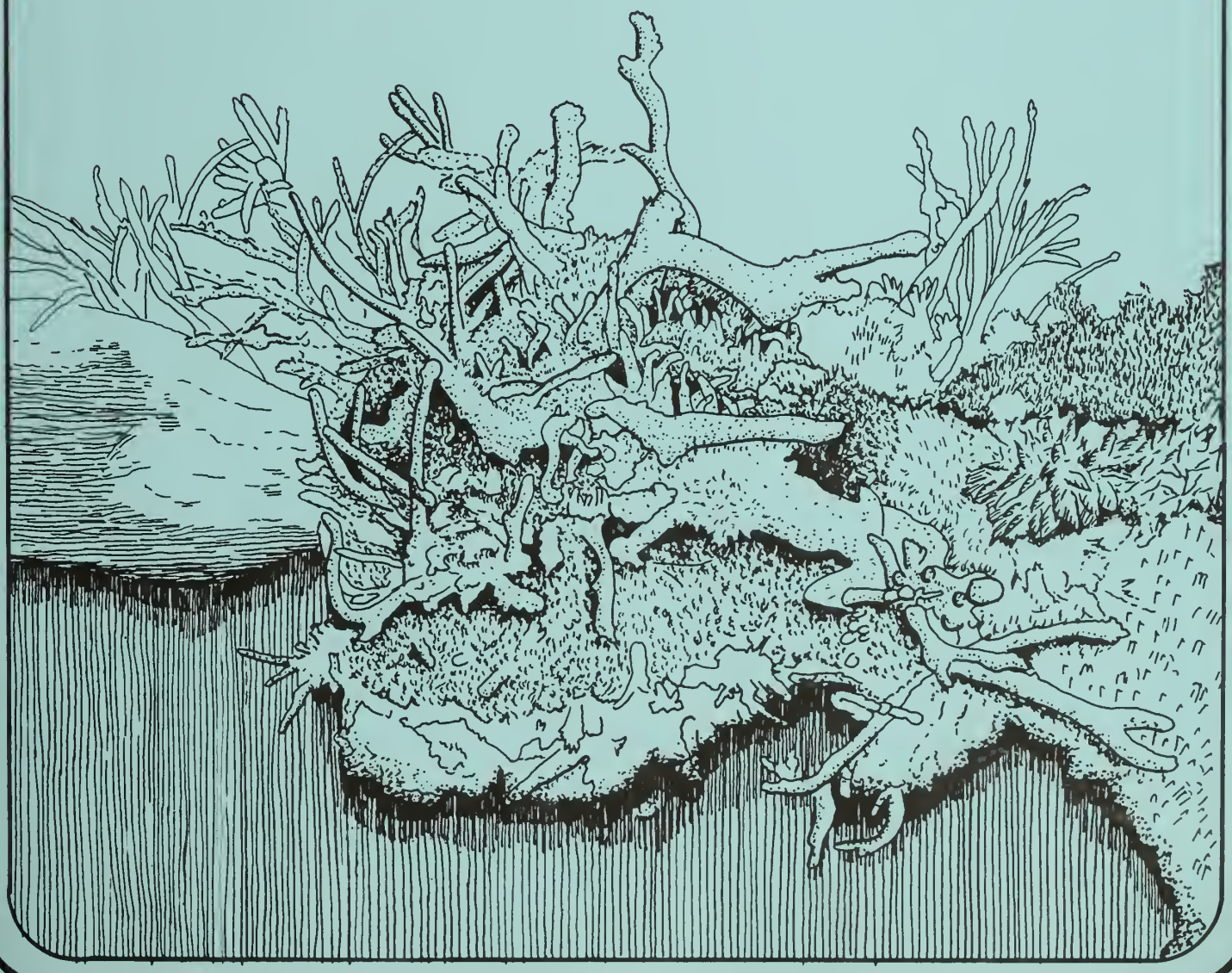
Timpanogos Cave National Monument
Statement for Management

