

# THE CAVE CONSERVATIONIST

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*The Cave Conservation and Management Section of the NSS*



## RIVER CAVE GATE PROJECT

*Photograph's by Eugene Vale*

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**Cave Conservation and Management Section of the National Speleological Society**



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**Cave Conservation and Management Section Board of Directors**

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2201 Wilson Avenue  
Hot Springs, SD 57747  
PH: 605-745-4933  
E-Mail: [rod\\_horrocks@nps.org](mailto:rod_horrocks@nps.org)

**VICE CHAIRMAN**

John M. Wilson  
9504 Lakewater Court  
Richmond, VA 23299  
PH: 804-740-0339  
E-Mail: [wilsonjml@msn.com](mailto:wilsonjml@msn.com)

**SECRETARY**

John LaMar Cole  
1196 Millcreek Dr.  
Lexington, KY 40517  
PH: 859-245-3383  
E-Mail: [koshkacaver@insightbb.com](mailto:koshkacaver@insightbb.com)

**TREASURER**

Eugene Vale  
46 Cedar Drive  
Pacific MO 63069-3414  
PH: 636-271-8380  
E-Mail: [eugenevale@socket.net](mailto:eugenevale@socket.net)

**THE CAVE CONSERVATIONIST EDITOR**

Lynn Roebuck  
94 Magnolia Lane  
Normandy, TN 37360  
PH: 931-455-8658  
E-Mail: [pretzlgirl@charter.net](mailto:pretzlgirl@charter.net)

**HONORARY CHAIRMAN**

Robert R. Stitt  
4823 Panther Lake Rd  
Snohomish, WA 98290  
PH: 360-563-9767  
E-Mail: [rstitt@wingedseed.com](mailto:rstitt@wingedseed.com)

**NSS CONSERVATION DIVISION**

**CO-CHAIRS**

Val Hildreth-Werker & Jim Werker  
P.O. Box 207  
Hillsboro, NM 88042  
PH: 505-895-5050  
E-Mail: [werks@zianet.com](mailto:werks@zianet.com)

**DIRECTORS AT LARGE**

John Hoffelt  
208 Cheatham Avenue  
Smyrna, TN 37167  
PH: 615-459-6594  
E-Mail: [mossyguy@comcast.net](mailto:mossyguy@comcast.net)

Brian Roebuck  
94 Magnolia Lane  
Normandy, TN 37360  
PH: 931-455-8658  
E-Mail: [solow@charter.net](mailto:solow@charter.net)

Jo Schaper  
46 Cedar Drive  
Pacific, MO 63069  
PH: 636-271-8380  
E-Mail: [joschaper@socket.net](mailto:joschaper@socket.net)

Rickard S. Toomey  
Western Kentucky University  
1906 College Heights Blvd #31066  
Bowling Green, KY 42101  
PH: 270-745-5132  
E-Mail: [rick.toomey@wku.edu](mailto:rick.toomey@wku.edu)

James Wilbanks  
PO Box 34  
Rising Fawn, GA 30738  
PH: 706-462-2316  
E-Mail: [jimgail69@earthlink.net](mailto:jimgail69@earthlink.net)



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## River Cave Gate Project

Missouri Department of Natural Resources, Ha Ha Tonka State Park

Larry Webb, Interpretive Resource Specialist III

During the month's of September and October 2005, the Missouri Department of Natural Resources removed the cave gate on River Cave in Ha Ha Tonka State Park and replaced it with a new gate that reflects the best current design for the protection of the endangered Gray bat, *Myotis grisescens*.

River Cave is located in Ha Ha Tonka State Park, four miles southwest of Camdenton in Camden County, Missouri. The cave is included in one of the park's two state designated natural areas. The Ha Ha Tonka Karst Natural Area that includes River Cave also includes five other caves, several large sinkholes, a natural bridge, and one of the states largest springs, Ha Ha Tonka Spring.

