

McFAIL'S CAVE PRESERVE MANAGEMENT PLAN

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February 1, 1988

Revised:

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January 27, 2017

INTRODUCTION

McFail's Cave (Figure 1), the first cave owned by the NSS, is managed for recreation, exploration, and as a bat hibernaculum. The longest cave in the northeast United States with more than 7 miles of generally large passage, McFail's provides a type of caving unique to the Northeast. A long-standing policy of closing the cave in the winter to encourage an hibernating population of bats has become even more important given the devastating effects of White Nose Syndrome.

Over the years, local cavers have worked with the management committee on surface management. A trail connecting the cave entrances is maintained and a kiosk has been constructed at the parking area. The area provides an excellent example of karst and is often visited by college geology classes and local residents who visit the property just to walk around and see the sights. These surface visits have not resulted in any problems. There is no trash being left on the grounds and there is no evidence of parties. This experience leads us to recommend that the surface be managed in the same manner as previously. The kiosk should provide information on the NSS, the geology of the Cobleskill plateau, and the plants and animals of the McFail's Cave Preserve.

HISTORY OF THE PROPERTY

McFail's Cave is named after Thomas Alfred McFail, a professor at the old Carlisle Seminary, who lost his life in the cave. The most accepted version of McFail's death is related by William E. Roscoe in his History of Schoharie County (1882).

Prof. McFail, of Carlisle Seminary, an accomplished gentleman, met an untimely death at the entrance of the Cavern after exploring its depths, with others in 1853. The professor was on a rope used to draw persons up from the pit and on coming in contact with the outer air, he fainted and fell backward, striking upon his head which badly fractured the skull and from which he survived only a short time.

According to Roscoe and Hamilton Child (the prodigious gazetteer writer) further explorations of the cave ceased. In the early 1900's John H. Cook entered and mapped Cave Disappointment (also on the NSS's property), but he was unable to get into McFail's Hole. In the late 1920's and 30's Arthur Van Voris's group of cavers seems to have been the first to enter the cave since McFail's death. They explored all that was known of the cave as late as January 1961 when Norm Olsen's map was published in the NSS News [19(1):4-5].

However, 1961 was to be a big year for the cave. Hugh Blanchard, Marlin Kreider, and Art Palmer pushed upstream through 1800 feet of joint-controlled passages, with swimming-depth water and high domes, ending in a sump plumbed to a depth of 31 feet. The big discovery came when Fred Stone, Spencer Weart, and Ken Miller bypassed Olsen's Siphon, at what was then the downstream end of the cave, and discovered what is now the main part of the cave. On subsequent trips Fred was accompanied by Ben Stone, Tom Hallinan, Elean Benjamin, Frank Howarth, Nan Coles, and Bill Bousman. They explored down to the terminal siphon, up the Southeast Passage, all the way up the Northwest Passage, and to Nethaways Dome. The cave had suddenly become the longest in the northeast, measuring about five miles in length.

Later in 1961 the original McFail's Hole entrance showed signs of collapse. An alternate entrance had to be found. A route from Cave Disappointment proved disappointing, but a crawl connecting the base of Ack's Shack (named for Ernest Ackerly) and the stream passage was eventually dug by Fred Stone, Frank Howarth, Chuck Porter, Art Palmer, and Stan Moore. The McFail's Hole entrance did collapse (Art Palmer was probably the last person to use it - it was collapsing as he was climbing out). This made Ack's Shack the only way into the cave. Unfortunately, this entrance has always been felt to be less than desirable. The narrow traverse and the waterfall and the tight, long crawl are troublesome obstacles. Nevertheless, the cave was considered one of the best of its kind. Fred Stone and other Cornell Grotto members purchased the cave entrance, an oddly shaped acre of land (Figure 2) containing several pits, and "cave rights" beneath the land over the cave. This was presented to the NSS Board of Governors and "suddenly the NSS found themselves with a cave."

In 1968 tragedy struck when one of a party of four was unable to exit the cave. Gerald Alderman became stuck in the narrow traverse in the Ack's Shack entrance and with cold, snow-melt water falling on him he soon died of hypothermia. The remaining three cavers were charged and convicted with trespassing. In an unusual move, Jim Gage, then lawyer for the NSS, prevailed upon the local town justice to convene court in the Cobleskill Hospital where the three men were recuperating from exposure. They were tried, convicted, and fined before they even got out of the hospital. This probably prevented a major lawsuit against the Society.

