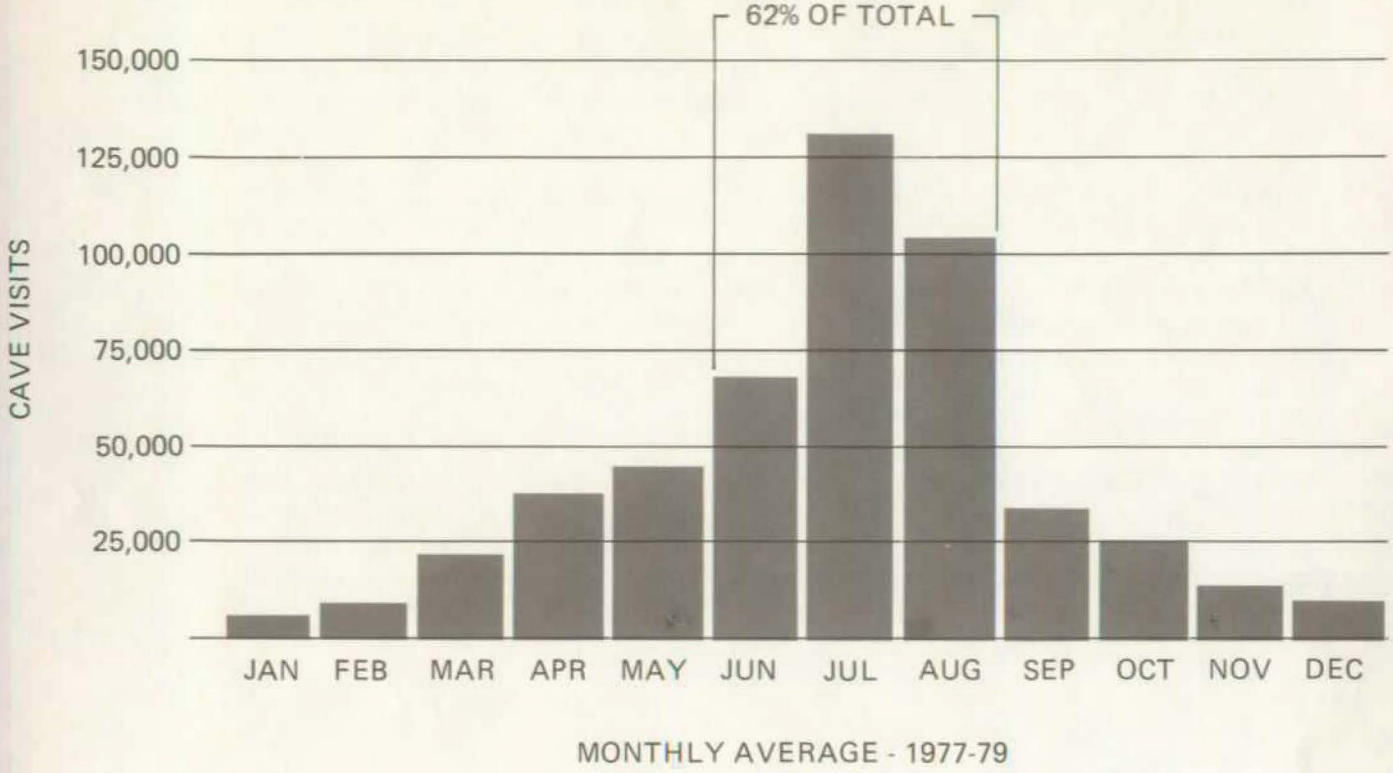
There are three groups of park visitors: those who have only a "windshield experience" as they drive across the park on KY 70 (approximately one-third); those who participate in surface activities including hiking, boating, fishing, picnicking, camping, and taking the sightseeing boat trip (approximately one-third); and cave visitors (approximately one-third). Most persons visiting Mammoth Cave remain in the park 4 hours or less. The campground is usually filled to capacity during the summer. June, July, and August--the summer vacation period--account for over 60 percent of the yearly total of visitors.

Total visitation to Mammoth Cave National Park more than tripled between 1960 and 1970, rising from about 0.5 million to over 1.7 million. During the 1970's total visitation which included commuter use of park roads has fluctuated with highs in 1973 (1.9 million) and 1977 (2.0 million) and lows in 1974 (1.7 million) and 1979 (1.6 million). Thus far in the 1980's visitation has remained low, averaging about 1.6 million per year from 1980-1982. It is difficult to establish a future trend from these figures.

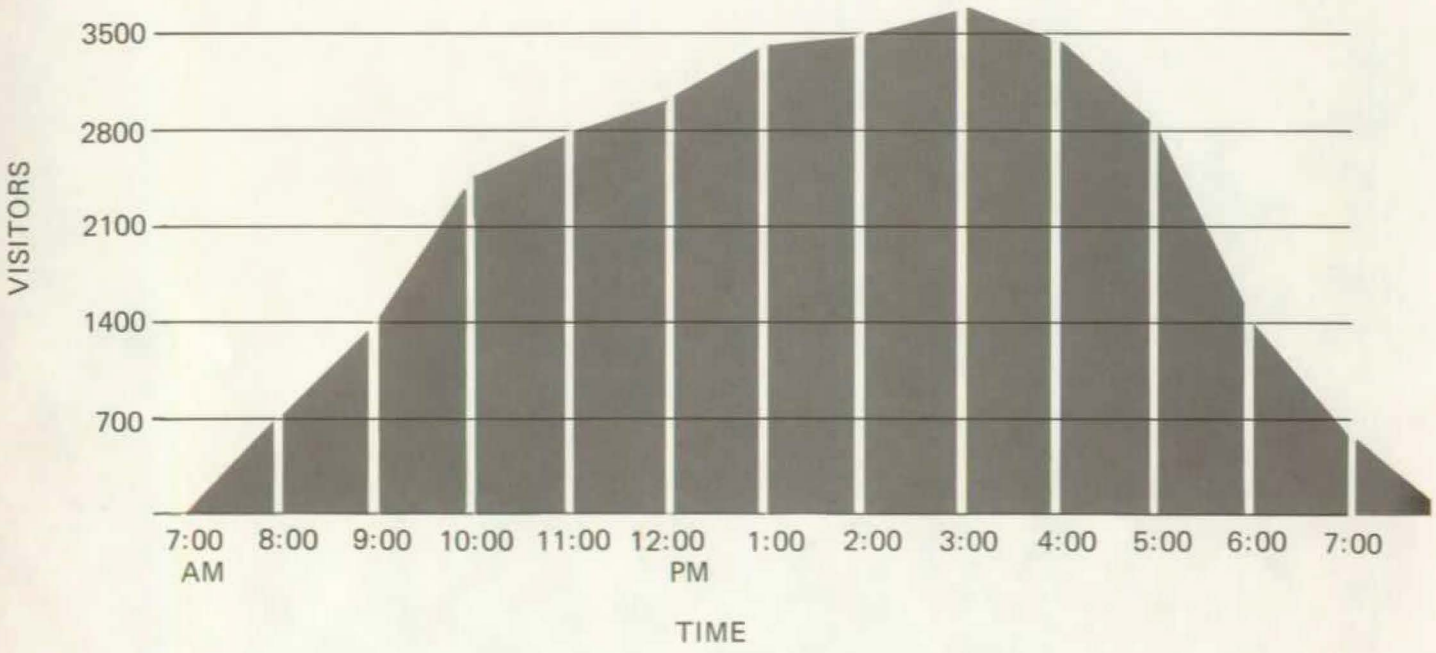
Cave visits, a more reliable set of figures, have displayed a more consistent pattern. While cave visits more than doubled between 1960 and 1970, they have declined fairly steadily from a high of 675,000 in 1973 to 412,000 in 1979. Thus far in the 1980's, cave visitation has been relatively low, remaining at or below 450,000. It is uncertain whether this trend will continue through the 1980's. Much will depend on vacation travel patterns, fuel availability and economic factors such as disposable family income.

Thus, in summer during the period of 1966 through 1977, the number of visitors to Mammoth Cave was frequently greater than the level of facilities and services that had been provided. Cars overflowed the parking lots, the visitor center was overcrowded, and size of parties on cave trips was greater than is desirable. Since that time, visitation has occurred at a level more within the capacity of existing park facilities.

