

THE MISSOURI CAVES AND KARST CONSERVANCY: TWELVE YEARS OF CAVE CONSERVATION IN MISSOURI

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Abstract

The Missouri Caves and Karst Conservancy, Inc. was founded in 1993 by a group of cavers with the intent of purchasing and preserving caves in Missouri. In the succeeding 12 years, Missouri Caves and Karst Conservancy has acquired one property and manages or co-manages four other properties. The primary focus of the Conservancy, however, has been conservation through management, education, and research. In support of this focus, the Conservancy has led or participated in several projects in partnership with various private, state, and federal groups. The Conservancy and the Missouri Department of Conservation have partnered for the construction of several modern angle-iron cave gates and the Missouri Cave Life Survey. Geographic Information System analysis of karst areas has been supported by a Conservation Technology Support Program grant from ESRI and Hewlett-Packard. Recreational Equipment, Incorporated (REI) and the National Park Service have supported various MCKC cave restoration projects. The Missouri Caves and Karst Conservancy has recently partnered with the Missouri Caves Association in applying for a specialty license plate in order to increase awareness of caves in Missouri and to raise funds for various projects. The Missouri Caves and Karst Conservancy and the Missouri Department of Conservation will be co-hosting the 2007 National Cave and Karst Management Symposium to be held in St. Louis, Missouri.

Background

The state of Missouri, located in the central portion of the United States, has over 6,000 recorded caves according to records kept by the Missouri Speleological Survey, and more are found on a regular basis. Three of the four largest metropolitan areas in Missouri — St. Louis, Springfield, and Columbia — are located almost entirely on karst. In the rural areas of the Ozarks, where over 50% of the land is within 4 kilometers of a cave, cave exploration is a very popular past time, especially for those of high school age. It is unusual to speak with an individual who grew up in the Ozarks and who has never been caving. Unfortunately, with such popularity it becomes easy for cultural trends to become entrenched. In many places in the Ozarks, almost ubiquitously, vandalism is very well estab-

lished practice. A cave near Springfield, Missouri, was open to visitation for approximately ten years before being gated. Despite the low entrance crawlway, several thousand formations were broken and large areas were spray painted in that ten-year period (Beard 2005). That particular cave is now a restoration laboratory.

The Ozark area of Missouri is experiencing a significant population growth. Between 1990 and 2000 regions in southern Missouri grew between 11% and 27% (Missouri Dept. of Economic Development). Such growth trends increase pressure on natural resources — especially those considered recreational. This, compounded with an increasing nationwide trend for personal injury litigation, has resulted in numerous privately owned caves being closed to visitation out of fear of liability. In order to help alleviate threats to and closure of significant

caves in Missouri, a group of cavers formed the Missouri Caves and Karst Conservancy, Inc.

Founding and Early History

The Missouri Caves and Karst Conservancy was founded in January 1993, for the primary purpose of preserving significant cave and karst resources in Missouri. H. Dwight Weaver, one of the founders of the organization, addressed the 1995 National Caves and Karst Management Symposium (Weaver 1996). One of the primary topics addressed by Weaver was the identification of significant caves in order to focus conservation efforts of the organization. It is highly important to identify such targets, for without knowledge of a resource it is impossible to conserve that resource. This assessment of significance, however, presupposed the existence of accurate information on the range of cave and karst features within the range of interest. Unfortunately, such a data set is very seldom complete or thorough — and when the range of interest is statewide, the data set is often more incomplete than otherwise. Therefore, Weaver began a major effort to compile a significant caves inventory for Missouri.

A second issue addressed by Weaver was the lack of a popular publication targeted towards cave owners and managers. Missouri has, for many years, had three types of cave and karst related publications: grotto newsletters, the *Liaison* (the newsletter of the Missouri Speleological Survey), and *Missouri Speleology*—a more scientific journal published by the Survey. The The Missouri Caves and Karst Conservancy began publishing a quarterly magazine, the *MCKC Digest* — in 1994. The goal of the *Digest* was to provide timely and pertinent information to cave managers regarding such things as general cave and karst science, restoration, and management issues.

Unfortunately, publishing a high quality magazine such as the *Digest* requires a great deal of time, effort, and funding. When a community with a rather limited membership, such as the Missouri caving community, undertakes to publish multiple newsletters, the *Missouri Speleology Journal*, and the *MCKC Digest*; qualified editors and writers become over-used. Lack of material forced the retirement of the second *Digest* editor. After a fruitless search for a replacement editor and more material,

the The Missouri Caves and Karst Conservancy Board of Directors decided to discontinue the regular publishing of the *Digest* and, instead, adopt a quarterly newsletter which could be assembled quickly after each board meeting and sent to the membership. This has proved to be very beneficial as the majority of the conservancy's resources and manpower were being absorbed by the *Digest*. The board is now able to keep the general membership updated in a timelier manner and more manpower is available for other projects.