Early in 1979, Warren Hall discovered and helped open a new entrance to McFail's Cave. Hall's Hole has since become the main entrance to McFail's Cave as it opens at the top of Coeymans Dome and provides a much more spacious rappell into the cave below. The land surrounding the new entrance and an easement leading to the entrance was purchased (Figure 3).

In August 1984 Paul Rubin along with Phil Bodanza, Marc Cassler, and Carl Snyder started the explorations at the end of the Northwest Passage. The last 600 feet of the Northwest Passage beyond the Northwest Dome is quite different from the rest of the passage. Instead of large walking passage, the caver encounters crawls, unstable breakdown, and nearly-water-filled passages. Entry into the passages beyond The End of the Northwest was made in September 1984. Explorations continued during the rest of the 1984 caving season and in 1985. In all approximately a half mile of new cave ending at the Asia Dome was discovered.

Simeon Warner, Jim Goetz and David Lyons pushed past Asia Dome through the lie back, a low air

space chest constriction, and found going passage during the summer of 2003. Subsequent survey/push trips by Simeon and others between 2003 and 2005 increased the length of the cave by more than a half mile. They ended the survey in a loose breakdown room with possible leads down through a hole to the stream, and up into an attic. Simeon also climbed the Asia Dome in 2006. At the top there appears to be a 1.5'x1.5' opening in the bedrock dome, choked with large boulders, and no other options of a way on.

It has been known since 1968 that there were at least two sumps at the Main Sump. The first is 70 feet long followed by 800 feet of stoop walking passage. Since the late 60's there have been several attempts to pass the second sump, but the most successful dive penetrated only 300 feet. On 18 July 1987 John Schweyen dove McFail's Main Sump. After passing the first sump and the first chamber, John entered the second sump. After 700 feet he emerged from the water into a continuation of the main canyon passage leading down to the Main Sump. After a short distance he was halted by an 8-10 foot, overhung drop. He felt he could get down this, but wasn't sure he could get up so he left.

On 12 September 1987 John returned with Jim Brown and Bob Jefferys and a host of sherpas to support the three divers. (It should be pointed out that preceding and succeeding the dive there were a number of trips to carry equipment to the dive site. In all approximately 42 caver trips over 3 weekends were made to accomplish this second dive). Bob, Jim, and John passed the two sumps without incident surveying as they went. They placed a bolt that the top of the drop and surveyed about a half mile of canyon passage with 30 to 40-foot ceilings. The passage finally ended at a third sump.

Other explorations since the early 1960's have included scaling Nethaway's Dome in 1977 by Bob Jefferys and John Mylroie, scuba pushes of the Southeast Sump, and the exploration of feeder passages into the Northwest Passage which has yielded several hundred feet of new cave.

RESOURCES

UNDERGROUND RESOURCES:

BIOLOGICAL - In 1980 when the last bat count was successfully completed (subsequent attempts in 1985 and 1986 were rebuffed by dangerous caving conditions) there were approximately 4765 bats counted. These were the following species:

- 2565 Little brown bats (*Myotis lucifugus*)
- 1361 Keen's Bat (*M. keenii*)
- 53 Small-footed bats (*M. liebii*)
- 576 Pipistrelles (*Pipistrellus subflavus*)
- 157 Big brown bats (*Eptesicus fuscus*)
- 53 unknown

Closing the cave from October to May protects the hibernating bat populations. Very few bats utilize the cave the rest of the year. One species of cave-adapted amphipod, *Stygobromus alleghensis*, exists in the McFail's Cave area. This species has not been found

in the cave, but it is common throughout the caves of the area and is expected to exist in McFail's Cave. No special precautions are in place to protect the amphipod as normal caving activities do not seem to have an adverse impact on its population.

GEOLOGICAL - McFail's Cave is developed in the Coeymans, Manlius, and Cobleskill limestones. All are Devonian or Silurian in age. The rocks dip approximately 120 feet per mile to the south. The cave consists of two major passages. The Main Passage is a dip-oriented vadose canyon. The Northwest/Southeast Passage is a strike-oriented phreatic tube. Due to the dip of the rocks and the great length of the Main Passage, McFail's is 290 feet deep making it the deepest known cave in the Northeast. In addition, McFail's Cave is the longest known cave in the northeast United States with about 7.1 miles of known passage. McFail's Cave has areas that are well decorated by New York State standards. Tight control of access has prevented and will continue to prevent any vandalism of such formations.