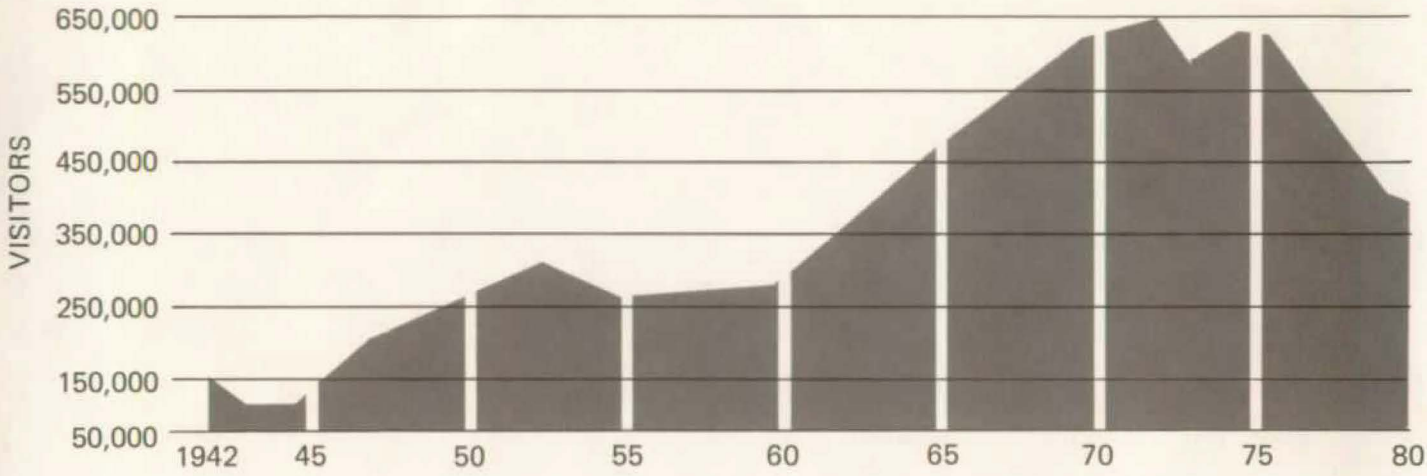
VISITATION PATTERNS



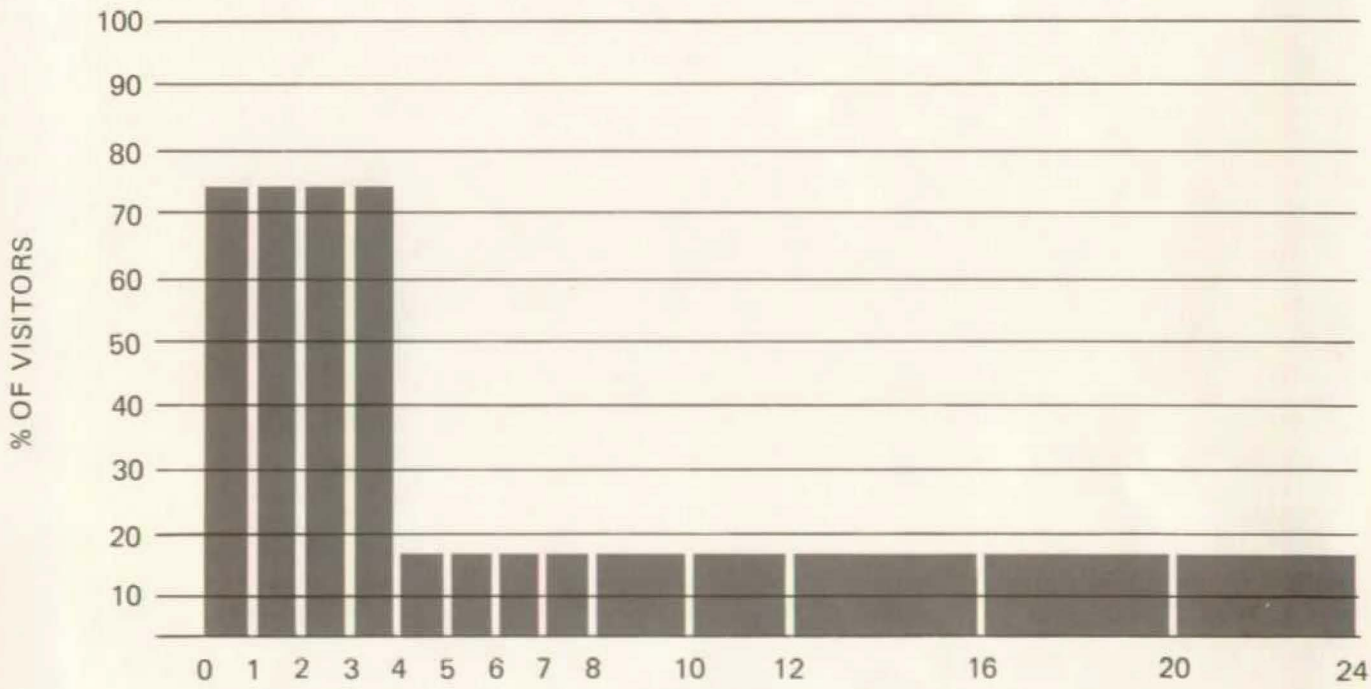
MONTHLY AVERAGE - 1977-79



TIME



ANNUAL CAVE VISITS - ACTUAL COUNT



HOURS

THE PLAN FOR THE PARK

THE PLAN FOR THE PARK

PUBLIC USE AND DEVELOPMENT

This plan reaffirms the mandate of Congress when it authorized, in 1926, establishment of Mammoth Cave National Park, and stated that the caverns, scenic river valleys, and rugged topography clothed in forests are of national significance and offer "exceptional opportunity" for outdoor recreation. Criteria for managing and using these three major park resources are spelled out in this plan, using as guidelines the management objectives cited on previous pages.

Mammoth Cave Plateau

Visitor Congestion at Park Headquarters. All visitor facilities are situated and all cave trips originate at the park headquarters area. On days of peak visitaton from 1965 through the mid-1970's, visitor facilities in this area were frequently congested and overcrowded.

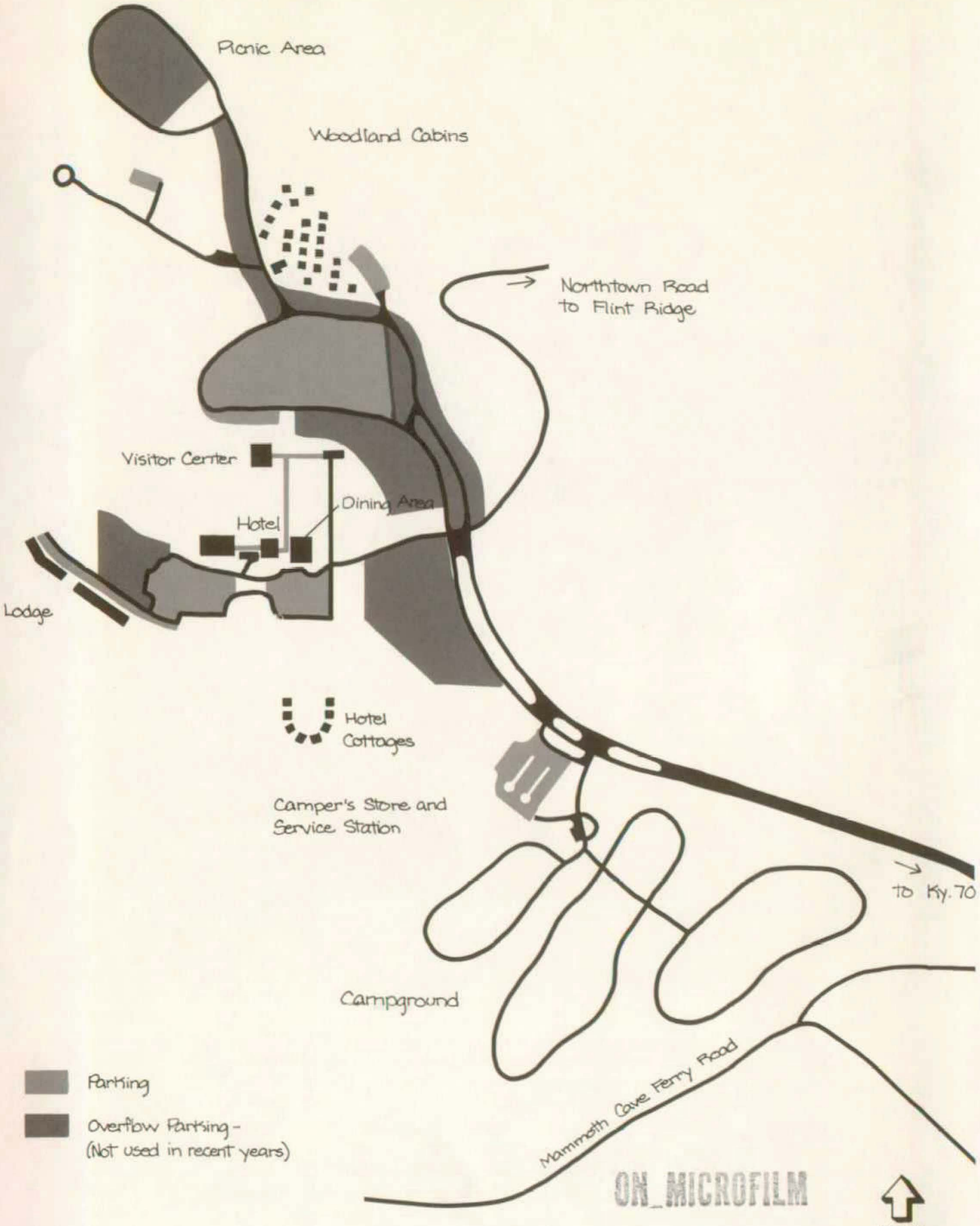
In the 1976 park Master Plan, several alternative solutions for relieving the congestion were evaluated. At that time, three options appeared feasible: (1) limiting visitation to the current capacity of the paved parking area and visitor center, (2) expand existing facilities at park headquarters, and (3) relocating existing facilities to a peripheral site. Based on information available at the time, it was determined that establishing a staging area at the periphery of the park was the best option. Establishing a staging area would entail concentrating parking and basic visitor services in a less fragile area of the park away from the entrances to the primary cave systems. Visitors would be transported by shuttle bus to and from cave entrance areas. This would reduce adverse effects of overcrowding on the physical resource as well as the visitor experience.

Since this proposal was made, circumstances have occurred that question the need or advisability of relocating visitor use facilities to a peripheral site: (1) Since the 1976 plan, the park has experienced a significant drop in annual and peak day visitation with no appreciable increase projected in the foreseeable future, (2) recent discoveries have found that contrary to earlier assumptions, the proposed Union City staging area is underlaid by caves and major underground streams that are components of the overall Mammoth Cave System. Consequently, based on resource considerations, the Union City site appears less suitable for development and intensive use than the existing headquarters site.

For these reasons, the Park Service no longer proposes relocating visitor or administrative facilities to a staging area at the Union City site. However, should visitation return to levels experienced during the late 60's - early 70's, the Park Service will initiate a special study to identify the best solution to problems of visitor congestion, potential resource damage, and detrimental effects to the visitor's enjoyment and appreciation of the resource.

To improve the quality of the visitor experience in the cave, parties of smaller size, more trips, and a greater variety of trips will be offered. Recent studies show that "New Entrance," which was closed in 1967 because of an unstable rock condition, can now be reopened after the trail is rebuilt (see Existing Conditions map). By opening new entries and extending trails in Mammoth Cave, when needed, cave tour capacity will keep pace with future visitation.

Beginning in 1809, saltpeter was mined in Mammoth Cave and after 1816, trails and artificial entrances were constructed for public tours, and electric lighting was installed. This has already caused irrevocable physical and ecological changes. The additional construction, outlined above, will be minimally damaging in comparison. However, precautions will be taken to maintain the cave's natural system of ventilation and its humidity.



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North

HISTORIC ENTRANCE AREA

MAMMOTH CAVE NATIONAL PARK

United States Department of the Interior / National Park Service

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DSC | Sept 83

ON MICROFILM

GENERAL DEVELOPMENT

MAMMOTH CAVE NATIONAL PARK

United States Department of the Interior / National Park Service

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DSC | Sept 83

Picnicking. The picnic area at Historic Entrance will remain, as mentioned previously. Roadside tables and trash receptacles will be set up as needed throughout the park. Left to future consideration is the selection of a site, and the design and layout of a formal picnic area along KY 70 possibly west of Turnhole Bend.

Church/Cemetery Access. While title to the churches and cemeteries is vested in the United States, nothing in this plan alters the privilege of members and friends of Mammoth Cave, Good Spring, Little Hope, and Joppa churches to attend services, and the right of burial in the cemeteries to the limits thereof will continue. Persons desiring to visit cemeteries will always be able to do so. Continued access to churches and cemeteries is provided in the park's enabling legislation and NPS management policies.

Water Supply. Heretofore, the park's water supply was derived from springs and wells on Flint Ridge and one well on Mammoth Cave Ridge. Because tapping these sources reduced flow of water into the caves, this practice was discontinued in mid-1979 when the Green River Valley Water District extended its service westward from Cave City to the park boundary along KY 70 and KY 255.

The most serious threat to the cave system now is the potential pollution of the underground streams by drainage from septic systems and traditional use of sinkholes for solid waste disposal outside the park. A study with National Park Service participation is underway to determine ways and means of sanitary waste disposal throughout the region. When this problem is solved, the pollution threat will be relieved. Waste dumped into a sinkhole years ago caused the permanent closing of Hidden River Cave in the town of Horse Cave, Kentucky.