Cave ownership by The Missouri Caves and Karst Conservancy commenced with the purchase of Skaggs Cave, finalized on January 16, 1996. Conservancy member Ronald Jaeger and the owners, Tim and Rena Miller, made this purchase possible. Skaggs Cave has over one mile of mapped passageways and is noted for its speleothems, size, and complexity. The Lake Ozark Grotto and Kansas City Area Grotto of the NSS and other Missouri cavers constructed a gate on Skaggs Cave in 1990 with funding provided by the Mississippi Valley Ozark Region of the National Speleological Society (Figure 1).

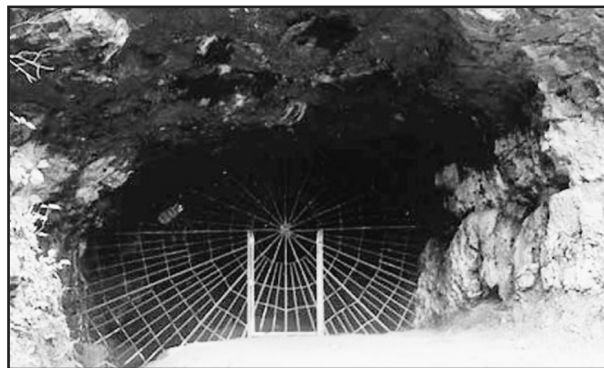


Figure 1. Entrance to Skaggs Cave with the spider gate (this gate has been replaced).
Photographer unknown.

Cave Projects

Though no additional caves have been added to the ownership list of the Conservancy since the purchase of Skaggs Cave, four more properties have been leased or managed. Crystal Caverns, a formerly commercialized cave in Cassville, Missouri, has been leased by The Missouri Caves and Karst Conservancy since 1999. The cave had been neglected for years and the property logged over. The cave has no natural entrance and the excavated

entrance is closed by a concrete block building. When The Missouri Caves and Karst Conservancy leased the property there was a large hole in the artificially closed entrance roof and large piles of trash outside the cave. In order to use the cave for educational tours, the cave had to pass an inspection by the Mine and Cave Safety and Health Program of the Missouri Department of Labor and Industrial Relations. The Missouri Caves and Karst Conservancy was awarded a grant from Recreational Equipment, Inc., to help modify the handrails, fix the hole in the roof, and obtain helmets and headlamps for group tours. Work is continuing on this project. Crystal Caverns is noted for its impressive aragonite needles and calcite formations (Figure 2).

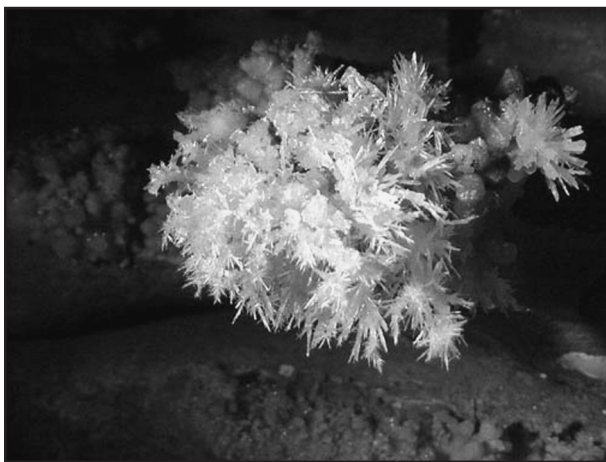


Figure 2. Aragonite needles in Crystal Caverns.
Photo by Jon Beard.

Sarcoxie Cave in Jasper County has been managed by The Missouri Caves and Karst Conservancy since its purchase by the Ozark Regional Land Trust in 1997. Sarcoxie Cave is an important site of the threatened Ozark cave fish (*Amblyopsis rosae*) and the bristly cave crayfish (*Cambarus setosus*). This small cave (often referred to as “a cave only a cave fish would love”) is closed to visitation except for scientific research.