Quarrying operations has the potential to adversely impact the cave. However, the NSS owns the mineral rights on both sides of the cave passage for a substantial portion of the cave. Further, quarries in the area are closing or reducing the scale of their operations and it is not expected that the cave will be impacted from this direction. In any event, McFail's is the longest cave in New York and the 3rd largest cave bat hibernaculum in the state. As such it is a unique resource and any project potentially impacting it would have to be reviewed under the New York State Environmental Quality Review Act. In addition, a protected wetland overlies a significant portion of the cave. (Hall's Hole is the outlet for the wetland).

On the McFail's Cave preserve are many sinkholes. Besides McFail's Cave, there are two other caves on the property. These are Featherstonehaugh's Flop and the Hanors/Cave Disappointment System. Both caves are owned entirely by the NSS. Featherstonehaugh's Flop is a small cave that is no longer than 50 feet in length. The Hanors/Cave Disappointment system (Figure 4) is about 500 feet in length. It has two entrances, a pit about 50 feet deep (Cave Disappointment) and a small vertical entrance that can be free climbed (Hanors Cave). The system probably connects to McFail's Cave via the Disappointment Crawl. However, the crawl has never been enlarged enough to permit passage and to do so would require much work. Neither entrance is gated.

HYDROLOGICAL - In normal flow conditions, the water in McFail's Cave flows to Doc Shaul's Spring southwest of the cave through the main sump. Evidence from water tracing studies performed during flood periods suggests that during flood when the main sump can't take all of the water, the flow of water in the Southeast Passage (normally into the cave) reverses and carries water away from the cave to Howe Caverns. The main passage in Howe's is likely a continuation of the phreatic tube that forms the Northwest and Southeast Passages in McFail's Cave.

All this water comes from a combination of caves, sinks, and diffuse input up-dip of the cave and northwest of the Northwest Passage. This area is sparsely populated by single family residences and farms. There has been little evidence of adverse impact to water quality.

Little can be done by the NSS to ensure the continuation of this condition. We can stress education (don't dump garbage into sinks, etc.) and compliance with state and local regulations regarding septic systems. Down the road if development threatens any area in the McFail's Cave drainage basin (Figure 5), the Society must be prepared to intervene as a party-of-interest.

Any pollution that does occur in the cave will likely be caused by one of the following: agriculture chemicals, household septage, feedlot runoff, and road salt use and storage. Right now none of these appear to be a problem. In the early 1970's a foam noticed in parts of the cave was found to be caused by a combination of cow urine and agricultural fertilizer and low water conditions. This problem went away with the end of a dry period and a decrease in the number of cows feeding just north of McFail's Hole.

PALEONTOLOGICAL - The Helderberg limestones in which the cave is formed are well known for their fossils. However, no unique paleontological resource is currently known to exist in the cave. Dr. David Steadman who has done work on fossils from Kingston Saltpeter Cave and from Trout, New Trout, and Hamilton Caves has expressed interest in looking at the sediments from McFail's as the cave undoubtedly predates the Wisconsin glaciation and may contain some Pleistocene fossils. Dr. Steadman is also interested in other pre-Wisconsin-glacial caves in New York.

ARCHEOLOGICAL - No known archeological resources are known to exist in the cave.

HISTORICAL - No known historical resources are known to exist in the cave.

SURFACE RESOURCES:

The McFail's Cave Preserve consists of two parcels of land. These are the McFail's Hole parcel which contains McFail's Hole, Ack's Shack, and the Hanors/Cave Disappointment System. This was purchased in the mid 1960's. The second piece of property, the Hall's Hole parcel, contains Hall's Hole and the Coeymans Dome Sink. This was purchased by the Society in 1979. Both parcels are "landlocked" (do not front on a road) and the NSS has easements for parking and for access to our property.

BIOLOGICAL - The two parcels of the McFail's Cave Preserve are almost entirely wooded. The forest is a typical northeastern hardwood forest whose predominant species are Hemlock, Beech, and Sugar Maple. Because some areas are wetter Red maple is also common. Basswood and Yellow Birch is also present, but they occur sporadically. Ground cover consists of White and Red Trilliums (both are protected in New York), False Solomon Seal, Jack-in-the-Pulpit, violets, Adder's Tongue, and miscellaneous ferns (all ferns are protected in New York).