Currently there are seven recorded species of conservation concern in River Cave. Two federally endangered species of bats use the cave. Gray bats use the cave as a maternity site in the summer. Using guano piles, Rick Clawson with the Missouri Department of Conservation, estimated the summer 2005 population of gray bats to be approximately 26,000. Prior to construction of the original cave gate in 1984 only 200 gray bats used the cave and it was considered transient use. A small population of Indiana bats uses the cave for hibernation with numbers the last several years hovering around 75. A very large population of grotto salamanders uses the cave, and more than 100 were counted throughout the cave in December of 2005. Southern cavefish are common in a pool just before the sump. In December of 2005, 28 southern cavefish were counted in this 130-foot section of cave passage. Three other State Listed Species of conservation concern occur in River Cave including Clanton's groundwater amphipod, Onondaga cave amphipod, and a cave isopod.

The original gate, constructed in 1984, was built

using rebar welded into a grid pattern of four inch by twenty-four inch openings. The upper right corner of the gate was left open to encourage gray bat usage and human entry was discouraged with the use of horizontal rebar spikes just below the opening. With the improved design of cave gates from the American Cave Conservation Association (ACCA) and the United States Fish and Wildlife Service (USFWS) the gate on River Cave had become very much outdated and needed to be replaced to improve conditions for gray bats.

The Missouri Department of Natural Resources, Division of State Parks funded the project and supplied the majority of the labor for the project. Bill Elliott with the Missouri Department of Conservation provided the park with design and technical direction from Jim Kaufmann. Jim assisted with construction and used ACCA guidelines developed by Roy Powers to build the gate.



*The new gate on River Cave*

An immediate challenge was removal of the old gate and placement of more than six tons of new steel into a fifty-foot deep sinkhole where the cave entrance is located.

*(Continued Page 4)*

## River Cave Gate Project

Park Maintenance Worker Gary Plymell and I designed a cable and pulley system to "zip line" the steel more than 130 feet to the bottom of the sinkhole. Once at the bottom a block and tackle pulley system was used to lower the steel to the ground where it was ready for cutting and assembly. The old gate was cut into manageable pieces and lifted out of the sinkhole using the same block and tackle and pulley system.



Construction of the new gate took eight days to complete and more than six tons of steel was used. The gate is approximately 39 feet long and 15 feet tall at its greatest dimensions. A 65 square foot chute, 12 feet long, is aligned with the cave passage to allow easier ingress and egress of gray bats. Jim Kaufmann's design called for the gate to lean back into the cave entrance at about a 13-degree angle to improve airflow and stability of the gate due to the weight of the chute. The standard ACCA design was used with a six-inch angle iron sill, four-inch angle iron columns, and

reinforced four-inch angle iron horizontal bars with the standard five and three-quarter inch spacing.

The new gate is only a piece of the bigger picture in protecting and preserving the resources of River Cave. Currently, monitoring efforts in River Cave include quarterly water quality testing, annual survey of cave life including guano pile estimates of gray bat populations, head counts of all hibernating bats including Indiana bats, and a count of vertebrates including salamanders, cavefish, frogs, crayfish, and others. Work has started to set up permanent monitoring transect lines along the cave stream and count the invertebrates in a quarter meter square at random distances along the transect line. This will allow for a representative sample to be obtained each year that can become important in tracking changes in population densities of the environmentally sensitive stream invertebrates over time. Other annual monitoring includes stream and pool depth measurements, gravel surface to ceiling measurements, and photo stations.

The Missouri Department of Natural Resources has purchased most of the watershed of Dry Hollow, an intermittent stream that feeds directly into the cave's other sinkhole entrance, to protect the cave's resources. With proper management of the watershed, continued monitoring of cave resources, and restricted human entrance the Missouri Department of Natural Resources hopes to preserve this outstanding cave resource for generations to come.