United States Department of the Interior - National Park Service

April 1984



Definition

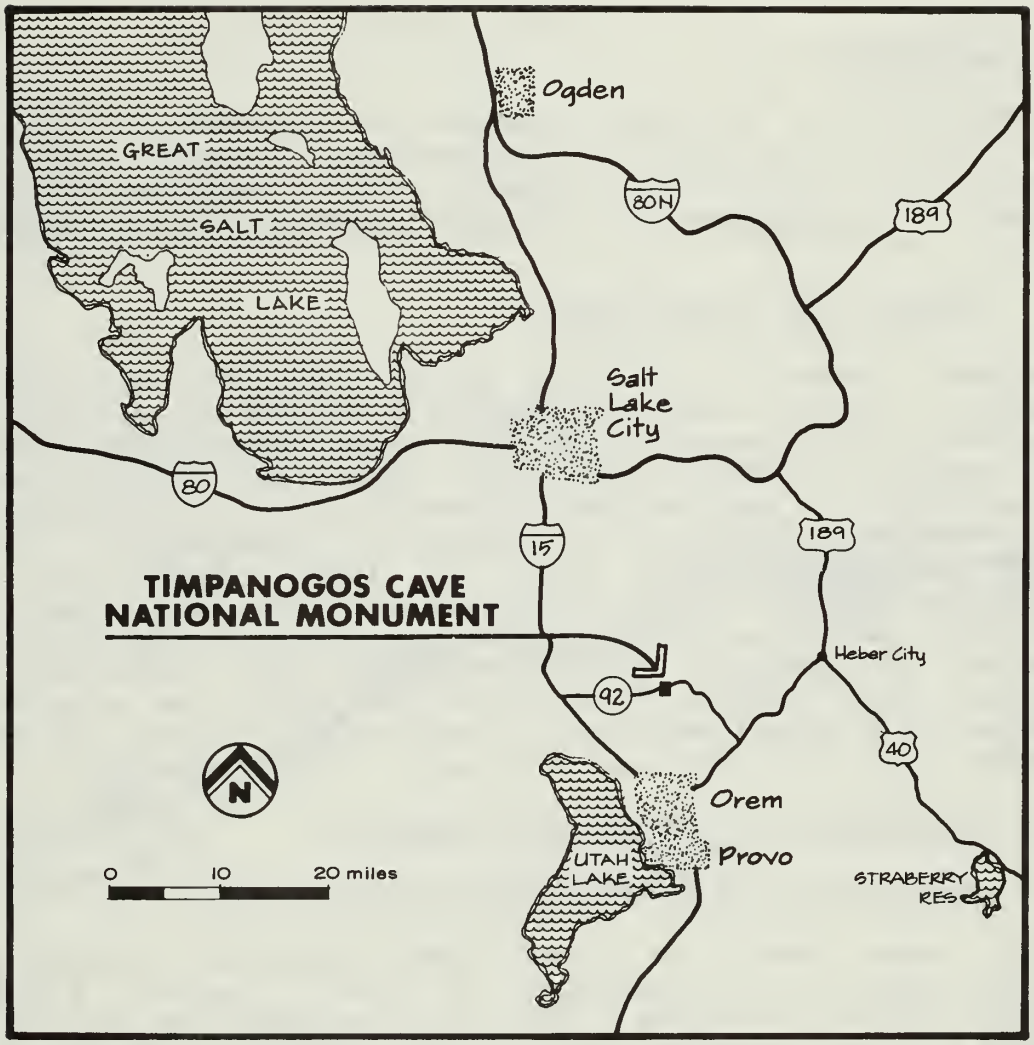
The statement for management (SFM) provides an up-to-date inventory of the park's condition and an analysis of its problems. It does not involve any prescriptive decisions on future management and use of the park, but it provides a format for evaluating conditions and identifying major issues and information voids.

Recommended by:

/s/ William E. Wellmen — March 26, 1984
Superintendent, Timpanogos Cave National Monument — Date

Approved by:

Acting Homer R. Rowe — 4-10-84
Regional Director, Rocky Mountain Region — Date



Vicinity Map

Timpanogos Cave National Monument

U.S. Dept. of the Interior - National Park Service

153	80,112
5-83	RMRO

I. LOCATION

Timpanogos Cave National Monument is located in Utah County, Utah, which is in the 3rd Congressional District. The 250 acre monument is located in rugged, scenic American Fork Canyon. Access to the monument is via Utah Highway 92, the Alpine Scenic Loop.

II. PURPOSE AND SIGNIFICANCE

President Warren G. Harding by Proclamation No. 1540, dated October 14, 1922, under the authority of the Act of June 8, 1906, (34 Stat. 225), established Timpanogos Cave National Monument. The series of three limestone caves was placed under the jurisdiction of the National Forest Service to be protected for its "unusual scientific interest and importance." Executive Order No. 6166, dated June 10, 1933, placed all national monuments under the jurisdiction of the Department of the Interior, and transfer of Timpanogos Cave to the National Park Service occurred on July 1, 1934. Under provision of the National Park Service Organic Act of 1916, the area is to be managed in a manner which will conserve the natural resources and provide for public use and enjoyment. (See Appendix A.)

III. INFLUENCES: INVENTORY AND ANALYSIS

A. Legislative and Administrative Requirements

There have been no significant boundary changes since establishment of the monument in 1922. However, a subsequent survey (1945) determined that the boundary as marked on the ground did not coincide with the diagram which formed part of the 1922 proclamation. Therefore, the description of the boundary was changed to conform with the physical boundary by Presidential Proclamation 3458, dated March 27, 1962.

