

American Caves



American Cave Conservation Association

Spring 2001



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Source: Gary Berdeaux

Back Cover Photo: Fisher Ridge.

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Visit our web site: <http://www.cavern.org>

Forum



From the Director

Dear Member,

Overall, it's been a good year for cave conservation. The April 2001 *Reader's Digest* article on Hidden River Cave brought us wonderful publicity. Our fund-raising campaign to expand ACCA's American Cave and Karst Center is going well, and our educational and conservation programs have never been stronger.

However, whenever I get to thinking we are doing pretty well, something always comes along to remind me just how far we have to go. For instance, in May 2001, one of the biggest caves in America went up for auction. The Fisher Ridge Cave System, located in Hart County, Kentucky, recently reached a hundred miles in length, a few days after it was divided into many pieces.

Upon learning of the auction, many cavers and caving groups began scrambling to find some way to acquire the property. My hope was that a conservation buyer for the entire tract could be found to prevent inappropriate development over the cave.

Such a deal was not to be. Fortunately, a caver with the Detroit Urban Grotto was able to acquire the entrance tract to the cave. Unfortunately, the rest of the property was divided into 32 individual tracts. This means, future threats to the Fisher Ridge Cave System from development are likely to increase, particularly from logging and septic tanks.

The situation reminded me how few resources we have available when a great opportunity arises that needs immediate action. Hopefully, the next time one of the world's great caves needs our help, we will be able to do more.

You can help us get there by supporting ACCA with your dollars, your volunteer time, and your actions. Please think about it. Are you doing everything you can to help conserve these special places?

David G. Foster
Executive Director

Just a Reminder!

A volunteer workshop will be held late this summer or early fall for those of you who would like to participate in the National Park Service Cave Resources Education Initiative. ACCA volunteers will be trained to visit schools presenting cave education programs. If you have a desire to teach kids about caves and cave conservation, this is an opportunity you won't want to miss. Please contact ACCA's Education Director, Julie Gee, for more details: (270) 786-1466, or juliegee@cavern.org.

We welcome and encourage your feedback on our news and issues. Please write to:

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American Caves Magazine
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ACCA News



A small army gathers to combat sinkhole dumping.

ACCA Wages War On Sinkhole Dumps

On May 5th, the day of the Kentucky Derby, not everyone was preparing to watch the horses run. About 70 miles south of Louisville, Kentucky where "the most famous 2 minutes in sports" is run, is a landscape covered with thousands of sinkholes, and unfortunately, hundreds of dump sites.

Over the past decade, ACCA has been engaged in a different kind of race ... a race to protect caves and groundwater from pollution. Garbage in sinkholes been accumulating in Kentucky's karst areas since the first time a settler discovered that sinkholes were round and deep and made a convenient place to dispose of the household waste.

We now know better, of course, or at least some of us know better. Our educational efforts are beginning to payoff as more and more people develop an awareness of how easily groundwater can be polluted by dumping in sinkholes. This spring, ACCA has received more than a dozen calls from landowners wanting help to cleanup dump sites. A few years ago, some of these same landowners might have kept the dump sites secret for fear of getting fined by environmental agencies.

Now if only we had more help to clean these sites up. After more than a century of dumping, a tremendous job lies ahead. Although ACCA has been fighting this battle for more than a decade, we have barely scratched the surface. Fortu-

nately, it appears that we may soon have much more help. Governor Paul Patton has declared war on litter in Kentucky and is working to provide incentives to communities that clean up their litter.

Kentucky Congressman Hal Rogers has also provided a huge lift to this effort with federal funding to support the PRIDE program which is cleaning up litter through-



An all-too-often found feature of Kentucky sinkholes.



A good day's work.

out eastern Kentucky. The cleanup of dump sites in sinkholes will continue to be an important part of ACCA's conservation efforts. We hope to sponsor at least two major dump cleanups per year for the next several years.

ACCA continues to make a difference, one dump site at a time. During our May 5th cleanup we removed an estimated 6 tons of garbage from a site near Munfordville, Kentucky. It is truly amazing what winds up in these dumps. The volunteers hauled several large appli-

ances, tv sets, bed springs, and even the remains of a riding lawnmower from the hole.

Thirty volunteers participated in the cleanup including members of the American Cave Conservation Association (ACCA), the Cleveland Grotto, and the Hart of Kentucky Grotto. Hart County Solid Waste Coordinator, Bill Hack, offered the county's services to haul the garbage to the local transfer station where some of it would be recycled and the rest taken to the nearest landfill. Many of the volunteers

were ACCA members and cave explorers from as far away as northern Ohio who drove many hours to donate their time to make Hart County a cleaner place.