Animals include, but are not limited to Red Squirrel, Eastern Gray Squirrel, Chipmunk, White-tail Deer, and probably an occasional coyote. Some snakes probably use the property and the proximity of a large wetland to the west probably permits some salamanders like the

Red Eft to inhabit the property. A variety of birds use the McFail's Cave Preserve and the surrounding area. These could include Red-tail Hawk, Mourning Dove, Wood Thrush, and Vireos.

GEOLOGICAL - The McFail's Cave Preserve contains about 9 sinkholes. Six of these currently or in the past have led to caves. These are McFail's Hole, Ack's Shack, Featherstonehaugh's Flop, Hanors sink, Cave Disappointment, and the 700-foot sink (Hall's Hole). Of these only Ack's Shack and Hall's Hole currently lead into McFail's Cave.

HYDROLOGICAL - The McFail's Cave Preserve has one of the best examples of karst processes in New York. As such it is used by colleges on field trips - particularly for geomorphology courses. The knowledge of the cave's existence and its location has not created any problems with access.

As pointed out above, much of the water in the cave comes from areas remote from the McFail's Cave Preserve. However, three streams sink on or very close to the Preserve. These include the Wick's Hole stream (Wick's Hole is just off the NSS's property), the Cave Disappointment stream, and the Hall's Hole stream. In addition, Chicken Out Cave west of Ack's Shack and the 1100-foot sink (400 feet south of Hall's Hole) also take water. (Chicken Out Cave or some sinks nearby take the water that goes into Ack's Shack). Of these, the stream entering Wick's Hole drains farm lands north of the property. The rest of the streams all drain a wetland west of the McFail's Cave Preserve. This wetland exceeds 12.4 acres (5 hectares) in size and is protected under New York State law (Article 24 of the Environmental Conservation Law; 6 NYCRR 663). The water in this wetland comes from farm land (one of the streams feeding the wetland passes through Youngs (Runkle) Cave).

PALEONTOLOGICAL - No unique paleontological resources are known to exist on the surface on the McFail's Cave Preserve.

ARCHEOLOGICAL - No known archeological resources are known to exist on the surface on the McFail's Cave Preserve.

HISTORICAL - No known historical resources are known to exist on the surface on the McFail's Cave Preserve.

USE CONFLICTS

On any property there are bound to be conflicts in how it gets used. The McFail's Cave Preserve is no exception. The primary conflict will arise between caving and the hibernating bat populations. McFail's Cave represents a significant bat hibernaculum in New York. Being the longest cave in New York it also represents a unique recreational resource for the caver. There is much scientific evidence to demonstrate that these two uses are mutually exclusive. Bats cannot successfully hibernate in an area even lightly travelled and cavers cannot use the cave without encountering the bats. In the past there has been a policy to close the cave to caving from October to May to protect the hibernating bats. This should continue to support the recovery of bat populations diminished by

White Nose Syndrome.

ACCESS POLICY

Access is controlled by the McFail's Cave Committee Chairs who are charged with the responsibility of enforcing rules of the NSS and the McFail's Cave Committee. In addition to standard NSS caving practices the Committee has set specific minimum requirements for entering McFail's Cave (see Appendix A). They are:

1. Minimum party size is 4. At the chairmans' discretion permission may be granted to party sizes of 2 or 3. No solo caving is permitted.
2. Each party member must be proficient in vertical caving techniques and must have his or her own vertical gear with which he or she is familiar and clothing appropriate for the conditions that are anticipated to be encountered in the cave during that particular trip.
3. The trip leader must have previously visited the cave and be familiar with the rigging.

If a party meets all requirements and if the chairman has no other problems, then permission for entry is granted. A letter of permission will be emailed to the trip leader with a release form that each party member must sign and must be displayed in the window of one of the visiting cavers' vehicles.

The chair may deny access to a group or leader for their failure in the past to have followed safe caving practices or the rules of the committee. This punitive action is the only recourse the chair may have to enforce the rules. However, a denial based on this must clearly state the rules that were broken.

McFail's Cave is closed to caving from early October 1 to April 30.

