The Management of Logsdon, Hardin, and Swirl Canyon Caves—A Cooperative Effort Between the Nashville Grotto and the Southeastern Cave Conservancy, Inc.

William Overton
NSS 40961
1999 Chairman,
Cave Property Management Committee
Nashville Grotto

Abstract

During the early 1990s, Dr William R. Halliday donated approximately 40 acres of land in Hart County, Kentucky, to the Nashville Grotto of the National Speleological Society. The property contained Logsdon Cave and was designated by the grotto as the William R. Halliday Cave and Karst Preserve. The grotto then formed a subcommittee to manage the property.

From 1997 to 1998, changes in property ownership of two caves in Davidson County, Tennessee, presented an opportunity for the Southeastern Cave Conservancy, Inc. to lease and the Nashville Grotto manage Hardin and Swirl Canyon Caves. Hardin Cave is a popular three-mile-long cave in the western part of the county and has been the scene of many parties. Swirl Canyon Cave had been closed to caving for many years and is the second longest cave in the county. The area near both caves is actively being developed as Nashville continues to grow. The property owners were approached and agreed to lease their properties to the Southeastern Cave Conservancy, Inc. The caves were gated at the request of the owners. The Nashville Grotto also leased Logsdon Cave to the Southeastern Cave Conservancy, Inc. and is now managing all three caves for the Conservancy. The caves are open to scientific, educational, and recreational caving on a permit basis.

What would you do if someone gave you a cave?

A cooperative effort between the Nashville Grotto, the Southeast Cave Conservancy, and private landowners began with a generous gift in 1992 from Dr William Halliday. Thirty-eight acres of land with a multi-drop vertical cave on it soon became a reason of concern for the members of the Nashville Grotto. With the open pit entrance and an old wooden ladder extending several feet above the pit entrance, grotto members soon realized the great liability of owning a cave.

After just a few trips to the cave site, it was obvious attention to safety was going to be of utmost importance to the members of the Nashville Grotto. The very nature of the cave, small passages, tight winding crawlways, and numerous vertical shafts and open air pits, would make this cave attractive to hard-core vertical cavers. Bolts had to be set as exploration continued deeper into the cave. The concerns of the grotto turned from excitement of owning a deep vertical cave to liability issues.

A rescue would be almost impossible if an accident ever occurred in Logsdon Cave. The logistics of a rescue would be beyond imagination. What would the liability of the Nashville Grotto be? It was apparent we needed a user agreement to ensure only qualified cavers would be allowed into the cave. The Logsdon Committee was established and the beginning of the Nashville Grotto Cave Property Management was begun. Members to the committee were elected, but the job was only starting.

The first user agreements were difficult to write. No one realized just how difficult a task this was going to be. Just how could the committee protect the grotto and allow guests to explore cave? After two years and multiple attempts, we produced a 38-page document covering everything from requiring a Nashville

Grotto guide to trash removal. It was just too much for anyone to want to go to our cave. In 1996 it was decided the committee could use a little help and options were looked into. A new organization to the caving community had been heard of and the Logsdon Committee checked out the actions of the Southeastern Cave Conservancy Inc.

The Southeastern Cave Conservancy had purchased half a dozen caves, leased almost as many, was raising money to acquire more, and was obviously doing something right. What was it they were doing that the Nashville Grotto wasn't? After all, we owned the land outright and only needed to manage it. That is much easier than it sounds. Investigation by the Logsdon Committee found the Conservancy had the ability to put liability insurance on the caves they owned and leased. That was the final deciding factor that convinced the Logsdon Committee to lease the property the Nashville Grotto owned to the Conservancy, with the provision the Nashville Grotto would remain the managing party and have the right to make the final decisions about their property. The next months were spent working out details and answering concerns of both the Conservancy and the Nashville Grotto. Questions like how would the access to the cave be established? Just how would we determine who would enter the cave? Logsdon Cave was on property located near the very large Fisher Ridge Cave system and many cavers had hopes of connecting the two. With big air movement coming from the entrance of Logsdon Cave, digs were always going on. The number of request for trips to Logsdon Cave was growing.

The Logsdon Committee had a user agreement they had set up as a plan for their property and, with a few minor changes, the Logsdon Committee decided to use this as the base document and fine tune it for Logsdon Cave's own needs. Once access plans were established the cave almost ran itself.

