

TEXAS CAVE MANAGEMENT ASSOCIATION

Robber Baron Preserve Management Plan

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1) INTRODUCTION

Robber Baron Cave is one of the most significant of the over 500 Bexar County (San Antonio), TX caves. It is the longest known cave in the county with 4,961 feet of mapped passages. This cave has many interesting features including a large sinkhole entrance, a geologically complex two-dimensional maze of passages, a rich history including a period of commercialization, and several unique species two of which are federally listed as endangered. Acquired by TCMA in 1994, Robber Baron is now protected as a karst resource to not only preserve its unique biology, geology and history, but also to provide a place where people can learn about and experience the underground environment.

The Preserve and cave will generally be managed for educational and recreational purposes when those purposes do not conflict with reasonable protections for the endangered species known to inhabit the cave. Due to the extensive impact the cave has already experienced, it is not anticipated that frequent trips into the cave will cause significant additional impact.

The cave is suitable for visitation by both non-cavers and beginner caves as well as youth groups. Although many portions of the cave are easy, there are also some portions that present greater challenges for more experienced cavers. Trips into the cave are by special arrangement and will be guided by designated trip leaders. A Preserve Manager designated by the Board of the Texas Cave Management Association will be responsible for all aspects of the Preserve including coordinating trips at the cave, planning work days, ensuring maintenance of the Preserve, and preparing budgets and reports.

2) HISTORY OF THE PRESERVE

Robber Baron Cave has a large, conspicuous sinkhole entrance and was probably well known to the early settlers of the San Antonio area, but little is known of that history. From 1926-1933, an estimated 300,000 people toured the cave, which was then located outside the city on the Old Kings Highway to Austin. Since closing due to the Great Depression, the cave served to commercially grow mushrooms and even served as a speakeasy during prohibition, but mainly fell into disrepair. As the city grew around the cave, it became a local playground for children who risked injury to themselves while vandalizing the cave.

In 1980, members of the San Antonio Grotto gated the cave for the owner to limit his liability and stem the tide of damage. They explored and mapped the cave and documented its rich history. Geological and biological studies were also done in the cave, discovering six blind invertebrate species found nowhere else on Earth. In December 2001, two of these species were listed as endangered by the U.S. Fish and Wildlife Service.

When the cave's owner died, his bequest had the cave donated to the Bexar Grotto, whose members arranged for the TCMA to own it with Bexar Grotto as the cave's manager. TCMA officially acquired the Preserve on June 23, 1995. TCMA and the grotto have led many educational trips into the cave and conducted many clean-up projects both below and above ground to be good neighbors to the surrounding homeowners.

In the Fall of 2001, the bunker-style gate was found to be undermined and in danger of collapse. A plan was developed to undertake a major restoration project that would restore the sinkhole and surface to a more natural state and provide for the future of the cave. TCMA initially received a grant from the U.S. Fish and Wildlife Service and later from other organizations to improve the cave gate and modify the grounds for better management of the listed. Up to 8 meters of trash, debris and sediment fill were removed from the sinkhole. The old bunker gate was replaced with two entrances that provided better airflow and had provisions for water and organic material to enter the cave. Access to the cave was made safer and the property surface was improved for use as an educational resource and park for the neighborhood.

3) RESOURCES

Although Robber Baron Preserve is located in a dense urban residential area, it has a number of resources that make it one of the more notable and unique caves in central Texas.

A) Biological

The cave is home to a wide variety of species including two federally listed Endangered Species. Besides the occasional pack-rat and bat, the inhabitants of the cave are all invertebrates. At least ten separate troglobitic species have been found in Robber Baron. These include two species of isopods, two species of spiders, a harvestman species, two species of millipedes, one species of Earwiglike entotrophs, a silverfish species, and an ant-loving beetle species.

In December 2000, two of these were listed as Endangered (along with seven other troglobite invertebrate species in Bexar County.) These are the *Cicurina baronia* (Robber Baron Cave Spider) and the *Texella cokendolpheri* (Robber Baron Cave Harvestman). Both of these species have been observed only in Robber Baron Cave. They are very small in size, only a couple of millimeters, essentially eyeless, and mostly lacking in pigmentation. These species are well adapted to caves, having a low metabolism due to the lack of food, and long legs for efficient travel and to feel their surroundings.