*\*Photograph Credit: Eugene Vale, Missouri Department of Natural Resources, and Cave Conservation & Management Section Treasurer*

## Submit Cave Conservation and Cave Management Abstracts for 2006 NSS Convention

NSS Conservation invites **abstract submissions** for all **Conservation Sessions** at the 2006 NSS Convention (Bellingham, Washington, August 7–11, 2006) to Jim C. Werker and Val Hildreth-Werker: [werks@zianet.com](mailto:werks@zianet.com) Abstracts are due to us by June 1, 2006.

We are accepting abstract submissions for the **NSS Restoration Forum**, the **NSS Conservation/Management Session**, and presentations on **Conservancies**. Limit abstracts to **250 words or less** and include the title of the paper and the authors names, professional affiliations, and mailing addresses. We encourage early submissions. Please email us now and indicate your intent to submit an abstract: [werks@zianet.com](mailto:werks@zianet.com)

Equipment will be available for PowerPoint presentations and for slide shows. For online details, visit the Convention website: <http://www.nss2006.com/>

Abstracts are chosen for publication in the Journal of Cave and Karst Studies. Following are abstract guidelines for the Journal of Cave and Karst Studies.

1. "Each year the Journal of Cave and Karst Studies publishes abstracts from the annual National Convention..."
2. "Cavers preparing abstracts for the convention sometimes forget that the abstract is more than an invitation, or "teaser" to entice an audience. It is also a permanent record, a summary of all the substantial information one plans to present." Abstracts are informative summaries that include conclusions, not merely a list of topics that will be discussed.
3. "The Journal has to limit the number of pages devoted to abstracts..."
4. "We must limit the abstracts to 250 words. Thus, some abstracts are eliminated as too lengthy and others are edited down. Unfortunately, the people most qualified to cut out words are the author and the session chair. When they fail to do so, we are forced to make changes, often in fields where we have no expertise."
5. "Too often an abstract will say, 'Discussion will be on how to...' instead of actually summarizing the technique. A promise is nearly worthless but a summary has value to future readers." Abstracts are informative summaries that include conclusions, not merely a list of topics that will be discussed.
6. "While preparing an abstract for the convention, we ask you to consider some other requirements of the Journal. Like nearly all scholarly publications, we use metric. Please use, or at least include, metric in each abstract."
7. "A scholarly abstract should always include a mailing address. Professional affiliation and internet address are also commonly included."
8. "Avoid abbreviations" and do not include references in convention abstracts.

Please repost on caver list-serves, websites, and newsletters.

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## Short Scoops

The Nature Conservancy has recently purchased Tennessee's Bellamy Cave. Bellamy Cave was mined for saltpetre during the Civil War and also contains a bat maternity colony. The cave is a year-round home for Gray bats, Indiana bats, blind crayfish and the rare Coleman Cave Beetle which is so rare it has only been found in three other nearby caves.

(*Nature Conservancy Press Release*, February 9, 2006)

Reported in the *Las Vegas Sun*, March 18, 2006 The Devils Hole pupfish which is only an inch in length, inhabits a deep, vertical limestone cave in the Ash Meadows National Wildlife Refuge. In 1978 the pupfish count was five hundred fifty three. Scientists and federal, state and local officials are trying to understand what is killing the Devils Hole pupfish as well as working to save the pupfish but a mere eighty remain and the numbers are still declining. The cave is protected from unauthorized visitors by razor wire.

Only a year ago Arizona's Bloomington Cave received an extensive clean up but once again has again been vandalized. The cave contains geological, educational, biological and recreational significant resources. Arizona officials declare they will place a gate on the cave and require a permit for entry.

(*The Spectrum*, March 21, 2006)

*Tampa Bay's 10 News*, Randy Rauch and photojournalist Wayne Waichunas go underground for an amazing adventure in a cave at the Warren Cave Nature Preserve, Alachua County, Florida. Wildside: "*Mountain Climbing in Florida*".