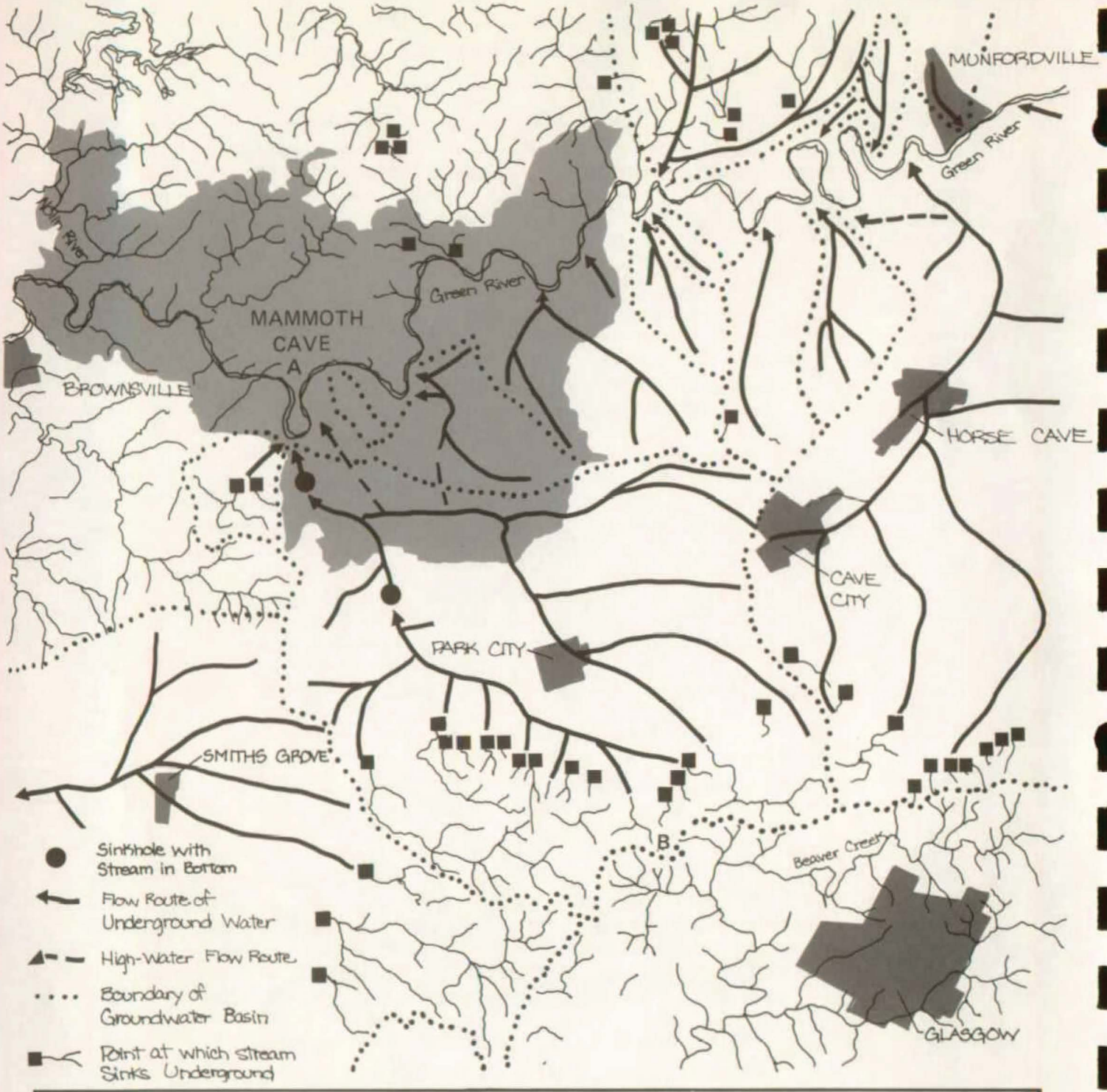
Great Onyx Civilian Conservation Center (Job Corps). When it was decided to situate this facility on Flint Ridge, its potential environmental effect on the caves was not fully understood. It has become apparent that the facility is a dangerous intrusion. For this reason, the center is being relocated to a new site on the ridge between Bylew Creek and Second Creek in the northwest part of the park where its environmental effects will be minimal. The Flint Ridge site has been restored to its former natural appearance. The estimated development (gross) cost of the relocation is $8.6 million to be funded by the Department of Labor.

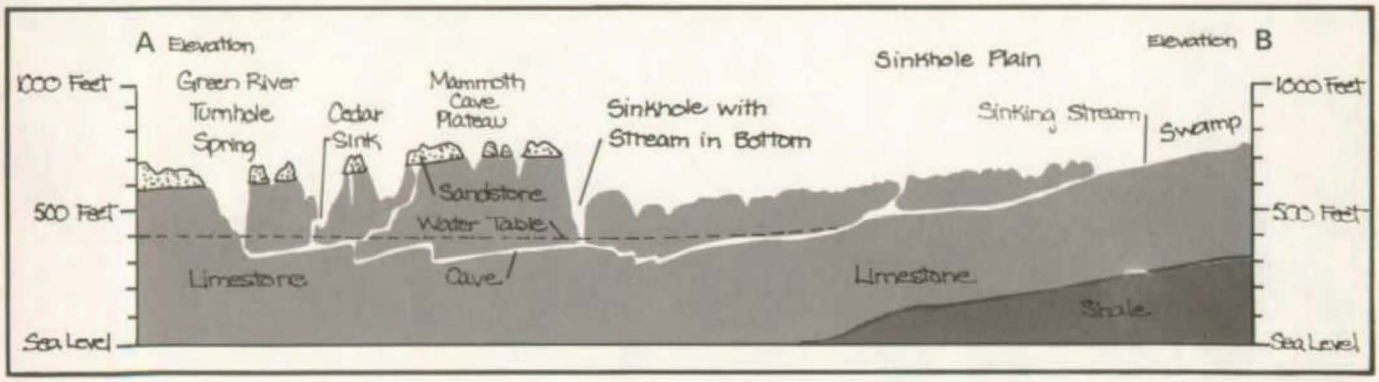
The relocation site has been fully evaluated (Environmental Assessment, Alternative Relocation Site, NPS April 1979) and a determination made that its use will not affect the cave system.

River Valleys

The River Valleys provide perhaps the best views of the park's natural environment. These areas offer opportunity for solitude and enjoyment of nature's handiwork and creatures.

The "Miss Green River," a 122-passenger motorized sightseeing boat operated by a concessioner, will continue to operate between Mammoth





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WATER FLOW DIAGRAM

MAMMOTH CAVE NATIONAL PARK

United States Department of the Interior / National Park Service

ON MICROFILM

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Cave Ferry (near Historic Entrance) and Turnhole Bend (3½ miles). It provides thousands of people each year with an introduction to the outstanding scenery, the floodplain and bluff forests, and wildlife of the Green River Valley.

Campsites with minimal facilities will be provided for canoeists and hikers along a 20-mile stretch of Green River at the site of Dennison Ferry (south bank), and Houchins Ferry. Portable comfort facilities will be provided, but there will be drinking water only at Houchins Ferry. Each of these primitive camping sites is accessible by road for servicing by park maintenance personnel. Boat launching ramps at Mammoth Cave Ferry and Houchins Ferry will be retained.

The Green River is subject to 50-foot flood crests creating extensive areas of floodplain. Consequently, in keeping with Executive Order 11988, no permanent structures will be built within the 100-year (base) floodplain.

Hilly Country

The Green River forms a natural barrier between the easily accessible cavernous portion of the park and the more remote Hilly Country. Only two small ferries cross the Green River. Hence, the great recreational resources of the Hilly Country within the park have been largely untapped.

The plan proposes a bridge across Green River in the vicinity of Houchins Ferry although the final choice of bridge site will be left to further study. A design analysis and environmental assessment will be done to determine if the proposal feasible and to identify possible sites for the bridge crossing. While driving over it through the woodlands, the passive recreationist will have a pleasant windshield experience including glimpses of wildlife. Parking areas will be provided for backcountry users at trailheads. Trails will lead to such places as Indian Hill, First Creek Lake, and Wet Prong of Buffalo Creek.

The stretches of the Green and Nolin River flowing through Mammoth Cave National Park were included in a January 1982 "Nationwide Inventory" of rivers appearing to have potential for consideration for the National Wild and Scenic Rivers System. No congressionally mandated study or proposal has been made to include the rivers in the national system. However, whenever specific development concept planning occurs, the National Park Service will consider and attempt to mitigate the effects of its action on the values that may qualify the river for inclusion in the system.

A visitor contact area is proposed for the northwest portion of the park near the site of the new Job Corps Center. The visitor facility will provide orientation and basic resource information focusing primarily on

backcountry use. This facility will complement the park's expanded and upgraded trail system and will enhance the combined efforts of the park and local communities to increase the diversity of visitor activities.

At Maple Spring, reached from the Mammoth Cave Ferry Road, the ranger station will remain; and there will be camping, picnicking, comfort stations, environmental education, and trailhead parking for hikers. Buffalo Creek, Mouth of the Buffalo, Collie Ridge, and Turnhole Bend can be reached by trail from here. Potable water will be provided for users of the Maple Spring facilities. Present access will continue for those desiring to visit Wilkins Cemetery, Good Spring Church and Cemetery, and Jordan Cemetery.

PARK MANAGEMENT

Cultural Resources

In compliance with Executive Order 11593 and prior to the decision to carry out any of the actions of this plan, all cultural resources that may be affected by the proposals will be identified and evaluated according to the National Register criteria of eligibility. This identification and evaluation process will include preparation of an historic resources study (to include an historical base map locating old homestead sites) and an archeological survey. The procedures of the Advisory Council on Historic Preservation (36 CFR Part 800) will then be completed, as appropriate.

Interpretation and Visitor Services

Present interpretive programs and facilities are oriented almost exclusively to the cavernous portion of the park, including the visitor center, campfire programs, signs, and literature.

Guided trips are conducted in electrically lighted passages and in passages lighted by hand-carried lanterns. Surface trips include guided hikes, self-guided nature walks, and automobile tours (Joppa Ridge Motor Nature Trail). Special trips and talks are conducted for organized groups on request. Environmental Education programs are available for elementary and secondary school classes.

In planning for the future, those interpretive devices and activities that are appropriate will be continued and refined so as to increase the visitor's knowledge and understanding of the facts relating to the human and natural history of the park. While facts are important, the park offers unique opportunities to present a number of fundamental environmental concepts, such as the following:

Biogeochemical processes that have formed and are continuing to modify features both above and below ground;

Complex interrelationships between the surface environment and cave systems;

Vulnerability of cave life to alteration and perhaps extinction if the environment is changed by external agents;

Great diversity and large numbers of life forms on the land compared with limited numbers of highly specialized life forms in the caves;

Restoration of park lands by the healing processes of nature following decades of intensive use by man prior to the park's establishment; and

Value of natural park ecosystems to man's knowledge of the operation of the world about him.

The interpretive prospectus to follow this plan will provide for:

Developing interpretive material for cave guides to use on each tour;

Increasing visitor understanding of the caves by reducing the maximum party size on guided trips;

Initiating a trial period of evening cave trips;

Improving existing lighting system;

Reopening developed passages of Crystal and Colossal Caves to provide guided, semi "wild-caving" experiences for visitors. Colossal Cave will be open only in summer because it is a bat hibernaculum;

Seeking methods of acquainting visitors with the great variety and diversity of cave animals, both aquatic and terrestrial, and with their dependence on food washed in from the surface; and

Interpretation at the Houchins and Dennison Ferry sites on the Green River. Exhibits, compatible with the flood prone area, could focus on the resources and Bylew Creek Valley, Indian use of rock shelters, origin of Cedar Sink, First Creek Lake, and Goblin Knob.