Dream Cave in Ozark County is managed by The Missouri Caves and Karst Conservancy in cooperation with the Ozark Highlands Grotto in Springfield. Dream Cave is quite interesting geologically. In one passage a large number of stromatolites have weathered out of the bedrock and resemble a motley collection of conga drums (Figure 3). What would otherwise be an easy walking-

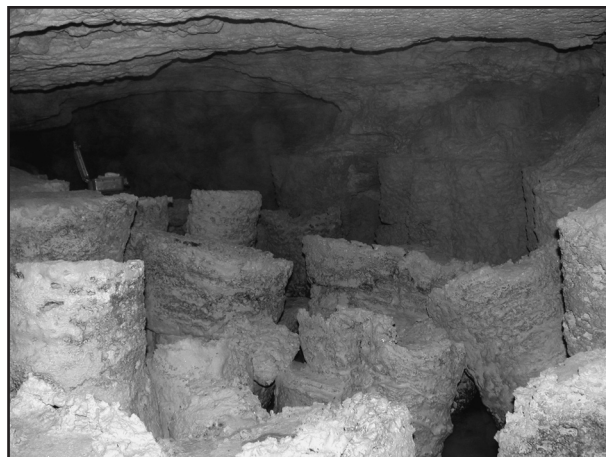


Figure 3. “Conga drum” stromatolites in Dream Cave. Photo by Hal Baker.

height passage is a convoluted and uncomfortable belly crawl.

The Conservancy’s most popular cave, Perkins Cave, Camden County, is privately owned and managed by The Missouri Caves and Karst Conservancy under contract. Perkins was also the site of The Missouri Caves and Karst Conservancy’s first in-house cave gating project. The cave entrance is located within 20 feet of a county road just out of sight of the owner’s residence and was experiencing an increasing amount of trespassing and vandalism. The landowner requested a gate be installed in May 2003 and asked The Missouri Caves and Karst Conservancy to manage it. The Conservancy manages the cave with a liberal visitation policy and groups who have used the cave for many years have reported an increase in cave life and no additional vandalism or trash accumulation. Perkins Cave is noted for its many natural bridges, striking passages, and as a significant Pleistocene paleontological site.

Bruce Cave in Ste. Genevieve County has been managed by The Missouri Caves and Karst Conservancy since June of 2003 via a request of the previous land owner. This cave is located within a privately owned hunting preserve and is closed to visitation.

Significant Caves List

One of the mission statements of the Missouri Caves and Karst Conservancy is to preserve the highly significant caves of Missouri. However, that begs the question, “what caves are ‘highly sig-

Table 1. Significant caves listing criteria used by Weaver (Weaver 2000).

Category	Criteria		
	Highly Significant	Very Significant	Above Avg Significance
Length	> two mi.	> one mile < 2 mi.	> 1000 feet, < 1 mi.
Depth		> 100 ft.	> 40 ft, < 100 ft
Archaeology	Burials, human remains	Recorded excavations, recovered material	Artifacts known
Biology	State or Fed. Listed species	Large reproducing pop. any sp. or many trogs	Diverse and healthy ecosystem
Geology	Classic textbook feature or extensive maze	Multiple levels	Uncommon structural features (e.g. fault)
		Outstanding solutional features/speleogens	
Paleontology	Tracks, claw marks, trails, dens, etc.	Material removed	Known to have material
History	Famous individual or significant event in MO	Associated w/some industry or historic interest	Notable cultural value or ruins
Show Cave	Long history or currently active	Closed but has potential	Abandoned
Speleothems	Exceptional, unique, etc.	Well decorated	

nificant?’” H. Dwight Weaver not only raised this question but also proposed an answer (Weaver 1996). A monumental nine-year effort by Dwight Weaver, assisted by Jonathan Beard, which involved examining reports on nearly 5,500 caves, resulted in the “Significant Caves of Missouri” list in 1999 and which was published in the *MCKC Digest*, Winter 2000 issue (Weaver 2000). In compiling this list, each cave report and other supporting information as was available were examined for certain items of interest and a ranking for the cave was assigned based on the “value” of these items. The ranks of significance were kept quite simple: above average (AS), very significant (VS), and highly significant (HS). See Table 1 below for a summary of items, values, and significance rankings for those values. It is important to note that each item or category

of interest is independent. The presence of a single endangered species, a unique history, or an extraordinary geological feature, for example, would each, independently, result in a ranking of “highly significant” for a cave. Other attempts at assigning significance have included summing groups of features — such as biological, geological, and cultural — and assigning total scores based on the sum of the features. Unfortunately, each method can result in unfair rankings and both lists should be consulted. In the former method, for example, a cave with a broad range of features that are only considered “very significant” would have a ranking of “very significant.” In the latter method, such a cave could easily be considered “highly significant” based on the range of features.

The result of this significant cave project was

the identification of 250 caves which earned the ranking of “Highly Significant.” Many of these caves earn the ranking due to the presence of one or more endangered species. Others have unique archeological resources or a significant cultural aspect.