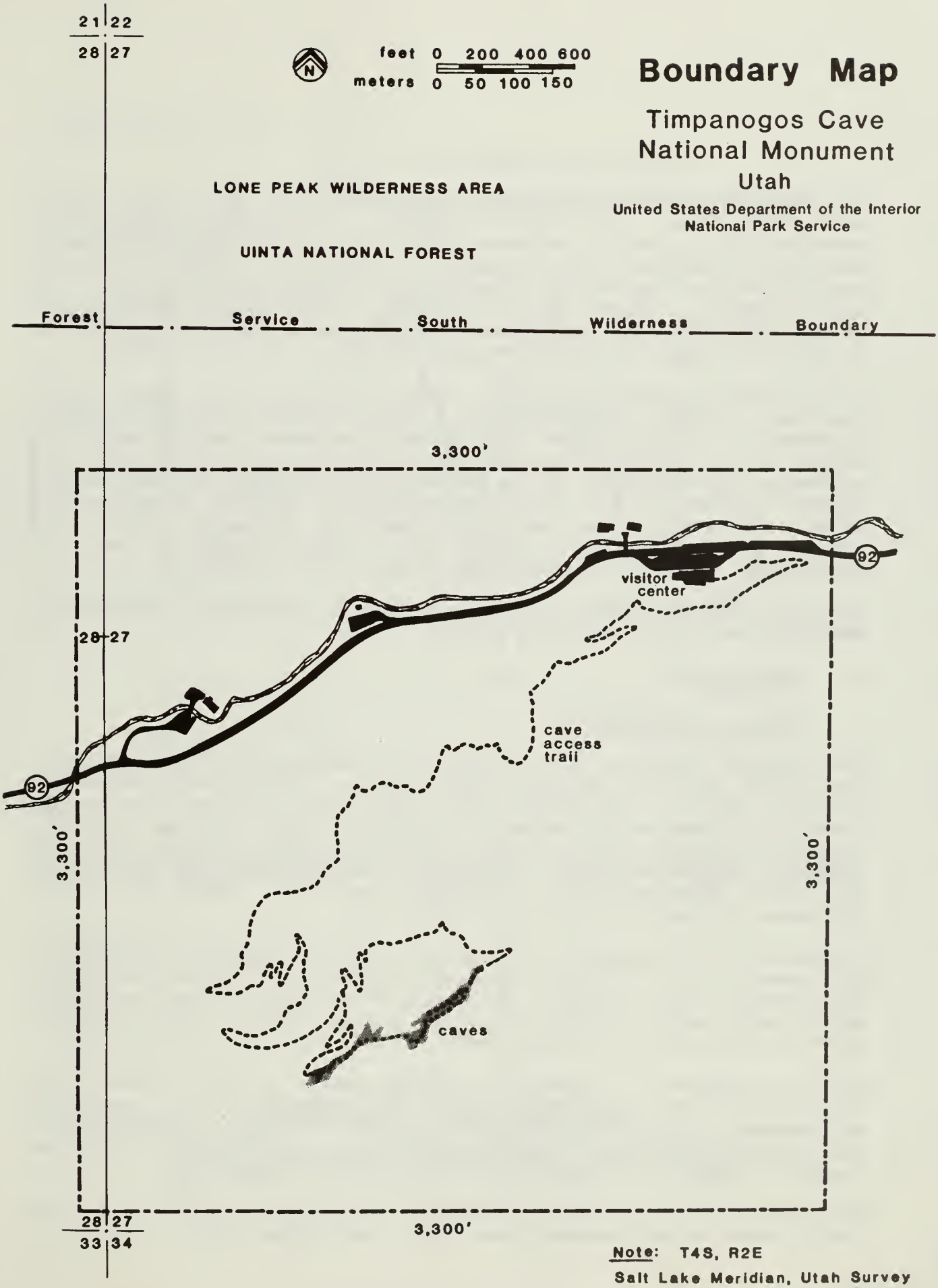
A List of Classified Structures Inventory was carried out in November 1975. A National Register nomination was submitted in February 1982 for the Timpanogos Cave Historical District which was placed on the National Register October 13, 1982. The contributing structures of the Historic District are: Superintendent's Residence, bridge, Comfort Station Building Number 126, Comfort Station Building Number 127, two cold cellars, the stone storage building, and the old Timpanogos Cave Trail.

A permit was issued January 1, 1978, to Mountain States Telephone Company for the right-of-way for telephone transmission lines, expiring December 31, 1997. The lines have a visual impact on the area.

Boundary Map

Timpanogos Cave National Monument
Utah

United States Department of the Interior
National Park Service



SFM-3

153 | 80,017
1-84 | RMRO

An electric service agreement dated February 18, 1955, exists with Utah Power and Light Company. It assumed maintenance responsibility for a government-built line and agreed to furnish electrical service to the monument. On April 1, 1966, a contract was issued for reconstruction of the system by Utah Power and Light Company. There is considerable visual impact which could be minimized by some realignment which the company has agreed to do as replacement of poles becomes necessary.

A concession permit was issued to Mr. and Mrs. Carl Wagner for a food and souvenir concession on January 1, 1981, and will expire December 31, 1985. The concession operates approximately 6 months a year providing needed refreshments to visitors after the strenuous trail hike. It is housed in a portion of the visitor center constructed for that purpose and has minimal impact on the area. Souvenir sales consist primarily of sweat shirts for visitor comfort in the 43-degree cave. Other souvenirs assist in making the concession operations financially feasible.

Executive Orders 11990 and 11988 control development on Wetland Habitats and 100-year flood plains.

B. Resources

1. Natural Resources

The primary resource of the area is Timpanogos Cave located in the south wall of American Fork Canyon, 1,065 feet above the visitor center. Timpanogos Cave and nearby Hansen and Middle Caves are connected by manmade tunnels so that visitors enter the caves at Hansen Cave, travel through Middle Cave, and exit through Timpanogos Cave. The caves are small with no huge rooms or large passageways. Following the tour route the total distance through the caves is 1,800 feet.

Stalactites, stalagmites, and other common features are found in the caves, but it is the tremendous number of helectites which make these caves unique. Helectites are small cave formations which twist and turn into strange and fantastic shapes as they grow from the cave walls or roof.