Hart County is already one of Kentucky's leading counties for waste management with an 85% collection rate. ACCA has been involved with Hart County's waste management planning for more than a decade.

We believe that our educational efforts focused on the need to protect important karst resources is one of the reasons for the high collection rate.

Support for the project was also provided by a section 319 Nonpoint Source Implementation Grant from the Kentucky Division of Water through the Environmental Protection Agency. The ACCA will be sponsoring another dump cleanup in the Fall. Anyone interested in volunteering should contact the group at (270) 786-1466 or write: ACCA, P.O. Box 409, Horse Cave, KY 42749.

The Art of Building Bat Gates

The week of June 4 - 8, ACCA sponsored its fourth bat gate training seminar. The goal of the seminar was to teach state-of-the-art methods for designing and building cave gates to protect endangered bat species and other cave resources.

To most people, building a bat gate might seem like a simple thing, but designing appropriate gates for bat caves can be challenging and problematic for the environment if not done correctly. Placement of the gate in the wrong part of the cave or poor spacing between the bars can lead to decline of the bat species rather than protection.

ACCA president Roy Powers has been building bat gates over the past 20 years. Powers' gates are among only a few gate designs which have been approved by the U.S. Fish and Wildlife Service for protection of endangered species sites. Since Powers' first gate, the design has evolved considerably. Many of the improvements are time saving devices which have made it easier to construct gates in the field. Other improvements have been made as our understanding of how bats react to gates has improved.

For instance, gate builders must factor in the affect of predation. If the gate forces bats to slow down and land on the gate as they exit the cave, the bats then become



Hands-on experience at the cave gating seminar.

The ACCA Web Site Gets a Facelift

ACCA is in the process of revamping our web site. The original web site, created sometime during the Paleozoic Era, was seriously out of date. The new web site is being designed by ACCA staff member Stacy Roth and Gary Berdeaux, an ACCA member and manager of Diamond Caverns. Although the new site is not complete yet, many of the new pages are now on the

internet where they can be viewed. Thank you Gary and Stacy for their hard work in building the new site. Please take a look at it and tell us what you think. (Also please let us know if you see any errors.)

The ACCA web site can be found at: www.cavern.org.

prime targets for house cats, raccoons, snakes and other predators.

For this reason, ACCA gates are designed for maximum flying space between vertical bars. Some bat populations, such as Gray bat maternity colonies do not accept gates very well. To get around this difficulty, Powers has designed an open chute that allows Gray bats a relatively wide open space to exit the cave. The chute is designed to make it very difficult to climb in from the outside.

The recent gate seminar was held at Lake of the Ozarks State Park in Osage Beach, Missouri. The seminar included programs on bats and gate design by Jim Kennedy with Bat Conservation International; Bob Currie with the U.S. Fish & Wildlife Service; Jim Nieland with the U.S. Forest Service; Bill Elliott with the Missouri Department of Conservation; and Roy Powers with ACCA. Powers, Currie and Nieland are all Directors of the American Cave Conservation Association.



As part of the training, the group constructed an actual bat gate at McDowell Cave on Lake of the Ozarks State Park lands. McDowell Cave provides habitat to a colony of federally endangered Gray bats. The cave and bats were being heavily disturbed by visitation.

Despite torrential rainfall which slowed construction during the first part of the week, the gate was completed by Friday June 8. Consequently, thanks to ACCA and its gating partners, another Gray bat site has been protected, and 14 trainees who attended the workshop are ready to go out and help protect additional sites.

Lots Of Kids At The American Cave Museum!

ACCA's American Cave Museum has just concluded another busy spring season. 2001 was a record season for school groups at the Museum. Education Director Julie Gee and staff provided programs to 1,177 kids from 28 different schools in March, April and May.

In addition to tours of Hidden River Cave and the American Cave Museum, special programs offered to school groups include: Waterworks, Secret Sink, Hidden River Cave Eco-Tour, Karst Geology, Fabulous Fossils, Clues From The Past, and Batty About Bats.



A closer look at limestone.

Water quality and Nonpoint Source Education is a strong component of all educational programs offered at the American Cave Museum and Hidden River Cave in part due to grant funding from the Section 319(h) funds from the Environmental Protection Agency through the Kentucky Division of Water.