EXPLORATION RULES

The rules that govern exploration are:

1. The exploration party must be explicit in indicating what part of the cave will be explored.
2. No blasting of any kind is permitted.
3. Digging and the use of hammer and chisel to enlarge passages is permitted.

PUBLICITY POLICY

The cave is not publicized in magazines or newspapers of general circulation. Caver's publications like The Northeastern Caver and the NSS News may contain information on the latest discoveries. Some grotto publications may also have information, but again these have limited circulation and usually do not give locations.

SURFACE MANAGEMENT

A trail is maintained that allows easy access to the caves. A kiosk has been constructed at the parking

area. The kiosk should provide information on the NSS, the access policy, the geology of the Cobleskill plateau, and the plants and animals of the McFail's Cave Preserve.

RESPONSIBILITIES OF THE McFAIL'S COMMITTEE CHAIRS

The chairs of the McFail's Cave Committee are appointed by the Board of Governors of the NSS. The chairs' chief responsibilities are to enforce the rules of the NSS and of the McFail's Cave Committee and to control access to the cave. However, the chairs have other duties as well. The chairs are responsible for assuring that the property, trails, and facilities are maintained. This does not mean that the chairs must do these things alone, but only that they assure that they get done. In addition, the chairs are charged by the BOG to gather data on the use of the property and to report to the Board three times a year at least one month prior to the scheduled BOG meeting. The chairs are also responsible for maintaining and amending this management plan as needed. The chairs must also ensure that amendments to the plan are approved by the BOG (see section entitled, Amending the Plan).

RESCUE CONSIDERATION

Since the NSS has owned McFail's Cave, there have been few accidents that required aid from outside the caving party to effect a rescue. Most notable of these, already discussed above, involved the death of Gerald Alderman. Another took place in 1984 when a caver fell most of the way down Coeymans Dome near the Hall's Hole entrance. The caver was not belayed and was ascending the dome on a cable ladder. Miraculously, the caver was not seriously injured and was able to leave the cave under his own power. Both incidents occurred close to the cave's entrances. In fact, all accidents that have required help from outside occurred near an entrance. What would happen if a serious accident occurred deep inside McFail's Cave?

In 1985 a potentially serious incident took place beyond the Northwest Dome, about 2.9 miles from the entrance. A group of cavers were returning from the newly-discovered Northwest Passage extension and were between the Northwest Dome and the "End" (the place that had formerly been the end of the Northwest Passage). One of the cavers dislodged a large slab of rock that dropped on top of him and prevented his breathing. Fortunately, there were cavers in front of him and behind him and they were able to lift the rock off while he crawled out. However, what would have happened if rescue hadn't been so easy?

In the preceding case, lack of a rapid rescue would have resulted in the caver's death and the "rescue" would have been a body recovery. In much of the cave a stretcher rescue or a body recovery would probably not be that difficult. McFail's passages are generally large enough for walking. However, there are areas of the cave from which a rescue would be most difficult (if not impossible). These are:

1. The tiny side passages off the Northwest Passage
2. The Northwest Passage beyond the Northwest Dome (this includes the Northwest Passage Extension and beyond the Asia Dome)

3. The extreme upstream portion of the Main Passage.

Further, neither entrance would permit a stretcher to be easily brought out of the cave. Ack's Shack has the 100-foot long Ack's Shack Crawl and the narrow traverse between the two pits. Coeyman's Dome would be easy to get a stretcher to and up, but the windy, narrow passage from the top of the dome to the Hall's Hole entrance might prove quite daunting to stretcher removal.

How would a rescue work? The need for a rescue could be determined in two ways. A member of the party might exit the cave and alert the local cave rescue people. The McFail's Cave Committee Chairs must also be notified. The chairs might also call a rescue into effect. The chairs will, because of the access policy, always know when a group is in the cave, when they went in, and where they went. If a certain amount of time passes without the group exiting, the chairs should call a search and rescue. (A note on this - trips of 30 hours or more have been made into the Asia Dome area, so the chair should take care not to needlessly call out search and rescue operations).

The actual running of the rescue will, therefore, be dependent on two major factors.

1. Was the rescue initiated by a member of the caving party or by the McFail's Cave Committee Chairs?
2. Where in the cave is the individual(s) to be rescued? (This may not actually be known, but one should assume that the missing party has gone where they said they would go).