Swirl Canyon

Shortly after the plans were instated for Logsdon Cave, a committee member heard about an unhappy cave owner in the Nashville area. Charles Donan owned a parcel of land with the second longest cave in Davidson County. Students from a near by high school would cut classes and hang out at the cave. The neighbors had complained to him and he wanted to close the cave. He didn't care about being hassled with people wanting to visit his cave.

Mr Donan was approached with a plan to lease his cave to the Southeastern Cave Conservancy, Inc. He was surprised such an organization even existed and was delighted to turn over his headaches to someone else. The agreement was to clean up the sink and build a gate to stop the high school students from entering the cave. We had to maintain the property and keep it free from trash and cut the grass to have an access road and a parking area.

Now that we had another cave to manage we needed funds to build a gate. We decided to hold a fundraiser. The Nashville Grotto was the sponsor of the SERA Cave Carnival in 1998 and they agreed a percentage of the SERA profits would be used to buy materials for a gate at Swirl Canyon Cave. The labor was to be from volunteers and a gate was to be.

In March of 1998 a small group of grotto members went to Swirl Canyon and inspected the entrance to determine the best location for a gate and try to determine a cost of materials for the gate. A board member from the Conservancy, Geary Schindel, contacted local contractor and avid caver, Bill Overton, to engineer and design a gate. The task proved to be difficult to do in such an odd entrance. Due to the fact the stream entrance fills with run off during heavy rains and the cave entrance sumps, a typical gate wouldn't be feasible. A riser of several feet would be required to allow water to enter the cave while keeping the door of the gate free from debris being washed in during times of high water.

A seven-foot horizontal circular design was drawn up with a three-foot vertical wall at the narrowest section of the sink. This was incorporated to keep the gate above the high water marks. The door to the gate was designed to swing into the cave and transform into a set of steps allowing easy access from the raised platform into the cave.

The gate was built in late September 1998 with the help of six volunteers. Large numbers are not always required but a larger compliment of help will make the construction of any project of this size go faster. The gate was constructed of four-inch angle iron a quarter of an inch thick. In most cases thicker steel is used but the short lengths did not require such heavy metal for strength. Thinner metal was used in an attempt to keep cost down. Since steel is sold by the pound several hundred dollars were saved. spacing between the bars of 5¾ inches was used to allow for bats that might enter the cave. No bat colonies live in Swirl Canyon due to the flooding waters when it rains. The crossbars were attached to the vertical walls using three-quarter-inch hardened rolled steel cut into one foot pins. Six-inch-deep holes were drilled into the rock walls

using a rotary hammer drill and the pins were driven into the holes. Removal of the pins is almost impossible.

The crossbars were welded first, then the top bars forming the frame for the door, and last the crossbars that made up the actual gate. The door was built on site and installed using a simple hinge system and conventional locking unit. Swirl Canyon Cave is not a well known cave and it was felt attempts to defeat the gate would be minimal.

The door turned out to be heavier than first thought so the use of a counter balance was incorporated to help make the task of closing the door easier. A foot plate was installed on the counter balance to allow one person to apply a downward force on the lever to raise the door up while a second person put the lock in place. The use of a simple lever turned the almost impossible task of locking the gate into a most pleasant one, requiring only a few seconds of time and almost no effort. A pin was welded to the side of one of the cross bars to hook on a chain attached to the door, keeping the door from swinging into a neutral position and restricting the entrance of the cave when the gate is open.

The crossbars on the door were turned perpendicular to the gate to create the steps of the ladder. Care was given to build a door with a large enough dimensions to allow a rescue skidder through in the event a rescue had to be preformed in the cave.

The Swirl Canyon Cave gate was built in two very long days of 15 hours each. The designing of the Swirl Canyon Cave gate took weeks and the planning and preparation for the gate took several months. The seven volunteers who did the actual work worked wonders. In over a year of operation the Swirl Canyon Cave gate has not been violated.

Hardins Cave

Hardins or Junkyard Cave is a totally different situation from the other caves we manage. Hardins Cave is the longest cave in Davidson County at just over three miles. Hardins or Junkyard Cave was placed on the Tennessee Superfund clean up in the early nineties.

The former owner of the property had allowed the storage of hundreds of 55-gallon drums on the property. The state demanded a cleanup be preformed before the land could have any improvements or even be sold. The Tennessee Department of Transportation constructed a new highway through the middle of the old junkyard site and divided the cave entrance from the area where the drums were stored, helping keep the cave safe from any contaminants. The site was cleaned and finally removed from the Superfund list and placed for sale. Thanks largely to the devoted efforts of a few the Nashville Grotto members, Hardins Cave is the only Tennessee Superfund site to ever be cleaned and removed from the Superfund list. The quality of the air and water in the cave today is well with in the tolerances established by the Environmental Protection Agency making this a truly unique cave location.