Due to changes in elevation and exposure, a wide variety of plants are found within the monument. These plants may generally be grouped into three categories by the location in which they are found. South and west facing slopes, which are a warm and relatively dry environment, are dominated by gambel oak.

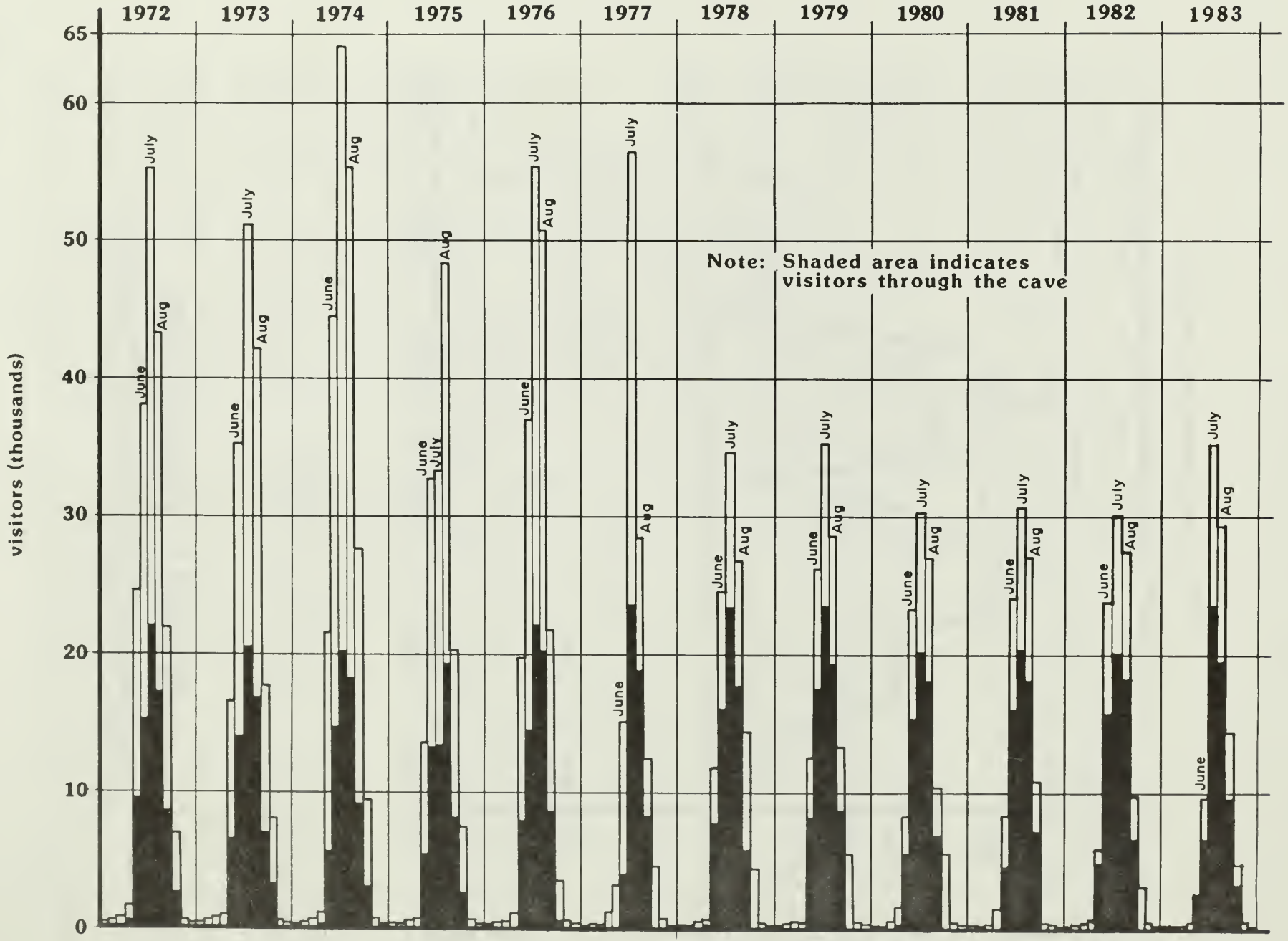
The canyon floor provides a moist environment suitable for such large trees as cottonwood, box elder, and white fir.

Annual Visitation

Timpanogos Cave National Monument

U.S. Dept. of the Interior - National Park Service

153	80,016
1-84	RMRO



Visitation Trends

Timpanogos Cave National Monument

U.S. Dept. of the Interior - National Park Service

153	80,015
1-84	RMRO

The cool, moist, shaded environment of the north facing slopes support white fir, Douglas fir, red osier dogwood, and mountain maple.

Despite its small size a variety of animals are found within the monument. A few bats may be found in the caves, but they are not common. Cougar also live in the area; however, they are seldom seen.

There are no known endangered plants or animals in the monument. However a threatened and endangered species survey has not been undertaken within the monument.

2. Cultural Resources

There are few cultural resources outside of the Timpanogos Cave Historic District (see part III A). An archeological survey has been carried out in accordance with Executive Order 11593. The one site found, a Freemont style anthropomophic figure, does not meet the criteria for nomination to the National Register of Historic Places. The site is protected and inaccessible to the public due to its location. The survey report was completed in November 1975.