Case I - Rescue called by a member of the caving party

Short of needing no rescue at all, this is the best situation. The party member or members who have exited the cave and called for help can indicate where the injured individual is in the cave and what his or her injuries are. This will allow the rescue team to concentrate efforts to reach and remove the caver in need of assistance. Beyond the typical rescue questions about nature of injuries *et cetera*, the question then becomes, "Is the caver in one of the three areas identified as being difficult to rescue a caver from." If the answer is no, the rescue will likely proceed smoothly. As stated already, some problem will likely occur at or near the entrances, but these will likely not be insurmountable.

If the caver is in an area from which rescue will be difficult, the rescue should proceed, but the rescuers should realize that they might not be able to get a stretcher to the injured caver. This is particularly true of the area beyond the Northwest Dome. In such a case other considerations must be given as to how a caver would be removed. Of course, precisely what is done will depend on the nature of the injuries. A simple broken ankle can be handled much differently than a broken back or even a compound fracture of the leg. Appendix B to this plan is a list of injuries and locations in the cave and what course of action we recommend for removal of the caver. Case II - Rescue called by the McFail's Cave Committee Chairs

The chairs will call a search and rescue because a party is overdue. That a party is overdue can only be determined by the chairs going to the cave and checking for the presence of the party's cars and if the pits are still rigged. The chairs calling the rescue is different from Case I because

while the chairs may have an idea where the overdue party is, he or she can't know for certain. In addition, the chairs will not know if an injury has occurred and if so what the nature of the injury is. So, the first step will be a search of the cave. This would best be done with four groups. Two would enter the Ack's Shack entrance. At the main passage one group would go upstream and the other would go downstream. The second group would check Disappointment Crawl and exit via Hall's Hole.

The other two groups would enter via Hall's Hole and proceed down the Main Passage. One group would go up the Northwest Passage; the other would go to the Main Sump and into the Southeast Passage. These two groups should arrange a rendezvous at the First Junction Room. The group going up the Northwest Passage should be larger and stronger and should be prepared to continue beyond the Northwest Dome if there are indications that the missing party went that way. If there are none the party should return to Hall's Hole.

If the party is found uninjured, they will be escorted from the cave. If there is an injury, the leader of the group that found the party will assess what is needed to get the caver out and will take the necessary steps to start the rescue operation in motion. From this point on the process will continue in Case I above.

FUTURE PLANS

Underground, exploration will continue in the McFail's system. . Exploration beyond North Korea is not as assured, but a going lead remains. The long trips required to get to Asia Dome and beyond have limited the interest of cavers willing to push this section of the cave. Hopes still remain high for entering and exploring that part of the phreatic tube between the end of Southeast Passage and the West Passage in Howe Caverns, but the failure of the dive pushes in the end of the Southeast has stymied explorations in this direction.

On the surface, we will continue to pursue enlargement of our easement by Lykers Road. Down the road further the NSS should seriously consider acquiring more property to enlarge the McFail's Cave Preserve. Most notable would be that parcel which contains Wick's Hole.

AMENDING THIS PLAN

The plan has been approved by the Board of Governors of the NSS. Consequently, any amendments or changes to the plan must be approved by the Board. If amended the chairs must send a new copy of the plan and a description of the changes to the Secretary-Treasurer of the NSS at least 4 weeks prior to the next BOG meeting. The changes should then be considered by the full board. If approved, the changes go into effect, otherwise they are dropped.

APPENDIX A

RULES FOR USE OF McFAIL'S CAVE

1. Only qualified trip leaders may request permission to enter McFails Cave. To be qualified an individual must have been in the cave previously and be familiar with the required rigging.
2. Only one trip may be taken on a given permission slip and the leader requesting the permission must be on that trip.
3. Once entering the cave, groups must stay together. There is to be no splintering of the group. All individuals are the responsibility of the trip leader and they must stay with the trip leader.
4. No camping is allowed in the parking area for McFails Cave.
5. Any group found dumping spent carbide in McFails Cave, on the McFails Cave property, or the associated trips and parking area will be barred from future access to the cave.
6. No camping is permitted on the McFails Property without special permission.
7. Nobody may drive down to the cave entrances without special permission.
8. The minimum group size is four people. Special permission is required for smaller groups.
9. All members of the group entering the cave must have their own vertical equipment and must be proficient in vertical techniques.
10. All members of the group entering the cave must be wearing apparel that is appropriate for the conditions expected in the cave during that trip.