B) Geological

Robber Baron Cave is a maze cave with a complex set of interconnected passages that generally intersect at right angles. The cave is found within the Austin Chalk formation which underlies much of north-central Bexar County. The Austin Chalk is one of the upper confining layers of the Edwards Aquifer, and in the location of the cave is an up-thrown fault block. Austin Chalk is also relatively soft and rather clay-like (and less soluble) in its upper layers. It appears that the cave may have formed in two periods, the first one of which established the basic layout of

passages. A second period followed after the cave opened to the surface when runoff played a role in enlarging some passages, while partially filling others with sediments.

C) Hydrological

It is thought that the origin of the extensive maze of Robber Baron results from ascending transverse speleogenesis. In this theory, water from an underlying aquifer (the Edwards) is hydraulically forced up into overlying beds of rock and then travels horizontally through fractures in this bed for long distances along multiple paths creating the maze of interconnected passages. The water likely exited onto the surface from a paleo-spring.

There is no observed water flow in the cave today. The sinkhole does provide some flow through a smaller secondary entrance during periods of wet weather. The passages near this entrance may sometime have small pools of water or be muddy. During the restoration project, the land around the entrance sinkhole was graded to minimize water flow into the sinkhole to reduce erosion and sediment fill.

D) Meteorological

The cave maintains a near constant temperature of 71 degrees F with a near 100% relative humidity. One of the main features of the cave is the presence of significant amounts of carbon dioxide (CO₂) in certain parts of the cave, known as "bad air". These areas tend to be in cut-off or lower sections of the cave where circulation is less and where CO₂, which is heavier than air, can pool. CO₂ levels generally seem to be worse in the summer months than the winter. More frequent pressure changes from cold fronts along with a greater temperature differential may combine to help flush out the CO₂ in winter. During the summer, some portions of the cave may be problematic to enter as the high CO₂ levels can result in extreme shortness of breath, even when not moving, along with headaches, dizziness and disorientation. These symptoms disappear quickly when returning to areas near the entrance.

E) Historical

The cave has an extensive history, being located along the old King's Highway from San Antonio to Austin. The cave was developed into a commercial cave during the 1920's by Arthur and Inez Harp, during which an estimated 300,000 visited. Many sections of the V-shaped slotted cave floors were filled and leveled for easier walking and electrical lighting and benches were installed in several areas. The commercial operation lasted from 1926 – 1933. The cave was also used as a speak-easy during prohibition.

4) ACCESS POLICY

The surface of Robber Baron Preserve is fenced but two gates are left unlocked. Visitors are welcome to visit the Preserve at any time while being aware of the potential hazards of unstable walls around the sinkhole and trench. An information kiosk is present to provide information about the cave and TCMA. Although the perimeter of the sinkhole is fenced for visitor protection, steps lead down into the sinkhole where the cave entrances may be seen.

The cave itself is gated and only open to guided tours by special arrangement. The cave passages range in difficulty from walking with some occasional stooping to belly crawls, to exposed climbs, to very tight constrictions. The entrance gate is a fairly small opening that is about 13 inches in its smallest dimension.

Most passages are fairly small and only allow one person through at a time. As a result group size must be kept limited along with the total number of groups in a cave at a time. The recommended group size is 10 persons with no more than 3 groups permitted in the cave at any one time. Each group must have at least one trip leader. Trip leaders must be approved by the Preserve Manager. Keys may be borrowed from several individuals who are designated to be keyholders. Each person entering the cave must have a suitable caving/climbing type helmet with a helmet-mounted headlamp. Each person should also be wearing appropriate clothing and rugged footwear – preferably boots with ankle support. Gloves and kneepads are also recommended. All persons entering the cave must sign a TCMA Liability Release Form.

Although the cave has several sections near the entrance that do not pose significant difficulty, other portions of the cave can be hazardous to young persons under the age of 18. It is recommended that participants of organized groups visiting the cave be at least 14 years of age and have two responsible adults per group. Entry of youths under the age of 14 must be approved by the Preserve Manager and should be accompanied by additional adults (ideally, one additional adult per youth). A responsible adult must sign a TCMA Liability Release Form for each person under the age of 18.