Historically, the visitor has suffered a confusing and frustrating experience in locating the park because of misleading signs and inadequate information. With completion of I-65 and the Mammoth Cave Parkway approach to the park, there is less confusion, but further improvement is desirable and can be effected with the cooperation of the Kentucky Department of Highways.

So that park visitors may obtain the proper orientation prior to their arrival, personnel of approprite Kentucky and Tennessee agencies within day-use distance will be provided with complete information concerning the park and its facilities. This information will be relayed to the public in turn through folder distributon and personal contact. The Kentucky information centers located at rest areas on route I-65 will be kept informed for the benefit of the interstate traveler.

Natural Resources/Research

The cave system of Mammoth Cave National Park is unique because of its length, its abundance of animal life, and its cultural resources. Among the 200 species of animals recorded from the caves are shrimp, a beetle, a snail, and several other invertebrates found nowhere else in the world. Bats congregate in the caves in winter from all over eastern United States. Pre-Columbian Indian artifacts and relics of saltpeter extraction have been found and preserved.

The surface above the caves is one of the finer developed karst areas in the world. Elsewhere in the park there is a disjunct ecosystem, several "basin" ecosystems, and relict tracts of forest. Hence, many of the scientific values of Mammoth Cave National Park are of worldwide significance. Cultural values above ground include evidences of Indian habitation and the various forms of transportation used over the years by Mammoth Cave visitors.

The following research projects are proposed to enhance future protection of and interpretation of park resources (not in priority order).

Continued underground exploration, photographing and mapping, together with a narrative description of features observed;

Evaluations of ecological consequences to the caves of surface and subsurface development and use;

Determining the chemistry and growth rate of minerals in cave passages;

Mapping the conduits, which carry water through the caves from the Sinkhole Plain to the Green River;

Continuing study of cave life, recording species therein, and monitoring populations of cave life;

Delineation of the areas that drain to the cave, monitoring of water stage and water quality in the major cave rivers;

Learning the ecology of selected "basin" ecosystems and comparing them with similar areas of the park that have been developed;

Monitoring the disjunct ecosystems of Bylew Creek, Indian Hill, and elsewhere so as to minimize, if possible, any deleterious effects that may threaten their perpetuation;

Analyzing vegetative succession;

Gathering and analyzing data on:

Volume of visitor use;

Characteristics of visitor use;

Visitor preference and expectations;

Use capacity of resources;

Indian use of cave minerals;

Transportation and visitor use;

Important personages and their contribution to Mammoth Cave history; and

Recording personal experiences of the older guides.

The National Park Service will appoint a group of scientists to select and designate surface and subsurface areas and features as Research Natural Areas. Among areas considered are those included in the Outstanding Natural Features Subzone category (see subsequent discussion of management zones). Such areas, when accepted by the Federal Committee on research natural areas, are listed in a directory so as to encourage their use by researchers throughout the world. The entire park has recently been added to the World Heritage List.

A research management plan for the park will provide continuity and correlation of research and management activities. The Regional Director, Southeast Region, may appoint a research board to advise the Superintendent.

Concessions and Fees

Most commercial visitor services in the park are provided under a concession contract by National Park Concessions, Inc. This plan provides for the continuation of at least the present scope and level of concessioner visitor accommodations, facilities, and services which includes 108 lodging units, dining for over 500 persons per hour,a gasoline service station, and a camper's store. The corporation operates two shops--one with a curio emphasis and one craft shop featuring mainly products of the Southern Highlands. It also offers simple food and beverage service in the cave (Snowball Dining Room) for the visitors who choose the half-day tour. This tour and other tours begin and end at points away from the Historic Entrance and, for this reason, the corporation has been providing transportation (fee) for visitors with its fleet of ten 40-passenger buses.

In keeping with National Park Service policy, concession operations at Mammoth Cave will provide only those services that are essential to the needs of the visitor and are not provided conveniently outside the park by the private sector. The "Miss Green River" boat concession operated independently of National Park Concessions, Inc., will be continued. The potential for expanded concession operated recreational activities such as canoeing and rafting will be considered for the stretch of the Green River between the Dennison and Houchins Ferry sites. Activities within this area must be compatible with the sensitive floodplain environment.

Management Zones

Management zoning is a process of identifying and mapping the geographic areas of the park where certain management programs will take place. Identifying management zones helps to assure that park activities occur in areas where they are most suited. The management zones pertaining to Mammoth Cave are briefly defined in the following table.

Table A: Management Zones

Category	Definition
NATURAL ZONE	Most park lands are covered by this zone. Development is limited and perpetuation of the natural scene is paramount (about 51,200 acres total).
Outstanding Natural Features Subzone	Resources of special scientific, scenic, or interpretive value, which may contain unpaved foot trails and interpretive devices (about 20,200 acres total).
Natural Environment Subzone	Lands managed predominantly to perpetuate natural ecosystems, but may contain environmentally compatible recreational activities, such as unpaved hiking, horse, and one-way motor nature trails, primitive campsites, and interpretive devices (about 31,000 acres total).
HISTORIC ZONE	Cultural resources and their settings are identified so that they may be preserved, protected, and interpreted (about 3 acres total).
Preservation Subzone	Measures are applied to sustain the existing terrain, and vegetative cover of a site and the existing form, integrity, and material of an object or structure. Ongoing maintenance is expected, and the sites, objects, and structures may be interpreted. A structure may be used for contemporary purposes if that will help to perpetuate its primary historic value.
PARK DEVELOPMENT ZONE	Places where the natural environment or the setting of historical resources have been modified to serve the needs of visitors and park management (about 500 acres total). The Park Development Zone is divided into the following subzones:

Headquarters Area Subzone
Residential/Maintenance Areas Subzone
Great Onyx Job Corps CCC Subzone
Access/Circulation Subzone
Maple Spring Subzone
Recreational Subzone
Utilities Subzone

The following land areas, containing objects of natural wonder and of scientific importance, belong in the Outstanding Natural Features Subzone:

Big Woods: one of the best remaining examples of a white oak/ black oak/tulip tree forest (upper slopes) and beech/maple forest (lower slopes) in eastern North America (about 300 acres).

"Basin" ecosystems: watersheds (basins), 150 feet or more in depth, comprise natural ecosystems useful for scientific observation and study. These must not contain developments such as roads, trails, campsites, or buildings; and each must be surrounded by a buffer area. The buffer may contain trails and primitive campsites. A typical example of a basin ecosystem is the north branch of Wilson Cave Hollow. The proximity of this area to Big Woods suggests the need to protect all of the northeast section of the park for its paramount scientific values. Such natural ecosystems, comprising an entire watershed, are rare. The 22 basin ecosystems that have been located are delineated on the Management Zones map. As mentioned earlier, a committee will study them and select the most significant for designation as Research Natural Areas; the others will revert to the zone adjacent to them (combined total of about 4,020 acres).

Bylew Creek Valley: certain plants that grow here typify this area as a "disjunct mixed mesophytic community." The area around the mouth of Bylew Creek Valley is endowed with a climate that is favorable to the growth of more northerly plants. This disjunct ecosystem is an "island" of vegetation that has survived from a past glacial period. The key tree species in this community is the Eastern hemlock (Tsuga canadensis). It, and its associates, will continue to grow here so long as climatic and site conditions remain stable. Although there are two or three other such plant communities elsehwere in the park, including one on the north slope of Indian Hill, none is more than 10 acres in extent. While this plant community is rare in Mammoth Cave National Park, it is more common in the Cumberland Mountains 100 miles to the east (about 350 acres).

Virgin Forest: in the vicinity of Historic Entrance, Cave Island, and the River Styx outlet. This forest has not been logged, so far as is known, and its composition is representative of the mixed mesphytic forest growing on lower slopes of limestone bluffs along the Green River (about 160 acres).

Goblin Knob: an erosional remnant to the north of the Green River (about 300 acres).

Turnhole Bend: a classic example of an incised meander and the most noteworthy feature of the Green River in the park. Turnhole Spring, at the Bend, is a spectacular resurgence of an underground stream (about 1,200 acres).

Woolsey Valley: one of the finest examples of solution valley physiography known anywhere. Woolsey Valley and its tributary valleys (uvalas) were formed through the coalescence of many

NATURAL ZONE

Natural Environment Subzone

Outstanding Natural Features Subzone

HISTORIC ZONE *

PARK DEVELOPMENT ZONE ●

Access/Circulation Subzone

ON MICROFILM

0 1 2 3 Miles

0 2 4 Kilometers

North

MANAGEMENT ZONES

MAMMOTH CAVE NATIONAL PARK

United States Department of the Interior / National Park Service

135 | 20039 B
DSC | Sept 83

sinkholes. At the west end of the valley is Cedar Sink, a "window" providing a view of a segment of an underground stream. Tributary to Cedar Sink are several passages useful for studying cave formation at or near the water table. At the east end of the valley is Long Cave, largest and most important bat hibernaculum in the park for it shelters a colony of the Indiana bat (Myotis sodalis), whose numbers have been dropping seriously in recent years. This bat is on the Secretary of the Interior's list of endangered species. Woolsey Valley was farmed intensively before the park was established (about 5,000 acres).

Strawberry Valley: a small solution valley of scientific interest and high scenic quality at the south end of Flint Ridge (about 400 acres).

Double Cellars Sink and Hunts Sink: especially good examples of sinkholes (about 140 acres).

Deer Park Hollow: a hanging valley formed as the Green River lowered its bed faster than the tributary, whose waters were pirated by sinkholes (about 480 acres).

Ridge Tops on Mammoth Cave Plateau: portions of Flint, Joppa, and Jim Lee Ridges overlay significant cave resources (about 7,850 acres). On Flint Ridge, however, there are roads serving cave entrances, the church and cemeteries, and an overhead powerline that provides electricity for lighting Mammoth Cave. These must remain, and have been placed in corridors 50 feet wide (see Park Development Zone).

By placing Flint Ridge in the Outstanding Natural Features Subzone category, the National Park Service recognizes the great worth of the underlying cave system for research. Concomitantly the National Park Service is, with the continued cooperation of the Department of Labor, relocating the Great Onyx Civilian Conservation Center (Job Corps) to the site purchased in the northwest part of the park. The Flint Ridge site has been restored to its natural condition.

On the Mangement Zones map, extensive areas of the park have been placed in the Natural Zone category. These lands will be managed much as they have been in the past 40 years so that the "healing processes of nature" will be unhindered by man's activity. In keeping with the recommendations of a 1974 wilderness report, no lands are designated in the Wilderness Subzone category. In time the farmsteads, wagon roads, fence lines, and other works of man will disappear. Over time, these wildlands will restore themselves to a "primeval state." The National Park Service is committed to periodically restudy all its areas where there is potential for wilderness designation, and to recommend their inclusion in the National Wilderness Preservation System (Public Law 88-577) when they meet the criteria established by Congress. However, should any areas of the park receive wilderness designation, no major change in visitor use is anticipated and existing roads open to the public will remain open and cemetery access will be continued.