C. Land Uses and Trends

Timpanogos Cave is surrounded by the Uinta National Forest. North of Utah Highway 92 (which bisects the park) the park is enclosed by the 30,088 acre Lone Peak Wilderness Area. South of Highway 92 the Pleasant Grove Management Area surrounds the park. This area which includes Provo and American Fork Canyons, is heavily used by local residents for various types of recreation such as sightseeing, camping, picnicking, hunting, and gathering forest products.

Over the past few decades the Wasatch front from Ogden to Provo has become increasingly urbanized. The population of Utah County, in which Timpanogos Cave is located, increased 58.3 percent in the decade of 1970-80. While the area just outside the mouth of American Fork Canyon was largely small grain and livestock farms or fruit orchards 15 years ago, today it is predominately subdivided housing tracts. While the trend toward urbanization is expected to continue through at least the next decade, it should be much less intense than in the late 1970's. Because the monument is buffered by the surrounding national forest and because visitation is already approaching the carrying capacity of the caves, the effect of the increased urbanization will be minimized. Foreseeable problems include possible damage to the resources from increased air pollution originating in the expanding urban areas and the need for increased law enforcement to protect both the park resources and park visitors.

There are no private holdings within the boundary of the monument.

D. Visitor Use Analysis

The 1983 visitor year was somewhat unusual. The very late spring resulted in unusually low visitation in May. Also, mud slides and flooding in American Fork Canyon resulted in closure of the park from May 31 until June 14. The cave was open to the public from May 17 through May 30 and from June 14 through October 31. During this time 4,011 cave tours were given for 64,774 visitors.

Approximately 75 percent of the park visitation occurs during June, July, and August. Visitation is comparatively light during the first half of June because Highway 92 is still closed just past the monument and because of the cool weather. From mid-June until schools are open in late August, visitation is consistently heavy. During this period of heavy visitation, visitors who arrive before 10 a.m. may start up the trail for their cave tour immediately. Visitors arriving after 10 a.m. must wait at the visitor center before starting up the trail.

On a week day the wait will often be 1 to 3 hours by midafternoon because visitors are arriving faster than the tours can be given. There are 20 people to a tour, and tours are no closer than 10 minutes apart (maximum), which is approximately 120 visitors per hour.

This daily visitation pattern is consistent for all weekdays. The visitation pattern is similar on Sundays except visitation is extremely light during the morning. Saturday by far receives the heaviest visitation. Quite often there will be a line of visitors waiting at the door of the visitor center by 8 a.m. All tours for the day are usually filled by early afternoon and may fill as early as 11 a.m. On weekends approximately 90 percent of the visitors are from Utah. On weekdays 70 percent of the visitors are from Utah and 30 percent from out of State.

The Visitation Trends Graph illustrates a major decline in park visitation after 1977. This is an inaccurate picture since park visitation has always been calculated as a percentage of the cave tours. The percentage used to calculate total visitors was reduced in 1978. Note that the cave tours on the graph illustrate a more consistent trend. Cave tours are derived from actual count.

Peak Day - 1983

Date	Number of Tours	Cave Visitors	Total Visitors
7/2	53	1,047	1,404
7/4	61	1,202	1,816
7/16	60	1,234	1,664
7/23	59	1,085	1,577
7/30	52	1,201	1,624
9/5	50	1,066	2,415

Average Daily Visitation for July was 1,138 (758 cave visitors)
For the year: 65 percent cave visitors
35 percent other visitors

Noncave visitors view the audio-visual program, visit the museum, and picnic.

E. Facility and Equipment Analysis

1. Nonhistoric Roads and Trails - 600 feet of roadway, four parking lots (129 spaces), 1.87 miles of paved trails.

The main road through the monument is Utah Highway 92 and is maintained by the State. The only roads maintained by the park are the 500 foot road leading to the utility area and residence 2, and the 100 foot road leading to residences 8 and 9. There is a 56-space parking lot at the visitor center, a 35-space parking lot across Highway 92 from the visitor center, a 13-space lot at the nature trail, and a 25-space lot at the picnic area.

The 1-1/2 mile trail from the visitor center to the cave is one of the major facilities in the park. This trail climbs 1,065 feet along the steep south wall of American Fort Canyon. Due to the large number of visitors using this trail, it was paved in 1957. Because of the extreme weather conditions in the canyon and constant rockfall damage, the trail requires continuous maintenance. One third of the trail is resurfaced each year. The trail is in generally good condition.

The trail through the cave is also paved and stairs and handrails are provided in more difficult passages. This trail is in good condition, but the handrails are old and need to be replaced.

In addition to the cave trail, a 1/4-mile nature trail follows the American Fork River from the visitor center to the picnic area. Due to the considerably milder weather conditions on the canyon floor, this trail requires much less maintenance. The

bridge at the east end of this trail was lost during the spring runoff in 1983. The trail is still accessible from the picnic area. A new bridge has been installed across Highway 92 from the visitor center, a location discribed in the 1983 general management plan. Construction of the new section of trail should begin in the summer of 1984.

There are two roadway bridges and three footbridges across the American Fork River within the monument. All of these structures are maintained by the park and are in good condition.