When Nashville businessman, Barry Walker, heard of the property being for sale, he purchased it for a development he planed to build and another friendship was formed. Barry Walker has developed several unique sites in and around Nashville including the revamping of an old automobile factory, the Marathon Motorcar Company.

Barry was approached by members of the Nashville Grotto and was ask what he planed to do with the cave on his property. At this point he didn't even know about the existence of the cave and wanted to see his newly purchased cave. On his first trip to the cave several members of the Nashville Grotto and Barry found a pair of bats tied together with a piece of string and left to die. Barry was shocked at the sight of this act of cruelty and almost immediately agreed to lease the cave with the provisions this kind of act would never happen again in his cave. He also requested the word "Junkyard" be dropped from the name. Once again the wheels were in motion and another cave would soon become the property of the Southeastern Cave Conservancy, Inc. and the Nashville Grotto would become the managers. A contract was drawn and, after both parties had agreed, a signing ceremony was held at the February 1999 winter business meeting of the Southeastern Cave Conservancy. During the process of working out the details, the Nashville Grotto as an act of good faith and as a vote of confidence, engineered and constructed the gate on Hardins Cave.

This gate would prove to offer a completely different set of concerns and problems. Hardins Cave is the longest cave in Davidson County and at over three miles is not a small cave by anyone's standards. The cave is also well known by locals and has always had a large number of visitors yearly. With such a well known cave and party location, vandalism was our largest concern. And if that wasn't enough after the new highway was built the cave entrance is only 150 feet from the road and in plain site of the traffic on Highway 12.

The area near the entrance has been used as a dumpsite for people and had a wide collec-

tion of debris ranging from a water collection tank to used tires and everything in between. In all, seven truckloads of trash were removed just to get the entrance area cleaned. The cave itself has had numerous cleanup trips to remove the bulk of the trash, with trips still being held today. The cave, though not completely clean, is much better than when the Conservancy and Nashville Grotto took control on February 13, 1999.

Publicity wasn't a problem as Hardins Cave has been on the local news several times. With three rescues preformed at Hardins Cave in the 1990s, the local papers and television stations are very familiar with the cave. The local newspaper and one of the local television stations came the day of the gating for an interview. Both ran favorable stories about the gating actives of the Nashville Grotto and how it would make the cave a safer place for everyone involved. The power of positive publicity can never be underestimated.

The construction of the Hardins Cave gate was held on December 5, 1998, a rainy day that produced a fast-flowing creek into the normally dry entrance crawl. Again Bill Overton was contacted to design and engineer the gate. The gate was constructed about 60 feet inside the entrance of the cave. This was the first usable location in the cave for a sturdy gate. With the fear that locals might try to use force to remove any gate built, we felt the distance would assist in keeping the gate from harm. The gate was built in a narrow section of the cave approximately six feet wide and ten feet tall.

The team of volunteers consisted of members of three Tennessee grottos, Nashville Grotto, Cumberland Valley Grotto, and Central Basin Grotto. Volunteers had come from as far as Alpine, Tennessee, about 180 miles away. A work site was set up, steel unloaded, and the gate was started. Placement of the base of the gate was done and a framework of steel rose from the six-inch angle iron. Three-foot pins were driven into the floor of the cave below the threshold of the gate. Later 1,100 pounds of concrete would be poured and six drain holes would be placed. The work went steadily for ten hours and the Hardins Cave gate was built in one day. The door of the gate was built off site due to the concerns of security for this cave.

The door was built at a steel fabrication facility owned by one of the oldest and largest locksmiths in Nashville. West End Lock Company donated time materials and years of knowledge to assist the Grotto in producing one of the most secure and solid gate doors I have ever seen. With such a well known cave and one that has been actively used for so many years, closing off this cave could prove to be difficult if not down right impossible. That is why the services of West End Lock Company were enlisted.

A chain is only as strong as its weakest link. In most cave gates the lock proves to be the weakest link. In the Hardins Cave gate special attention was given to the locking mechanism. For the Hardins Cave lock a high security Medeco controlled keyway, drill resistance, pick resistance, bi-axle, interchangeable core mortise cylinder lock was recommended. When absolute key duplication controls are necessary, nothing less will do.

A special deadbolt locking mechanism was used as well, one that is almost impervious to cutting by a torch or saws and is extremely difficult to damage by ordinary means.