The following sites and objects are included in the Historic Zone:

Mammoth Cave Railroad train consisting of the dummy-type locomotive "Hercules" and one coach designed as a combination baggage/passenger car, archeological resources in Salts Cave, saltpeter vats and two tubercular huts within Mammoth Cave, Floyd Collins' home, and Crystal Cave ticket office (about 3 acres total).

The first two have been listed in the National Register of Historic Places, and the remaining three are in the process of nomination to the National Register. Other sites of historic, cultural, or archeological value are being identified and consideration is being given to incorporating all the sites and objects in the park in a multiple resources nomination.

The Park Development Zone has been subdivided into seven subzones (Table A):

The Headquarters Area Subzone comprises 140 acres and it is delineated on the map titled "Historic Entrance Area."

Within the Residential/Maintenance Areas Subzone of 70 acres are living quarters for permanent and seasonal employees, community building, government and concessioner warehouses, and the park's maintenance support facilities.

All two-way park roads open to the public are in the Access/ Circulation Subzone (180 acres).

Maple Spring Subzone of 15 acres is located north of the Green River ½-mile west of the Mammoth Cave Ferry Road. There is a house, garage, maintenance area, fire cache, office, and stable all for use by the rangers. Future plans call for public camping, picnicking, comfort stations, environmental education, and trailhead parking in this general location.

The Recreational Subzone consists of the four riverside primitive camping sites along Green River for boaters, the sightseeing boat terminal facilities, and the campsite at First Creek Lake, covering a total of 10 acres. If a picnic area is developed along KY 70 west of Turnhole Bend, it will be included in this subzone. Also included in the Recreational Subzone is the visitor contact facility proposed for the northwest portion of the park.

On the Flint Ridge is an overhead powerline that provides electricity for the major developed areas in the park and for most of the lighted passages in Mammoth Cave. This is in a 50-foot wide easement corridor totaling 35 acres and it comprises the Utilities Subzone.

Approximately fifty acres of the recently acquired land purchased for the new Job Corps site will also be included in the Park Development Zone.

Cave Zones

The National Park Service is concerned with the management and use of all the cave passages within the park. Therefore it is appropriate to establish guidelines similar to the surface Management Zones already described.

Under the Cave Zoning System (Table B) proposed in this plan, zones are designated by the letters "A" through "F" in descending order of intensity of use and development. No passages in Flint Ridge and Joppa Ridge are zoned "A" or "B" and spelunker traffic is limited to zones "C" and "D". All newly discovered passages are zoned "E" automatically.

Cave Zone A is limited to those areas where people assemble, such as the Snowball Dining Room, Grand Central Station, Mt. McKinley comfort station, and elevator portals. Such places, essential to the comfort and convenience of the visitor, are situated in sections or cave passages that have low aesthetic and/or scientific value.

Cave Zone B includes those cave passages provided with electric lighting aesthetically arranged and developed with trails, bridges, steps, stairways, and handrails. Guides accompany all parties, and a fee is charged. Parties not exceeding 120 persons with two guides may be conducted over the trails in passages so developed. Party size mentioned above is maximum; visitors will generally have a higher quality experience when numbers are smaller.

Those passages that are partially developed or were once developed and are now abandoned are in Zone C. Trails range from good to somewhat primitive, other development is limited to that essential for visitor safety, and there is no electric lighting. Such passages provide a "wild-cave" experience for visitors without training in caving techniques. Lighting is by hand-carried lanterns. Tour size, with at least one guide, is limited to 25 to 40 persons, depending on the passages traversed, and there is a fee for the services of the guide.

Natural passages are classified in Zone D. Only those with the requisite experience, stamina, and courage, and those properly equipped may traverse these passages, which have not been improved in any way except for possibly remedying dangerous situations. Parties must be small, and a special fee is charged for guided tours.

Those portions of the cave systems reserved for scientific study and approved for exploration, or pristine passages that would be irreparably damaged by heavy use are in Zone E. Temporary "E" zoning may also be obtained for non "E" passages by scientists conducting approved projects.

Cave systems containing unique natural and historic features are in Zone F. They may be located within Zones B through E. Special measures may be taken to ensure their protection and preservation, as warranted, and this may include restricted visitation such as to a bat colony at certain seasons of the year.

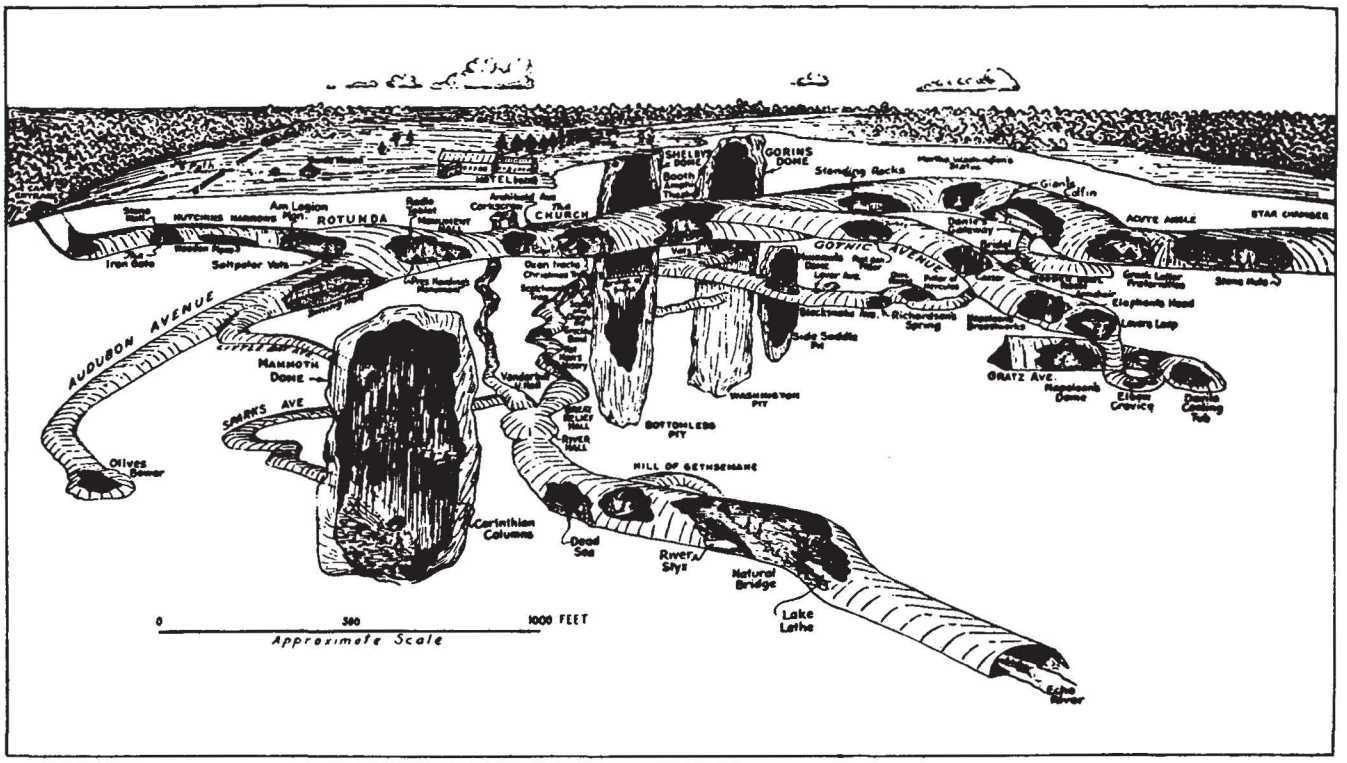
At the request of the National Park Service, the Cave Research Foundation made an independent study of the problem of zoning cave passages and published its findings in Wilderness Resources in Mammoth Cave National Park: A Regional Approach (1971). A committee will be appointed by the Regional Director to assist the Park Superintendent to devise a workable system to guide the management and use of the cave passages.

It is impractical to compress into the pages of this report drawings to represent the length and complex pattern of passages in the cave systems, hence there are none to illustrate either Cave Zoning System. Such drawings will become a part of the Resources Management Plan to be prepared. After the Cave Zoning System has been completed and implemented, those portions zoned C through F will be assessed for possible wilderness designation taking into consideration the condition and use of the land above.

Nothing in the zoning system to be developed will reduce the authority of the Superintendent to regulate entry into and use of the cave passages. Rather, it is a guide that identifies the maximum degree of use permissible for the preservation of the underground features. Park regulations may be modified by the Cave Zoning System upon its completion.

Table B: Cave Zoning System

Zone	Definition	Examples
A	Intensive use passages	Snowball Dining Room, rest area
B	Fully developed passage, electrically lighted	Cleveland Avenue, Broadway, etc.
C	Partially developed passage, no electric lighting	Nickerson Avenue, Fox Avenue, old commercial routes in Colossal, Crystal, Great Onyx, and Proctor Caves, back part of Salts Cave
D	Natural	Columbian Avenue, Pohl Avenue, front part of Salts Cave
E	Scientific study or pristine passage	Paradise passage in New Discovery, parts (or perhaps all) of Upper Turner Avenue, White Cave, Long Cave in winter
F	Outstanding natural or historic feature or passage	Saltpeter vats and pipes, unique column in Upper Turner Avenue, Attic Room



Diagrammatic Representation of Mammoth Cave, Ky.

Showing different 'levels' of the cave which follow the horizontal bedding planes of the rock; and 'domes' which follow the vertical joints.

Illustration from *GEOMORPHOLOGY* by A. K. Lubeck, copyrighted 1939, by McGraw-Hill Book Co., Inc. Used with permission of McGraw-Hill Co., Inc.

APPENDIX

APPENDIX

BASIC DATA

Establishment of the Park

The movement towards creating a national park of Mammoth Cave and its vicinity started in 1905 when this was suggested by members of the Kentucky congressional delegation to the Secretary of the Interior. Subsequently, bills were introduced in Congress, but no action was taken until after the Secretary of the Interior received the report of the Southern Appalachian National Park Commission on April 18, 1926.