The cave trail rockfall barrier, installed in 1977, is located in the exposed drainage above the cave restroom. This drainage is crossed seven times by the cave trail and is the most hazardous portion of the trail. The rockfall barrier is designed to stop rocks at the head of the drainage, thereby preventing them from falling onto the trail below.

Retaining walls have been installed at various times along the American Fork River. A great deal of dry-laid stone retaining wall was built during the 1930's and 1940's; however, only a small portion of this wall remains intact.

Following the flood in 1965, approximately 300 feet of rock-faced concrete stem retaining wall was constructed to protect the picnic area restroom, maintenance shop, and residence 2. Again following high water damage in 1983, an additional 500 feet of retaining wall was added to protect residence 8, the main waterline, the picnic area, and access road.

2. Nonhistoric Buildings and Facilities

The visitor center (constructed in 1967, 6,700 square feet) contains four administrative offices and visitor facilities including exhibit area, information and ticket sales counter, Southwest Parks and Monuments Association sales display, 100-seat auditorium with a 12 minute slide/tape program, and public restrooms. A concession area is separated from the main visitor center by a roofed patio. The concession area contains a snack bar and souvenir shop. This facility is in good operating condition.

The maintenance shop (constructed in 1965, 2,194 square feet) contains four 18 foot by 24 foot bays used for equipment and vehicle storage, supplies storage, workspace, and office space for the maintenance foreman. A 10 foot by 18 foot storage shed was added to the east end of the building in 1971. The structure is in good condition.

Residences 8 and 9 (constructed in 1965, 1,400 square feet each) are typical Mission 66 houses with attached garages. Both houses are in good condition. Free standing wood stoves have been installed in each residence.

The Swinging Bridge Picnic Area contains 16 sites and 24 tables. The area is located along the American Fork River 1/4 of a mile down the canyon from the visitor center. Tables, fire grills, trash receptacles, and water faucets are provided. Despite heavy use this facility is in generally good condition.

An unheated comfort station (constructed in 1965, 375 square feet) is located in the picnic area. This facility contains men's and women's restrooms and a utility room. Effluent from this restroom is pumped to the main leach field for disposal. The structure is in good condition.

3. Utility Systems

Three phase electric service is provided to the park by the Utah Power and Light Company. Considering the rather difficult access to the park facilities, service to the area is good.

Telephone service is provided by Mountain Bell. Three lines are utilized by the park.

Communications with the cave is by park radio. The system consists of a base station at the visitor center, two mobile units, and numerous handsets used by the maintenance crew, cave guides, and patrol rangers. The performance of the system is generally good although it could be improved by relocation on the base or the use of a repeater.

Garbage is collected by the park maintenance staff and carried to the Orem City Landfill in the park truck. Usually two trips per week are needed in the summer and one or two trips per week during the rest of the year.

The entire water system in the canyon floor is gravity operated. The water source is two boxed springs located 510 feet higher than the visitor center elevation on National Forest Service land in Swinging Bridge Canyon. From the springs, water flows through a 4 inch iron pipe to the hyprochlorinator building--a distance of approximately 1,300 feet with an elevation loss of 334 feet. At this point the water for the park is treated with chlorine gas and the volume of the water metered. Water excess to the park's needs continues down the 4 inch line and feeds into the Utah Power and Light Company's 24 inch line. After treatment and metering, the water is fed through a 2 inch line into a 100,000 gallon above ground steel tank. From this tank, water flows to

the facilities in the canyon floor through 4 inch mains and 2 inch lateral pipes. A 20,000 gallon underground concrete tank is located along the line to the utility area. This tank is used for additional storage and allows manual operation of the system when the steel tank and chlorinator are out of service. The water system is in good condition.

The sewer system in the canyon floor is composed of septic tanks and drain fields. An 11,000 gallon septic tank serves the visitor center and residences 8 and 9. The Swinging Bridge picnic area restroom has a separate septic tank. The drain field for both tanks is located across the highway from the picnic area. Since the drain field is located slightly higher than the picnic area restroom, effluent is held in an underground vault at the restroom. When the vault is full, the effluent is automatically pumped up to the drain field. A secondary pump automatically takes over should the primary pump fail. The maintenance shop and residence 2 have a separate tank and drain field. Both systems are in fair condition and operating smoothly.

The water source at the cave is a pool approximately 300 feet into Hansen Cave, this part of the cave is closed to the public. The water is pumped from the pool into two 2,500 gallon redwood tanks. From the tanks the water flows by gravity to a 125 gallon steel tank where it is batch chlorinated. The water continues by gravity to the drinking fountain in the Grotto. This system works quite well although it requires a substantial amount of manual operation.

Power for the cave lighting system is supplied through an overhead powerline originating near the maintenance area and entering the cave through the natural entrance to Middle Cave. Within the caves the system contains 135 lights controlled by magnetic and manual switches and mercury relays. The system is in generally good condition. However, employees and some visitors receive low voltage electrical shocks under wet conditions in the cave if they touch electrical fixtures. This situation will be reviewed through the Park Restoration and Improvement Program during the fall of 1984 or spring of 1985.

4. Historic Structures

The Timpanogos Cave Historic District was placed on the National Register on October 13, 1982. The Historic District contains the following structures.