The combination of these two items wrapped in a ½-inch-thick steel housing resulted in an almost bombproof lock. What does this all mean? In most cave gates the gate itself is usually strong enough to withstand any assault, but the lock? Well most locks only require a local hardware store to duplicate the key and the entire gate has been compromised. The locking system used on the Hardins Cave gate has a very special key. A key that can only be duplicated at one place in the entire United States. No other hardware store, K Mart, or for that matter locksmith shop has a blank to cut the key. Without a photo ID and your name on a signature card to compare to, no one gets a copy of the key cut, and I mean no one. Plus the controlled keyway makes the distribution of the keys for Hardins Cave up to the managing committee and only the committee. In the event a key is lost or stolen, the core can be changed, on site, in a matter of a few minutes. This allows the lock to be maintained with less effort in less time and more often. With a special key called a change key or site key anyone can remove and replace the interchangeable core with a new one. The managers of Hardins cave have three such cores, two for general lock maintenance, and one in the unlikely event a key is lost or stolen.

It should be mentioned that if not for the generosity of many businesses throughout the Nashville area the construction of these gates and the completion of these projects would not have been possible. The use of a portable generator/welder from Haileys Harbor Shipping Company. the use of a 20-foot flatbed trailer large enough to haul the steel from Mid Atlantic Products, the use of a steel fabrication shop for building the gate doors and lock from West End Lock Company, and the use of the many tools, lights, and cords required for the construction of the gates from The Overton Group.

Also the volunteer efforts of the grotto members constructing these gates brought both gates in under the estimates cost by almost 30 percent. The leftover funds have been used to manage the properties without using funds from the grotto.

Management of Properties

In 1998, with the acquisition of so many caves and surrounding property, the Nashville Grotto felt the need to change the Logsdon Committee name to one that described better the duties of the committee. They decided to name the committee the "Cave Property Management Committee" and add two more members, bringing the total to seven. With the new name came new duties. Now there were three cave properties to manage, all with different requirements. Hardins Cave would have much more requests for visitation and would need tighter controls. Swirl Canyon is lesser known and has had very few requests for access while Logsdon Cave only sees vertical cavers and only a few each year. With the caves spread over such a wide area, maintaining open communications with every property was difficult. A phone line was set up and a voice mailbox was developed as the main means of access to the cave properties. This number is posted at all three cave locations.

With the voice mail a single person can be reached by anyone wishing to gain access to any of the caves. The voice mailbox also allows the Nashville Grotto and the Cave Property Management Committee to stay in contact without posting a private individual's phone number, this keeps the members from being harassed by an irate local who has been denied access to the cave. The voice mail was set up to page a pager whenever a message is left so a committee member will know almost immediately when a request is made for access. The pager is left with different people depending on the schedule of the committee. Along with voice mail, an e-mail account was set up as well. With today's fast pace and the time constraints of individual committee members these two means of access have proven to be most adequate.

Meetings are held on a quarterly basis and are kept upbeat, productive, and entertaining with interesting locations, concise agendas, and meticulous records, all kept available to any grotto member in good standing. While outings don't always have to be at caves, most are designed to promote cave conservation and management. The Southeastern Cave Conservancy, Inc. and the Nashville Grotto are currently working on other cave properties in and around the Nashville area and hopes are high by both parties to keep this friendship active for may years to come.

Trips to the caves include educational trips for the Tennessee State Parks; recreational trips like a birthday party, home schooling, local church groups, or the Boy Scouts of America; numerous NSS members visit our caves; and even rangers at a local state park use our caves as a model for how a cave should be properly managed. Scientific trips for local research are currently being conducted at two of our caves, and even a detailed, grade 5 map is being drawn for Swirl Canyon Cave.

Now the caves are running smoothly and most trips to the properties are to do general maintenance. The time has come for the volunteers to enjoy the fruits of their labors. Trips to cave properties include trash removal, gate maintenance, graffiti removal, and the general requirements any landowner has to perform: cutting the grass, removing fallen trees, and the never ending task of hauling off others peoples trash. We have even taken on the task of documenting the return of the natural inhabitants, the bats.

In conclusion, the cooperative efforts of the Southeastern Cave Conservancy, Inc.; the Nashville Grotto; and most of all the landowners of Swirl Canyon Cave, Hardins Cave, and Logsdon Cave have taken the dreams of a few people and turned them into a reality of successful cave management, working to secure the future of caves in middle Tennessee and southern Kentucky.

So, what would you do if someone gave you a cave?

You would conserve it.