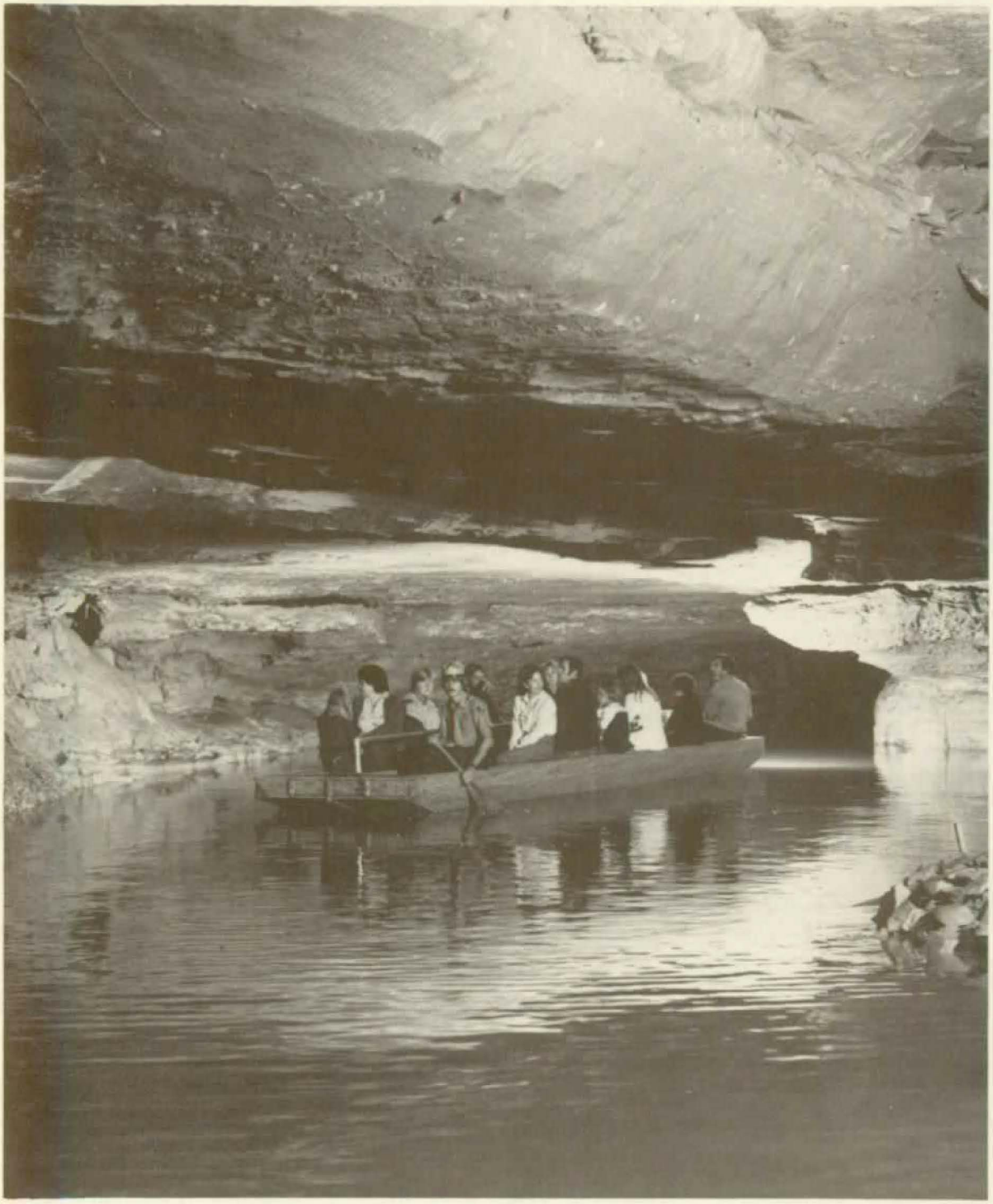
In its report to the Secretary, the commission recommended national park status for the Mammoth Cave region of Kentucky because of:

> The limestone caverns that contain "beautiful and wonderful formations," the "great underground labyrinth" of passageways "of remarkable geological and recreational interest perhaps unparalleled elsewhere," and the "thousands of curious sinkholes of varying sizes through which much of the drainage is carried to underground streams, there being few surface brooks or creeks";
>
> The rugged topography and "areas of apparently original forests which, though comparatively small in extent, are of prime value from an ecological and scientific standpoint, and should be preserved for all time in its virgin state for study and enjoyment";
>
> The "beautiful and navigable Green River and its branch, the Nolin River," which flow through the forests of the area; and
>
> "All of this offers exceptional opportunity for developing a great national recreational park of outstanding service in the very heart of our Nation's densest population and at a time when the need is increasingly urgent and most inadequately provided for."

Pursuant to the recommendation of the Southern Appalachian National Park Commission and the endorsement of the citizens of Kentucky, the Congress of the United States authorized, on May 25, 1926 (44 Stat. 635), the establishment of Mammoth Cave National Park, to contain 70,618 acres. The act stipulated that only donated lands conveyed in fee simple could be accepted by the Secretary of the Interior. Later, Congress appropriated Federal funds to speed land acquisition.

For the purpose of receiving donations of land and money, the Mammoth Cave National Park Association was organized in Bowling Green in October 1924 and it was incorporated on July 16, 1925. This group had no power of condemnation, so upon its recommendation the Kentucky Legislature created the Kentucky National Park Commission in 1930. This legislature also appropriated funds to be used for land acquisition.

The association and the commission each operated the cave properties it had acquired. By agreement with these groups the National Park Service



began, after May 1934, the condemnation and purchase of property; and Mammoth Cave was operated by a joint committee with the profits earmarked for land acquisition. By May 22, 1936, 27,402 acres of land had been acquired and accepted by the Secretary of the Interior. The area was declared a national park on July 1, 1941, when the minimum of 45,310 acres (over 600 parcels) had been assembled; much of it was infertile farmland. Subsequently, the Great Onyx Cave and Crystal Cave properties were purchased and added to the park on April 7, 1961. The park now comprises approximately 52,000 acres of the 70,618 acres authorized.

Legal Provisions

Kentucky ceded exclusive jurisdiction over park lands by an act of its legislature approved March 22, 1930; and this was accepted by the Secretary of the Interior on May 1, 1944, by authority of the act of June 5, 1942 (56 Stat. 317). Exclusive jurisdiction over the remainder of the land was accepted on May 1, 1965. By these cessions the Secretary is empowered to make rules and regulations for the proper management and care of the park and for the protection of the property therein including the fish and wildlife.

By deed reservation, certain roads are to remain open for the usual use of the public. These roads were recorded in Deed No. 262, dated June 18, 1945, filed in Edmonson County Deed Book 45, pp. 604-607.

With respect to the cemeteries at Little Hope Church, Mammoth Cave Church, and Little Jordan United Baptist Church, title to the lands was conveyed in fee simple to the United States subject to the right of ingress and egress to these cemeteries and the right of burial in these cemeteries, not to exceed the burial capacities thereof at the time of acquisition, to members of the churches and their families. As a matter of policy, these rights have been extended to all cemeteries in the park. Other cemetery reservations affecting park lands are: the Jaggers Cemetery (1 acre), the Holton Cemetery (2 acres), and on the former Crystal Cave property; ¼ acre for a grave yard, a space within the cave forever reserved as the permanent resting place of Floyd Collins, and a monument and a lot 10 feet square outside the cave.

The United States owns the cave rights only beneath a 2.99-acre tract of land along the park boundary east of Little Hope Church.

On February 28, 1929, the Kentucky Utilities Company was granted a 50-foot powerline easement and access for construction and maintenance across the Great Onyx and Crystal Cave properties.

Laws and a Secretarial order affecting the management of Mammoth Cave National Park follow.

Mammoth Cave National Park

An Act To provide for the securing of lands in the southern Appalachian Mountains and in the Mammoth Cave regions of Kentucky for perpetual preservation as national parks, approved February 21, 1925 (43 Stat. 958)

National Parks. Determination of areas to be acquired for Shenandoah, Va., and Smoky Mountains, Tenn. and N.C.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of the Interior is hereby authorized and directed to determine the boundaries and area of such portion of the Blue Ridge Mountains of Virginia lying east of the South Fork of the Shenandoah River and between Front Royal on the north and Waynesboro on the south as may be recommended by him to be acquired and administered as a national park, to be known as the Shenandoah National Park, and such portion of the Smoky Mountains lying in Tennessee and North Carolina as may be recommended by him to be acquired and administered as a national park, to be known as the Smoky Mountains National Park, and in the Mammoth Cave regions of Kentucky and also such other lands in the southern Appalachian Mountains as in his judgment should be acquired and administered as national parks, and to receive definite offers of donations of lands and moneys, and to secure such options as in his judgment may be considered reasonable and just for the purchase of lands within said boundaries, and to report to Congress thereon: *Provided*, That the Secretary of the Interior may, for the purpose of carrying out the provisions of this Act, appoint a commission of five members, composed of a representative of the Interior Department and four national park experts, said four members to serve without compensation. (U.S.C., 6th supp., title 10, sec. 403c.)

Lands in Mammoth Cave regions of Kentucky, etc.

Securing options, etc.

Proviso. Commission to be appointed. (Referred to in sec. 6, vol. 44, p. 635. See p. 189.)

Amount authorized for expenses.

SEC. 2. A sum sufficient to secure options and to pay the necessary expenses of the commission in carrying out the provisions of this Act, including the salary of one clerk to the commission at a rate not to exceed $2,000 per annum, necessary traveling expenses of the members of the commission, and $10 per diem in lieu of actual cost of subsistence, in all, not to exceed $20,000 is hereby authorized to be appropriated.

An Act To provide for the establishment of the Mammoth Cave National Park in the State of Kentucky, and for other purposes, approved May 25, [illegible] Stat. 635)

National Park, Mammoth Cave, Ky., set apart for, when lands therefor vested in United States.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That when title to lands within the area hereinafter referred to shall have been vested in the United States in fee simple, there shall be, and there is hereby, established, dedicated, and set apart as a public park for the benefit and enjoyment of the people, the tract of land in the Mammoth Cave region in the State of Kentucky, being approximately seventy thousand six hundred and eighteen acres, recommended as a National Park by the Southern Appalachian National Park Commission to the Secretary of the Interior, in its report of April 8, 1926, and made under authority of the Act of February 21, 1925; which area, or any part or parts thereof as may be accepted on behalf of the United States in accordance with the provisions hereof, shall be known as the Mammoth Cave National Park: *Provided*, That the United States shall not purchase by appropriation of public moneys any land within the aforesaid area, but such lands shall be secured by the United States only by public or private donation. (U.S.C., 6th supp., title 16, sec. 404.)

Description. Vol. 41, p. 958. See p. 987.

Proviso. Lands to be secured only by donation.

SEC. 2. The Secretary of the Interior is hereby authorized, in his discretion, to accept, as hereinafter provided, on behalf of the United States, title to the lands referred to in the previous section hereof, and to be purchased with the funds which may be subscribed by or through the Mammoth Cave National Park Association of Kentucky, and with other contributions for the purchase of lands in the Mammoth Cave National Park area: *Provided*, That any of said lands may be donated directly to the United States and conveyed to it, cost free, by fee-simple title, in cases where such donations may be made without the necessity of purchase. (U.S.C., 6th supp., title 16, sec. 404a.)

Acceptance of title to lands conveyed, authorized.

Proviso. Direct conveyance accepted.

SEC. 3. The administration, protection, and development of the aforesaid park shall be exercised under the direction of the Secretary of the Interior by the National Park Service, subject to the provisions of the Act of August 25, 1916, entitled "An Act to establish a National Park Service, and for other purposes," as amended: *Provided*, That the provisions of the Act approved June 10, 1920, known as the Federal Water Power Act, shall not apply to this park: *And provided further*, That the minimum area to be administered and protected by the Na-

National Park Service to administer, etc.

Vol. 39, p. 535. See p. 9.

Proviso. Water Power Act not applicable.