According to *The Bruce Museum of Arts and Science Web Site* the museum will host "*Caves: A Fragile Wilderness*" the traveling Smithsonian Institution exhibit April 1 - August 13, 2006

The April 11, 2006 article in *The New Mexican* reports Carlsbad Caverns National Park has now banned photography during the evening bat flights. In the past photos were allowed as long as flashes were not used but visitors failed to observe the rules. Park officials want to avoid disturbing the bats as much as possible and discontinuing photography is one way to avoid disturbance.

An article in the May 8, 2006 edition of the *Tennessean* reports an industrial chemical spill from local automotive interior products plant seeped into a sinkhole, traveled through a cave, into a nearby creek and then made its way into Jacquelyn Guthrie's lake in August 2004. Clean up and monitoring efforts ceased when the auto company ran into financial troubles and in May 2005 filed for bankruptcy. But Guthrie has shelled out a lot of funds on lawyer fees and tests to try to get some relief for the clean up. Tennessee Department of Environment and Conservation say they investigated the matter appropriately, did everything they could and that the spill no longer presents a problem. But in answering Guntrie's December 2005 complaint TDEC said the department may take action if any new proof of a threat to human health or the environment is found, but TDEC Commissioner Jim Fyke disputed claims the department did not properly investigate or enforce the law.

According to the May 9, 2006 *Deseret Morning News*, Nutty Putty Cave entrance will soon receive a gate and become public access restricted. The state School and Institutional Trust Lands Administration and Timpanogos Grotto agreed to a Memorandum of Understanding whereby Timpanogos Grotto will manage the cave. For safety reasons access to the cave will be allowed to qualified persons who will be given free permits to enter.

## The Cave Conservationist

*The Cave Conservationist* © 2006 is the official publication of the Cave Conservation and Management Section of the National Speleological Society. The contents of the newsletter rely on contributions made by section members and others who are interested in cave conservation and management. Newsletter contributions should be submitted to the Editor, Lynn Roebuck [pretzlgirl@charter.net](mailto:pretzlgirl@charter.net) as an attachment formatted to MS Word. Typed/mailed contributions are preferred but handwritten submissions will be accepted only if the item is brief. The Editor reserves the right to edit any and all submissions for length, clarity, style and/ or content. Digital photo contributions for the newsletter may be emailed as an attachment to the Editor. Articles and unsigned materials may be attributed to the Editor. Opinions expressed herein are not necessarily those of the Cave Conservation and Management Section, NSS or the Editor. Permission is granted to NSS publications to reprint articles published in *The Cave Conservationist* providing credit is given to the Author, Editor and *The Cave Conservationist* except where a copyright accompanies a specific item. Others who want to reprint material should contact the Editor. Future Newsletter Deadlines: February issue: January 15; May issue: April 15; August issue: July 15; November issue: October 15.

## Membership in the Conservation and Management Section

The Conservation and Management Section is open to all members of the National Speleological Society as well as those interested in the conservation, management and protection of caves. Members receive the newsletter *The Cave Conservationist* and are entitled to vote at the annual meeting. Annual membership dues: \$5.00/ year to receive *The Cave Conservationist* electronically and \$10.00/year to receive *The Cave Conservationist* by regular mail. A section membership application can be found below or on our website <http://www.caves.org/section/ccms> Membership dues may be sent to the Treasurer, Eugene Vale [eugenevale@socket.net](mailto:eugenevale@socket.net) Newsletter printing or postal distribution information may be obtained from Robert Hoke [bob@hoke.net](mailto:bob@hoke.net) The Section presents two annual awards to a NSS Grotto and a NSS Group that have made significant contributions towards conservation or management of cave or karst resources. For more information concerning The Cave Conservation and Management Section of the NSS please visit our website. <http://www.caves.org/section/ccms>



### Cave Conservation and Management Section of the National Speleological Society Membership Form



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**THE CAVE CONSERVATIONIST – MAY 2006 – VOL 25 – 2  
THE CONSERVATION AND MANAGEMENT SECTION OF  
THE NATIONAL SPELEOLOGICAL SOCIETY**

C/O Treasurer, Eugene Vale  
46 Cedar Drive  
Pacific MO 63069-3414



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