Since the cave can exhibit high levels of CO₂, especially at certain times of the day during summer months, members of a party should be alert to symptoms of bad air such as dizziness, shortness of breath, or headaches. If symptoms become problematic for any member of the party, the party should move toward the entrance of the cave where the air situation is generally better.

After a trip, the trip leader will provide to the Preserve Manager a brief report on the number of persons who entered the cave, any unusual conditions, and whether any donations were provided.

Portions of the cave may be designated as off-limits to regular visitation if they are found to contain either of the federally listed endangered species known to inhabit the cave. If a person identifies one of the endangered species, they should make a special effort not to disturb it and to report the sighting and its location to the Preserve Manager.

Access to the cave for purposes other than recreational visitation (such as restoration or digging) must provide a description of the planned activity to the Preserve Manager for approval.

Access to the cave for scientific research purposes must be approved by the TCMA Board upon submission of a research proposal that follows the TCMA Research Policy.

5) CAVE MANAGEMENT

Robber Baron Cave has been heavily impacted through its history by the visitation of hundreds of thousands, by the commercialization, by blasting shut of various passages, by the impacts of urbanization, and by extensive vandalism and the presences of large amounts of graffiti throughout the cave. Although evidence indicates that the cave was once well decorated, there are very few areas remaining with any formations. However, the presence of endangered species and the location of the cave in a dense urban area (increasing the risk of further vandalism) does warrant some level of monitoring and management.

Basic management of the Preserve shall consist of periodic monitoring of the property on at least a monthly basis. At a minimum this will consist of checking the integrity of the gate and a visual check of the Property for trash or vandalism. Other checks during trips into the cave should note any erosional or impact issues, especially in the sinkhole.

In the case of a breach of the gate, the cave will be checked for vandalism and any impacts will be documented. The gate will be temporarily secured by any means possible and the incident reported to the Preserve Manager.

A biological survey shall be conducted by a professional no less frequently than every 5 years to check the status of the endangered species and other biology in the cave. Any changes or recommendations noted in the biological survey should be implemented through a revised management plan or physical modification to the property to mitigate excessive impact, as appropriate.

6) SURFACE MANAGEMENT

The surface of the Preserve is to be managed as a publicly accessible park and educational area. Basic steps are in place for visitor protection including a fence around the entire Preserve and a second fence around the sinkhole. Visitors must enter through one of two pedestrian gates, which will have signage warning of dangers on the property and providing contact information for TCMA and the Preserve Manager. An additional sign at the entrance to the trench will warn of the dangers of entering the sinkhole. A kiosk on the Preserve will provide additional information about caves, Robber Baron, and TCMA.

Visitors to the Preserve should park in the established parking area along the alley side of the Preserve. Vehicles should be parked so as to not block access through the alley. Additional parking is available along Camellia if no space is available in the designated parking area. Vehicle access into the preserve is restricted to a locked gate on the alley side. It is intended that this gates will only to be used for access for work projects or other necessary purposes.

Erosion and non-native plant management will be implemented as possible. Rainwater runoff on the property will be controlled so as to minimize the amount entering the trench or sinkhole. Non-native vegetation will be periodically removed and native vegetation planted in their place. Plants and trees around the perimeter of the sinkhole will be encouraged so as to reduce erosion of the sinkhole walls.

No trash receptacles will be provided on the property. All visitors shall remove their own trash and are encouraged to pick up any trash observed on the property. Occasional trash pickup and work days will be organized as warranted.