Vol. 41, p. 1063. Minimum area specified.

tional Park Service shall be, for the said Mammoth Cave National Park, twenty thousand acres, including all of the caves: *Provided further*, That no general development of said area shall be undertaken until a major portion of the remainder in such area shall have been accepted by said Secretary. (U.S.C., 6th supp., title 16, sec. 404b.)

Area to be accepted before any development made.

SEC. 4. The Secretary of the Interior may, for the purpose of carrying out the provisions of this Act, employ the commission authorized by the Act approved February 21, 1925. (U.S.C., title 16, sec. 404c.)

Commission employed.

Vol. 43, p. 959. See p. 288.

Mammoth Cave National Park

Jurisdiction, State cession over park land....State Act of March 22, 1930
Amend Act of May 25, 1926, relating to establishment of park.....
.....Act of May 14, 1934
Addition to park of lands acquired with allocated funds, authorization to exclude Great Onyx and Crystal Caves.....Act of August 28, 1937
Jurisdiction, State cession of 1930 accepted, land acquisition fund, entrance road.....Act of June 5, 1942

Excerpt from An Act ceding to the United States exclusive jurisdiction over the Mammoth Cave National Park in the State of Kentucky, approved March 22, 1930 (Acts of 1930, ch. 132, p. 405; Carroll's Kentucky Statutes, sec. 3766e-17)

SEC. 2. That the exclusive jurisdiction shall be, and the same is, hereby ceded to the United States over, within, and under all the territory in the State of Kentucky, thus to be, and as, deeded or conveyed to, or acquired by, the United States; saving and reserving, however, to the State of Kentucky the right to serve civil and criminal process, issued under its authority, within the limits of the land or lands thus deeded or conveyed to, or acquired, by the United States, in suits or prosecutions for, or on account of, rights acquired, obligations incurred, or crimes committed in said State outside of said land or lands; and on account of rights acquired, obligations incurred, or crimes committed on, or within, said land or lands, prior to the date of the giving or service of notice as hereinafter provided, of the assumption of police jurisdiction over such land or lands by the United States; and further saving and reserving to the said State the right to tax sales of gasoline and other motor conveyance fuels, and oils for use in motor conveyances, except to the extent that such gasoline and other fuels and oils may be used by the United States Government and its agents in the administration, protection, improvement, maintenance, development, and operation of the said land or lands deeded or conveyed as aforesaid; and, also, further saving and reserving to the said State of Kentucky the right to tax persons, firms, and corporations, their franchises and properties, on the said land or lands, deeded or conveyed as aforesaid; and saving and reserving, also, to persons residing in or on any of the land or lands deeded or conveyed as aforesaid, the right to vote at all elections within the respective counties of their residence, upon like terms and conditions, and to the same extent, as they would be entitled to vote in

such counties had not such land or lands been deeded or conveyed, as aforesaid, to the United States; *Provided, however,* that such jurisdiction shall not invest in the United States unless, until, and as, the United States, through the Secretary of the Interior, notifies the Governor of the State of Kentucky, and through him the said State, that the said United States assumes police jurisdiction over the land or lands thus deeded or conveyed.

An Act To amend the Act of May 25, 1926, entitled "An Act to provide for the establishment of the Mammoth Cave National Park in the State of Kentucky, and for other purposes," approved May 14, 1934 (48 Stat. 775)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the second and third provisos of section 3 of the Act of May 25, 1926, entitled "An Act to provide for the establishment of the Mammoth Cave National Park in the State of Kentucky, and for other purposes" be, and the same are hereby, amended to read as follows: "*And provided further,* That the minimum area to be administered and protected by the National Park Service shall be, for the said Mammoth Cave National Park, twenty thousand acres: *Provided further,* That no general development of said area shall be undertaken until a major portion of the remainder in such area, including all the caves thereof, shall have been accepted by said Secretary, and he shall have established a schedule of fees for admission to such caves." (16 U.S.C. sec. 404b.)

Mammoth Cave National Park, Ky.
44 Stat. 636, amended.

Minimum area.

Development contingent upon acceptance.

Schedule of admission fees.

SEC. 2. That in the establishment of the said Mammoth Cave National Park the Secretary of the Interior is hereby authorized to accept donations of money for the acquisition of lands and rights therein and to acquire the same by purchase, condemnation, or otherwise. (16 U.S.C. sec. 404c.)

Acquisition of lands.

An Act To make available for national-park purposes certain lands within the area of the proposed Mammoth Cave National Park, Kentucky, approved August 23, 1937 (50 Stat. 671)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That all lands purchased from funds heretofore allocated and made available by Executive order, or otherwise, for the acquisition of lands for conservation or forestation purposes within the maximum boundaries of the Mammoth Cave National Park as authorized by the Act of May 25, 1926 (44 Stat. 635), be, and the same are hereby, made a part of the said park as fully as if originally acquired for that purpose and the proviso at the end of section 1 of said Act of May 25, 1926, shall not be construed so as to prohibit the acquisition of lands in said area under funds made available as aforesaid. (16 U.S.C. sec. 404f.)

Mammoth Cave National Park, Ky.
Certain lands added.

44 Stat. 635.
16 U.S.C. sec. 404.

Acquisition other than by donation.

Exclusion of certain caves authorized.

SEC. 2. The Secretary of the Interior is hereby authorized, in his discretion, to exclude the Great Onyx Cave and the Crystal Cave, or either of them, from the maximum boundaries of the said park, and the area required for general development of the said park by section 1 of the Act of May 14, 1934 (48 Stat. 775), is hereby modified accordingly. (16 U.S.C. sec. 404b-1.)

48 Stat. 775.
16 U.S.C. sec. 404b.

An Act To accept the cession by the Commonwealth of Kentucky of exclusive jurisdiction over the lands embraced within the Mammoth Cave National Park; to authorize the acquisition of additional lands for the park in accordance with the Act of May 25, 1926 (44 Stat. 635); to authorize the acceptance of donations of land for the development of a proper entrance road to the park; and for other purposes, approved June 5, 1942 (56 Stat. 317)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the provisions of the act of the General Assembly of the Commonwealth of Kentucky, approved March 22, 1930 (Acts of 1930, ch. 132, p. 405), ceding to the United States exclusive jurisdiction over, within, and under such territory in the Commonwealth as may be acquired for the Mammoth Cave National Park, are hereby accepted. Subject to the reservations made by the Commonwealth in the act of cession, the United States hereby assumes sole and exclusive jurisdiction over such territory. (16 U.S.C. sec. 404c-1.)

Mammoth Cave National Park, Ky.
Acceptance of cession of exclusive jurisdiction.

Assignment to Kentucky western judicial district.

SEC. 2. The park shall constitute a part of the United States judicial district for the western district of Kentucky, and the district court of the United States in and for said district shall have jurisdiction over all offenses committed within the boundaries of the park. All fugitives from justice taking refuge in the park shall be subject to the same laws as fugitives from justice found in the Commonwealth of Kentucky. (16 U.S.C. sec. 404c-2.)

Fugitives from justice.

Hunting and fishing restrictions.

SEC. 3. All hunting or the killing, wounding, or capturing at any time of any wild bird or animal, except dangerous animals when it is necessary to prevent them from destroying human lives or inflicting personal injury, is prohibited within the limits of the park, nor shall any fish be taken out of any of the waters of the park, except at such seasons and at such times and in such manner as may be directed by the Secretary of the Interior. The Secretary of the Interior shall make and publish such general rules and regulations as he may deem necessary and proper for the management and care of the park and for the protection of the property therein, especially for the preservation from injury or spoliation of all timber, mineral deposits, natural curiosities, or wonderful objects within the park, and for the protection of the animals and birds in the park from capture or destruction, and to prevent their being frightened or driven from the park; and he shall make rules and regulations governing the taking of fish from the waters in the park. Possession within the park of the dead bodies or any part thereof of any wild bird or animal shall be prima facie evidence that

Rules and regulations.

Evidence of violation.

Persons violating provisions of Act, etc.

the person or persons having the same are guilty of violating this Act. Any person or persons, stage or express company, railway or other transportation company, who knows or has reason to believe that such wild birds, fish, or animals were taken or killed contrary to the provisions of this Act or the rules and regulations promulgated by the Secretary of the Interior, and who receives for transportation the dead bodies or any part thereof of the wild birds, fish, or animals so taken or killed, or who shall violate any of the other provisions of this Act, or the rules and regulations, with reference to the management and care of the park, or for the protection of the property therein, for the preservation from injury or spoliation of timber, mineral deposits, natural curiosities, or wonderful objects within the park, or for the protection of the animals, birds, and fish in the park, or who shall within the park commit any damage, injury, or spoliation to or upon any building, fence, sign, hedge, gate, guidepost, tree, wood, underwood, timber, garden, crops, vegetables, plants, land, springs, mineral deposits, natural curiosities, or other matter or thing growing or being thereon, or situated therein, shall be deemed guilty of a misdemeanor and shall be subject to a fine of not more than $500 or imprisonment not exceeding six months, or both, and be adjudged to pay all the costs of the proceedings. (16 U.S.C. sec. 404c-3.)

Penalty.

Forfeiture of property used for unlawful purposes.

SEC. 4. All guns, traps, nets, seines, fishing tackle, teams, horses, or means of transportation of every nature or description used by any person or persons within the limits of the park when engaged in killing, trapping, ensnaring, taking, or capturing such wild birds, fish, or animals contrary to the provisions of this Act or the rules and regulations promulgated by the Secretary of the Interior shall be forfeited to the United States and may be seized by the officers in the park and held pending prosecution of any person or persons arrested under the charge of violating the provisions of this Act, and upon conviction under this Act of such person or persons using said guns, traps, nets, seines, fishing tackle, teams, horses, or other means of transportation, such forfeiture shall be adjudicated as a penalty in addition to the other punishment prescribed in this Act. Such forfeited property shall be disposed of and accounted for by and under the authority of the Secretary of the Interior: *Provided*, That the forfeiture of teams, horses, or other means of transportation shall be in the discretion of the court. (16 U.S.C. sec. 404c-4.)

Proviso.

Park commissioner. Appointment and jurisdiction.

SEC. 5. Upon the recommendation and approval of the Secretary of the Interior of a qualified candidate, the United States District Court for the Western District of Kentucky shall appoint a park commissioner, who shall have jurisdiction to hear and act upon all complaints made of any violations of law or of the rules and regulations made by the Secretary of the Interior for the government of the park and for the protection of the animals, birds, and fish, and objects of interest therein, and for other purposes authorized by this Act. Such commissioner shall have power, upon sworn information, to issue process in the name of

Judicial powers.

the United States for the arrest of any person charged with a violation of the rules and regulations, or with a violation of any of the provisions of this Act prescribed for the government of the park and for the protection of the animals, birds, and fish in the park, and to try the person so charged, and, if found guilty, to impose punishment and to adjudge the forfeiture prescribed. In all cases of conviction an appeal shall lie from the judgment of the commissioner to the United States District Court for the Western District of Kentucky; and the district court shall prescribe the rules and procedure and practice for the commissioner in the trial of cases and for appeal to the district court. (16 U.S.C. sec. 404c-5.)

Appeals.