Other Projects

Though the compilation of the significant caves list was a very great effort, the resource assessment is only as good as that data upon which it is based. Resource inventorying is a very significant portion of any concerted conservation effort and supporting endeavors to increase the value of the data set — whether by volunteering time, expertise, or funding — is often as important as conserving the resource itself. It may, in fact, be more important as information gleaned from such investigations assists other landowners — both private and public — in making management decisions and can lead to a much larger conservation effort than is possible by a single not-for-profit organization. The Missouri Caves and Karst Conservancy has dedicated a major portion of its time and energy in the past 12 years helping to expand and improve the quality and completeness of the data on Missouri caves that help to identify significance and threats.

One of these efforts involved partnering with the Missouri Department of Conservation in the Missouri Cave Life Survey which was supported by a “Partnerships in Wildlife” grant from the U.S. Fish and Wildlife Service. The goal of the survey was to revisit a select subset of caves which had been inventoried 20 years earlier (Elliott and Ireland 2002). In this effort 45 cavers were trained to identify 66 cave species. One result of this project was the publishing of “A Guide to Missouri’s Cave Life” booklet by the Missouri Department of Conservation (Elliott 2003).

In addition to the cave life survey, the conservancy has also received a Conservation Technology Support Program Grant from ESRI and Hewlett-Packard to fund geographic information system (GIS) work on cave and karst areas in Missouri. The Missouri Caves and Karst Conservancy also participates in the Volunteer-In-Park Program for the Ozark National Scenic Riverways. In this program three caves have been “adopted” for clean up,

monitoring, and, in one case, trail-building.

Recognizing that access to caves must be controlled in order to manage threats from over use and trespassing, The Missouri Caves and Karst Conservancy participated in a cave gating workshop hosted by the Missouri Department of Conservation, the American Cave Conservation Association, and Bat Conservation International in June 2001. The Department of Conservation provided funding for scholarships that were awarded to three The Missouri Caves and Karst Conservancy members (Matt Marciano, Kenny Sherrill, and Jim Kaufmann). The Missouri Caves and Karst Conservancy and Missouri Department of Conservation partnered again for the gating of Kiesewetter Cave in Camden County, a project that also served as a cave gating workshop. The conservancy afterwards purchased specialty tools — a rotary hammer drill, generator, and portable welder — which are rented out to cave gating projects. Sherrill and Kaufmann continued to build gates both for the Missouri Caves and Karst Conservancy and under private contracts.

The gate constructed on Skaggs Cave in 1990 was a very artistic spider web design. These artistic designs, however, though they may be nice to look at can be very detrimental to cave life. They tend to be bat excluders and are often easily breached by vandals. The Skaggs spider web gate was breached several times each year. After gaining experience in building American Cave Conservation Association style angle iron gates, the The Missouri Caves and Karst Conservancy board decided to replace the Skaggs spider gate with a more modern, bat friendly gate.

Recognizing the need for more consistent funding, the Missouri Caves and Karst Conservancy decided to develop a specialty automotive license plate under a program available to Missouri not-for-profit organizations. In order to obtain a specialty plate, a donation of \$25 per year is made to the sponsoring organization. A minimum of 200 donors are necessary for the application process to begin. The Missouri Caves and Karst Conservancy partnered with the Missouri Caves Association in this project both to help increase the exposure and ensure an adequate number of applicants. The cost and donations are being split equally between the two organizations. The Missouri Caves and Karst Conservancy board member Bryan McAllister de-

signed the specialty plate (Figure 4) which is still in the approval process.

Furthering the Missouri Caves and Karst Conservancy's dedication to research and education, another partnership with the Missouri Department of Conservation was formed to host the 2007 National Cave Management Symposium. The symposium will be held in St. Louis, Missouri, in October 2007, at the Holiday Inn Southwest — Viking Conference Center and Missouri Department of Conservation's Powder Valley Nature Center.



Figure 4. Proposed "The Cave State" specialty license plate design by Brian McAllister.

Conclusion

The Missouri Caves and Karst Conservancy, Inc., was founded in 1993 for the purpose of conserving and protecting significant cave and karst resources in Missouri. For many years a significant effort of the organization involved the publishing of the award-winning *MCKC Digest*. More recently, however, an increasing amount of effort has been focused on improving the data set for Missouri cave and karst resources, education, and management through avenues other than direct

ownership. It is very important for a relatively small organization such as the Missouri Caves and Karst Conservancy to work towards its strengths — in this case an enthusiastic, diverse, and skilled volunteer group. Forming partnerships with other organizations with similar goals, such as the Missouri Department of Conservation, enables both organizations to accomplish projects which would be beyond the scope of either organization individually. Furthermore, recruiting local cavers to help manage or adopt caves in their home area helps make resource conservation less of an abstract concept and more of a local, hands-on project.

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