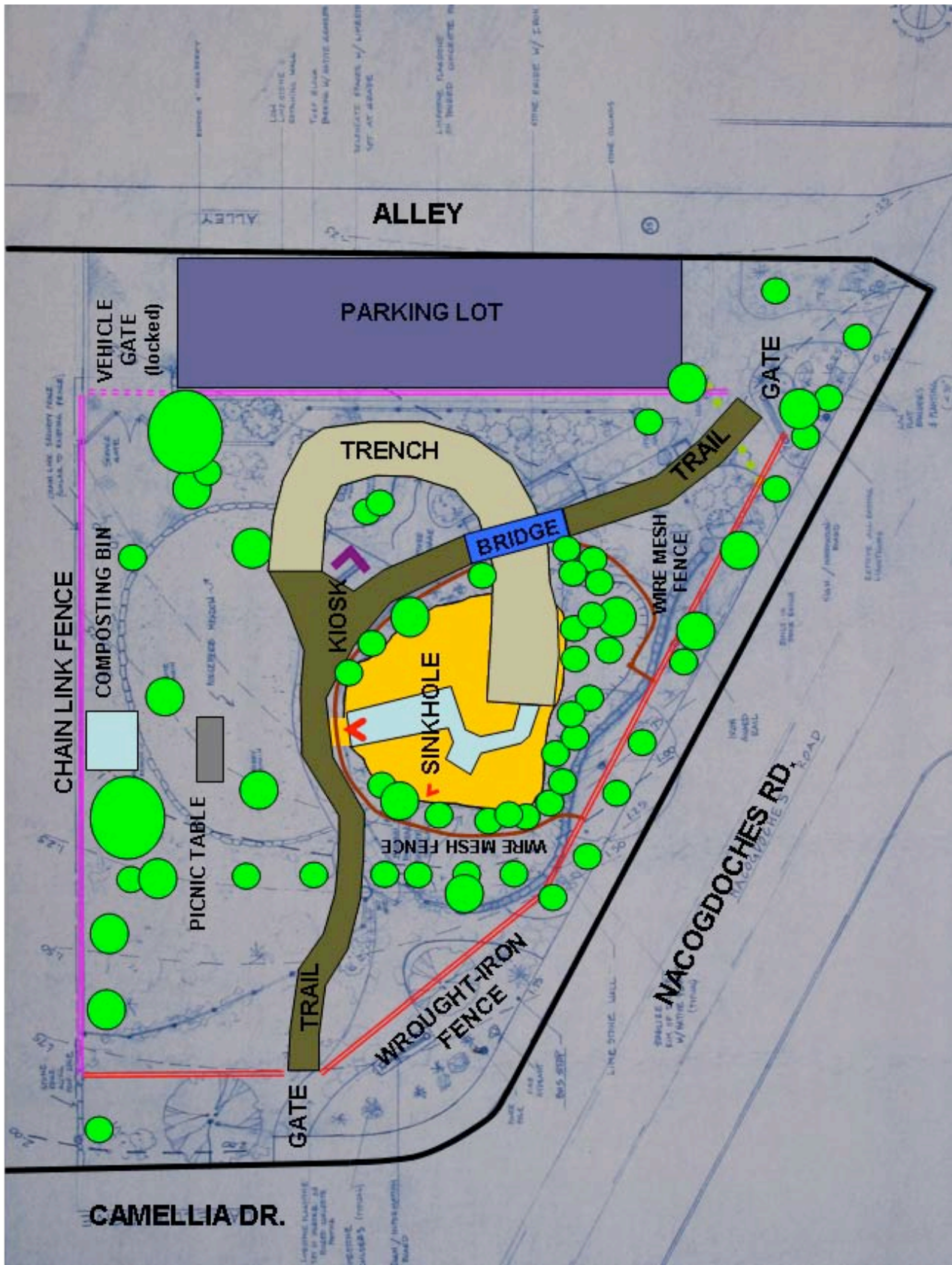
7) PUBLICITY POLICY

A webpage about the Preserve will be maintained, providing information about the cave and contact information. A print brochure about the Preserve will also be made available. Information will be available on a kiosk to be located on the Preserve. A yearly neighborhood work and visitation day is recommended along with periodic contact with the local neighborhood association. Archives of information on the Preserve shall be maintained by the TCMA Communications Committee and the Texas Speleological Survey. The Management Plan will be published in the webpage and updated as needed.

8) APPENDICES

- Robber Baron Preserve Surface Plan
- Robber Baron Cave Map

Surface Site Plan of Robber Baron Preserve



Map of Robber Baron Cave