Residence 2 is a stone two-bedroom house without a garage constructed in 1945. This structure is extremely attractive.

The interior was remodeled in 1983-84; however, the stone exterior for which the building was nominated was not modified. The structure is in good condition.

The old bathhouse (336 square feet) was originally used as the bathhouse for the cave campground. This 1928 structure is presently used only for storage and is in fair condition.

The cave restroom (153 square feet) was constructed in 1939 beside the cave trail near the entrance to Hansen Cave. The building contains men's and women's restrooms and a small storage room. The toilets are vault type. There is no water or heat in the building. Sewage is retained in a 2,000 gallon concrete vault below the restroom. A small exhaust fan causes air to flow in through the toilets and out a small stack which keeps odors within reasonable limits. Each fall the holding vault is drained into a sludge pit located 160 feet down the mountain side. This cave restroom structure is in good condition.

5. Equipment

Trail Truck - This small diesel powered vehicle was custom built by the Young Machine Company of Monticello, Utah, for use on the cave trail. It is the only machine in the park capable of transporting sizable loads to the cave entrance or exit. The truck has a 1-yard hydraulically operated box and a snow plow attachment for clearing roads and parking lots during the winter. Cost: $25,500

Loader - A small Bobcat loader with backhoe and roadbroom attachments is used for general maintenance and trail maintenance on the lower half of the cave trail. Cost: $9,250

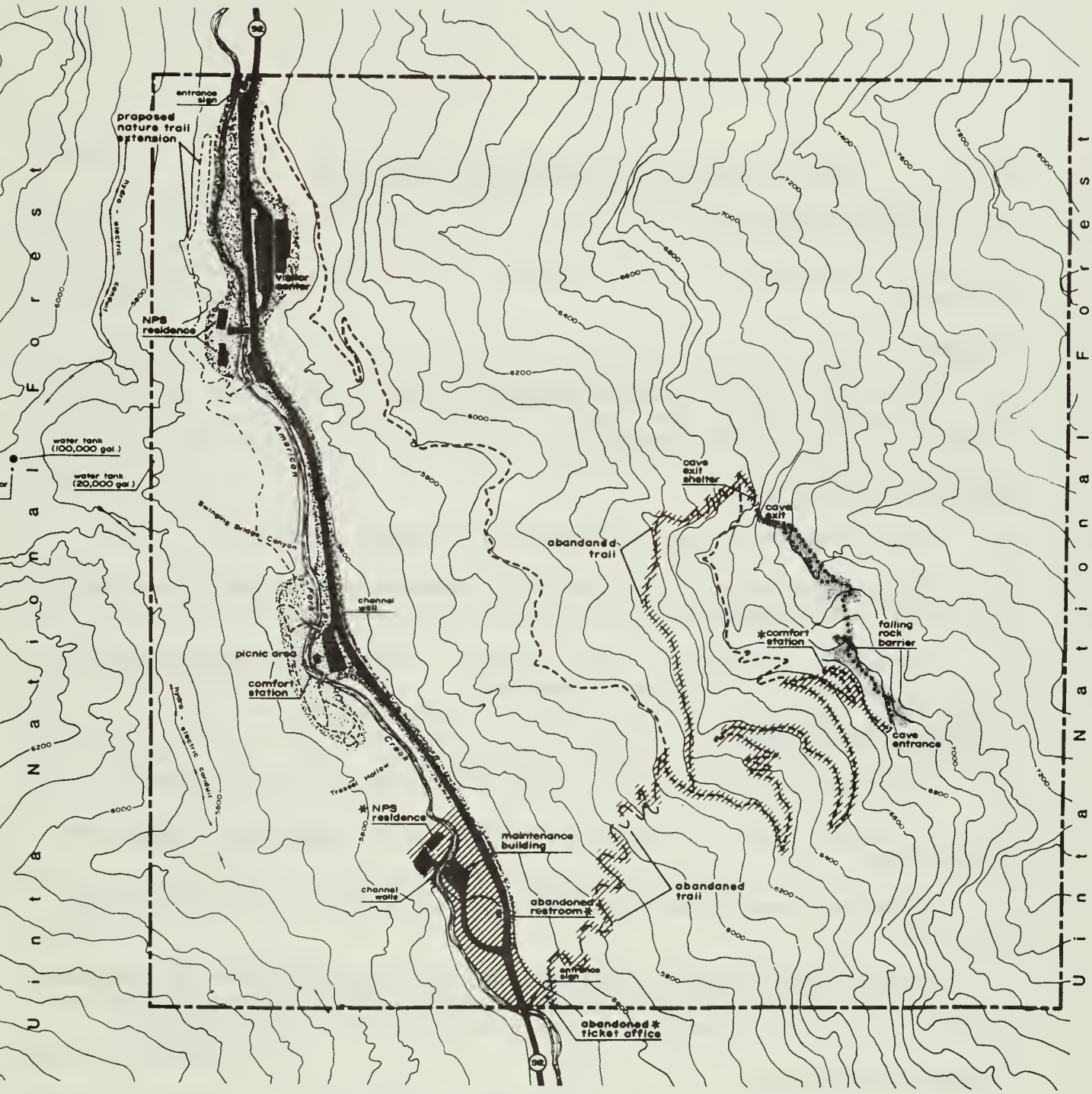
Vehicles - Two General Service Administration rental vehicles are used in the park: a midsize sedan, which serves as the park law enforcement vehicle and general transportation, and a 3/4-ton truck with box and hoist used for general maintenance and hauling trash to the landfill.