Rules and procedure and practice.

Jurisdiction over other offenses.

SEC. 6. The park commissioner shall also have power to issue process, as hereinbefore provided, for the arrest of any person charged with the commission within the park of any criminal offense not covered by the provisions of section 3 of this Act, to hear the evidence introduced, and, if he is of the opinion that probable cause is shown for holding the person so charged, for trial, shall cause such person to be safely conveyed to a secure place of confinement within the jurisdiction of the United States District Court for the Western District of Kentucky, and certify a transcript of the record of his proceedings and the testimony in such case to the said district court, which court shall have jurisdiction of the case. The park commissioner shall have authority to grant bail in all cases according to the laws of the United States. (16 U.S.C. sec. 404c-6.)

Bail.

Pay of commissioner

SEC. 7. The park commissioner shall be paid an annual salary as appropriated for by Congress. (16 U.S.C. sec. 404c-7.)

Fees, costs, and expenses.

SEC. 8. All fees, costs, and expenses arising in cases under this Act and properly chargeable to the United States shall be certified, approved, and paid as are like fees, costs, and expenses in the courts of the United States. (16 U.S.C. sec. 404c-8.)

Deposits.

SEC. 9. All fees, fines, costs, and expenses imposed and collected shall be deposited by the commissioner, or by the marshal of the United States collecting the same, with the clerk of the United States District Court for the Western District of Kentucky. (16 U.S.C. sec. 404c-9.)

Notice of passage of Act.

SEC. 10. The Secretary of the Interior shall notify in writing the Governor of the Commonwealth of Kentucky of the passage and approval of this Act, and of the fact that the United States assumes police jurisdiction over the park. Upon the acceptance by the Secretary of the Interior of further cessions of jurisdiction over lands now or hereafter included in the Mammoth Cave National Park, the provisions of sections 2 to 9, inclusive, shall apply to such lands. (16 U.S.C. sec 404c-10.)

Acquisition of additional property.

SEC. 11. The Secretary of the Interior is hereby authorized in his discretion to acquire for inclusion within the Mammoth Cave National Park by purchase, condemnation, or otherwise, any lands, interests in lands, and other property within the maximum boundaries thereof as authorized by the Act of May 25, 1926 (44 Stat. 635), notwithstanding

16 U.S.C. secs. 404-404c, 404f.

the provisions of the Act of August 28, 1937 (50 Stat. 871), or any action taken thereunder to exclude certain caves from the park area.

Special fund from excess of revenues over appropriations.

For the purpose of enabling the Secretary of the Interior to acquire property on behalf of the United States, as authorized by this section, there shall be reserved and set aside in the Treasury a special fund of not to exceed $350,000. Said fund shall consist of the annual revenues of the Federal Government from the Mammoth Cave National Park which are in excess of the annual appropriations made for the administration, protection, and maintenance of said park. At the close of each fiscal year, the Secretary of the Interior shall certify to the Secretary of the Treasury the excess of revenues over appropriations for the preceding fiscal year.

Title to acquired property.

The title to lands, interests in lands, and other property to be acquired pursuant to this Act shall be satisfactory to the Secretary of the Interior. Any property acquired pursuant to this Act upon acquisition by the Federal Government, shall become a part of the park, and shall be subject to all laws and regulations applicable thereto. (16 U.S.C. sec. 404c-11.)

Development of entrance road.

SEC. 12. For the purpose of developing a proper and suitable entrance road to the Mammoth Cave National Park, the Secretary of the Interior is hereby authorized in his discretion to accept on behalf of the United States donations of lands, buildings, structures, and other property or interests therein, or to acquire such property with donated funds by purchase, condemnation, or otherwise, within an area or areas to be determined by him, but (a) not to exceed one mile in width, extending from the exterior boundary of the Mammoth Cave National Park to a point to be selected by him on United States Highway Numbered 31-W, and (b) not to exceed one-half mile in width on either side of United States Highway Numbered 31-W and running for a distance of not to exceed two miles along said highway. Lands acquired for purposes of protecting such entrance roads shall not be less than five hundred feet in width on either side of said roads: *Provided*, That only one such entrance road shall be established between United States Highway Numbered 31-W and Mammoth Cave National Park pursuant to this Act. (16 U.S.C. sec. 404c-12.)

Acceptance of donations.

Proviso.

Mammoth Cave National Park

Excluding the Great Onyx and the Crystal Cave from maximum boundaries of the park: Order of Dec. 3, 1940[1]

ORDER EXCLUDING THE GREAT ONYX CAVE AND THE CRYSTAL CAVE FROM THE MAXIMUM BOUNDARIES OF THE MAMMOTH CAVE NATIONAL PARK, KENTUCKY

[Dec. 3, 1940—5 F. R. 5071]

Pursuant to the authority contained in section 2 of the act of Congress approved August 28, 1937 (50 Stat. 871), I, Harold L. Ickes, Secretary of the Interior, do hereby exclude the Great Onyx Cave and the Crystal Cave from the maximum boundaries of the Mammoth Cave National Park as authorized by the Act of May 25, 1926 (44 Stat. 635), and the area required for general development of the said park by section 1 of the act of May 14, 1934 (48 Stat. 775), is modified accordingly.

IN WITNESS WHEREOF I have hereunto set my hand and caused the official seal of the Department of the Interior to be affixed in the City of Washington, this 3d day of December 1940.

HAROLD L. ICKES,
Secretary of the Interior.

[SEAL]

[1] Sec. 11, act of June 5, 1942 (56 Stat. 317) authorized acquisition of property within maximum boundary as authorized by act of May 25, 1926 (44 Stat. 635), notwithstanding this order. See Vol. II, p. 74.

Mammoth Cave National Park

Commissioner to be appointed solely by the United States District Court.....Act of April 21, 1948
Amendment of section 11 of Act of June 5, 1942, and appropriation of $350,000 authorized for acquisition of lands.....Act of June 30, 1948
Authorization for Secretary of the Interior to cooperate with the State of Kentucky to acquire non-Federal cave properties within the park.....Act of March 27, 1954

An Act To provide that appointments of United States commissioners for the Isle Royale, Hawaii, Mammoth Cave, and Olympic National Parks shall be made by the United States district courts without the recommendation and approval of the Secretary of the Interior, approved April 21, 1948 (62 Stat. 196)

U.S. commissioners. Appointments to certain national parks. 56 Stat. 184.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the first sentence of section 5 of the Act entitled "An Act to accept the cession by the State of Michigan of exclusive jurisdiction over the lands embraced within the Isle Royale National Park, and for other purposes", approved March 6, 1942 (U.S.C., 1940 edition, Supp. V, title 16, sec. 408m), is amended by striking out "upon the recommendation and approval of the Secretary of the Interior of a qualified candidate."

SEC. 2. The first paragraph of section 6 of the Act entitled "An Act to provide for the exercise of sole and exclusive jurisdiction by the United States over the Hawaii National Park in the Territory of Hawaii, and for other purposes", approved April 19, 1930, as amended (U.S.C., 1940 edition, title 16, sec. 395e), is amended by striking out "upon the recommendation and approval of the Secretary of the Interior of a qualified candidate".

46 Stat. 228.

SEC. 3. The first sentence of section 5 of the Act entitled "An Act to accept the cession by the Commonwealth of Kentucky of exclusive jurisdiction over the lands embraced within the Mammoth Cave National Park; to authorize the acquisition of additional lands for the park in accordance with the Act of May 25, 1926 (44 Stat. 635); to authorize the acceptance of donations of

land for the development of a proper entrance road to the park; and for other purposes", approved June 5, 1942 (U.S.C., 1940 edition, Supp. V, title 16, sec. 404c-5), is amended by striking out "Upon the recommendation and approval of the Secretary of the Interior of a qualified candidate, the" and inserting in lieu thereof "The".

56 Stat. 318.

SEC. 4. The first sentence of section 5 of the Act entitled "An Act to accept the cession by the State of Washington of exclusive jurisdiction over the lands embraced within the Olympic National Park, and for other purposes", approved March 6, 1942 (U.S.C., 1940 edition, Supp. V, title 16, sec. 256d), is amended by striking out "Upon the recommendation and approval of the Secretary of the Interior of a qualified candidate, the" and inserting in lieu thereof "The". (See 28 U.S.C. § 631 note.)

56 Stat. 137.

An Act To amend section 11 of the Act approved June 5, 1942 (56 Stat. 317), relating to Mammoth Cave National Park in the State of Kentucky, and for other purposes, approved June 30, 1948 (62 Stat. 1165)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the second paragraph of section 11 of the Act approved June 5, 1942 (56 Stat. 317, 319; 16 U.S.C. sec. 404c–11), is hereby amended to read as follows:

Mammoth Cave National Park, Ky.

"In order to provide for acquisition of property on behalf of the United States, in accordance with the provisions of this section, there is hereby authorized to be appropriated the sum of not to exceed $350,000. Any of the funds appropriated pursuant to the provisions hereof which are not needed to acquire property as authorized by this section may, in the discretion of the Secretary of the Interior, be used to acquire lands and interests in lands required for the development of a proper and suitable entrance road to Mammoth Cave National Park, as authorized in section 12 of this Act. The funds heretofore deposited in the Treasury under special fund receipt account 146664 shall, upon the passage of this Act, be transferred to the general fund of the Treasury as miscellaneous receipts: *Provided*, That no part of this authorization shall be used for road development or construction until after all the lands within the maximum boundaries, as authorized by the Act of May 25, 1926 (44 Stat. 635), have been acquired by purchase, condemnation or otherwise." (16 U.S.C. § 404c–11.)

Appropriation authorized.

Acquisition of lands.

56 Stat. 320.

Restriction.

16 U.S.C. §§ 404–404c.

An Act To authorize the Secretary of the Interior to cooperate with the State of Kentucky to acquire non-Federal cave properties within the authorized boundaries of Mammoth Cave National Park in the State of Kentucky, and for other purposes, approved March 27, 1954 (68 Stat. 35)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress as-

sembled, That the Secretary of the Interior is authorized to cooperate with the State of Kentucky for the purpose of arranging for the eventual acquisition by the United States of the Great Onyx Cave and the Crystal Cave within the authorized boundaries of Mammoth Cave National Park. The Secretary shall deposit to the credit of a special receipt account that portion of the annual admission, guide, and elevator fee receipts from the said park which exceeds the annual amount available to the park for management, guide, and protection purposes, which funds so deposited may be expended thereafter in payment for the purchase of said cave properties. The Secretary is further authorized to enter into such contracts and agreements as he may determine to be necessary to effectuate the acquistion of the cave properties as authorized herein. (16 U.S.C. § 404b–2.)

Kentucky.
U.S. authority to acquire cave properties.

The following cooperative agreements are now in effect:

For preventing and controlling forest fires, made December 12, 1962, with the Kentucky Division of Forestry;

For wildlife cooperation, a memorandum of understanding made April 3, 1970, with the Kentucky Department of Fish and Wildife Resources; and

For cave research, a memorandum of agreement first made October 20, 1959, with the Cave Research Foundation and "reviewed annually."

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As the Nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, parks and recreation areas, and to ensure the wise use of all these resources. The Department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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