Miscellaneous Equipment (partial list)

Pneumatic drill	Litter-Vac sweeper
Cash register (2)	Concrete mixer
Chain saw (2)	Compressor (gas)
Air compressor (electric)	Welders (electric and acetylene)
Table saw	Trail bike
Drill press	Rotary hammer
Snow blower	Wet Vacuum

F. Status of Planning

Name of Plan/Study	Preparer	Date Approved	Comment on Adequacy	Repository
General Management Plan/ Development Concept Plan/ Interpretive Prospectus	Park/RMR	9/27/83	Adequate	Park/Region
Natural Resources Management Plan	Park	9/83	Adequate	Park
Cultural Resources Management Plan	Park	Under review		



legend

- monument boundary
- cave access trail
- cave trail
- picnic trail
- nature trail

- natural zone-94%/250 acres
- outstanding natural feature subzone (underground)
- development zone-4.5%/11.25 acres
- historic zone-1.5%/3.75 acres
- * structure included in historic zone

total·265 acres

N

0 500 feet

approximate scale

contour interval 100'

Existing Management Zoning Map

Timpanogos Cave National Monument

United States Department of the Interior · National Park Service

153	80,018
Mar. '84	RMRO

IV.-V. MAJOR ISSUES AND MANAGEMENT OBJECTIVES

A. General Objective:

Provide protection for the natural and cultural resources of the monument.

Issues:

1. Unnatural algae growth caused by the artificial lights in the caves discolors the cave formations and detracts from the esthetic value of the caves.

Specific Objectives:

a. Determine the exact causes of the algae growth.

b. Determine appropriate control methods which will not harm the cave resources.

2. Airborne pollutants from nearby industrial areas may be causing damage to the cave resources.

Specific Objectives:

a. Determine the types of pollutants present in the caves.

b. Determine the effects of the pollutants on the cave resources.

c. Develop appropriate methods of mitigation of any harmful effects.

3. Increasingly heavy visitor use is causing loss of native vegetation and accelerated erosion along the cave trail, in the picnic area, and along the river bank near the visitor center.

Specific Objective:

Determine methods of mitigating this damage.

B. General Objective:

Provide the opportunity for safe and meaningful visitor experiences in the monument.

Issues:

1. Provide for visitor safety, particularly in regard to rockfall danger on the cave trail and pedestrian/vehicle conflict along Highway 92.

Specific Objectives:

a. Develop methods of protecting visitors from rockfall and increasing the visitors awareness of rockfall danger (for further information see the 1983 General Management Plan, p. 10).

b. Develop methods of reducing the pedestrian/vehicle conflict along Highway 92 (for further information see 1983 General Management Plan, p. 14).

c. Replace handrails along steps within caves.

2. Provide interpretive media and programs which will increase the opportunities for meaningful visitor experiences.

Specific Objective:

Develop effective museum exhibits, audio-visual programs, wayside exhibits, cave tours, and other interpretive program (for further information see the Interpretive Prospectus, 1983 General Management Plan, p. 15-21).

C. General Objective:

Reduce vandalism to monument signs and facilities.

Issue:

Vandalism to monument signs and facilities reduces the quality of the visitor experience and wastes park resources.

Specific Objective:

Develop methods of reducing vandalism.

73. Timpanogos Cave National Monument

Establishment: Proclamation (No. 1640) of October 14, 1922.....

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA

A PROCLAMATION

[No. 1640—Oct. 14, 1922—42 Stat. 2285]

WHEREAS, a natural cave, known as the Timpanogos Cave, which is situated upon unsurveyed lands within the Wasatch National Forest in the State of Utah, is of unusual scientific interest and importance, and it appears that the public interests will be promoted by reserving this cave with as much land as may be necessary for the proper protection thereof, as a National Monument.

NOW, THEREFORE, I, Warren G. Harding, President of the United States of America, by virtue of the power in me vested by section two of the Act of Congress approved June eight, nineteen hundred and six, entitled, "An Act for the preservation of American antiquities," do proclaim that there is hereby reserved from all forms of appropriation under the public land laws, subject to all prior valid adverse claims, and set apart as a National Monument, the tract of land in the State of Utah shown as the Timpanogos Cave National Monument on the diagram forming a part hereof.

The reservation made by this proclamation is not intended to prevent the use of the lands for National Forest purposes under the proclamation establishing the Wasatch National Forest, and the two reservations shall both be effective on the land withdrawn but the National Monument hereby established shall be the dominant reservation and any use of the land which interferes with its preservation or protection as a National Monument is hereby forbidden.

Warning is hereby given to all unauthorized persons not to appropriate, injure, deface, remove, or destroy any feature of this National Monument, or to locate or settle on any of the lands reserved by this proclamation.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE at the City of Washington this fourteenth day of October, in the year of our Lord one thousand nine hundred and twenty-two, [SEAL] and of the Independence of the United States of America the one hundred and forty-seventh.

WARREN G. HARDING.

By the President:
CHARLES E. HUGHES,
Secretary of State.