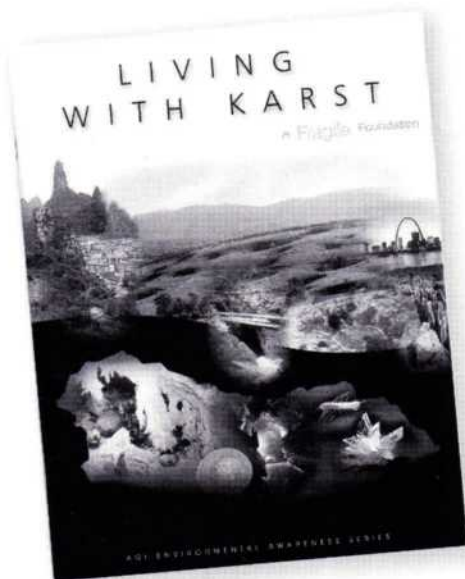


Julie fields questions from curious young minds at Hidden River Cave.

Land Conservation Fund Supports Hidden River Cave Purchase

ACCA's efforts to raise funds to purchase additional parts of Hidden River Cave took a giant leap forward when the Kentucky Heritage Land Conservation Fund Board approved a grant of \$76,725 at their April Meeting at Carter Caves State Park, Kentucky. This grant along with previous grants from the Fund Board will provide ACCA with a total of \$211,225 towards our cave acquisition needs. The cave is part of the American Cave and Karst Center and will be used for both conservation and educational purposes in perpetuity as a result of this funding.

The money for the Land Conservation Fund comes from the sale of "nature" license plates in Kentucky and from the state's unmined minerals tax. We urge our members in Kentucky to support this important source of conservation funding by buying a nature license plate. For more information on the program call (502) 564-2184.



John Sagendorf presents ACCA Associate Director Debra Heavers a brick from Howe Caverns.

Karst Booklet Published

Last Fall, ACCA provided a \$10,000 grant to support a publication entitled *Living With Karst*, which is part of the American Geological Institute's Environmental Awareness Series. The booklet was also cosponsored by the National Speleological Society, Illinois Basin Consortium, National Park Service, U.S. Bureau of Land Management, USDA Forest Service, U.S. Fish and Wildlife Service, and U.S. Geological Survey.

ACCA received grant funds from the Charles Stewart Mott Foundation and a Section 319(h) Nonpoint Source Grant from the U.S. Environmental Protection Agency through the Kentucky Division of Water. The booklet can be purchased through ACCA at the American Cave Museum gift shop (there will be a substantial member's discount) and also will be distributed free of charge to educators participating in our school programs.

Howe Caverns Sells Bricks For Conservation

A \$500 donation to the Northeastern Cave Conservancy, Inc. and a partnership to help raise funds for the American Cave Conservation Association are the latest efforts of Howe Caverns, Inc. as it continues its mission to conserve and preserve the fragile underground world of caves and karst lands.

During a special ceremony at the Howe Caverns Estate, held in conjunction with Howe Caverns' celebration of Earth Days, General Manager John D. Sagendorf presented a historic brick from Howe Caverns' first walkway. After 70 years in the cave, the bricks are being replaced. But the old bricks have a new mission. Howe Caverns will sell the historic bricks (each numbered and accompanied by a certificate of authenticity), with partial proceeds from each purchase benefitting the work of the ACCA.

For more information, or to purchase a piece of cave history, contact John D. Sagendorf, (518)296-8990.



Abused Wisconsin cave reveals ancient art ... Mississippi Valley Archeology Center steps in to help...

A Closer Look

The Rediscovery and Gating of Arnold/Tainter Cave



MISSISSIPPI VALLEY ARCHEOLOGY CENTER (MVAC)

HILARY LAMBERT HOPPER, GEORGE HUPPERT, AND ROBERT F. BOSZARDT

The small cave in southern Wisconsin was a teen hang-out. Locals had known about it since the late 1800s and had carved their names into the sandstone walls and blocks fallen from the roof. On weekends, kids partied in the big room, leaving debris on the floor and graffiti on the walls. This cave was mapped during the 1960s, and was included in a 1967 Wisconsin Speleologist article, as a rarity: it is a 300-foot long cave containing three rooms, formed in the St. Peter Sandstone of lower Ordovician age (about five hundred million years old).

Invisible to the Modern Eye

Even with all this use and abuse, no-one knew it held ancient art until the 1990s. Amateur archeologist and cave enthusiast Dan Arnold explored the cave in the mid-'90s and recognized charcoal drawings that he thought might be Native American art, but with all the graffiti wasn't sure.

Fortunately, he reported the find to Robert "Ernie" Boszhardt, who is Regional Archeologist, Mississippi Valley Archaeology Center at the University of Wisconsin-La Crosse. Boszhardt visited the site late in 1998, and verified that the drawings (pictographs) were au-

More than 100 pictographs have been found ... A cave gate is essential to restrict access ...



MISSISSIPPI VALLEY ARCHEOLOGY CENTER

"Rediscoverer" Dan Arnold pauses in front of Arnold/Tainter Cave.

thetic. Boszhardt was stunned at the quantity of drawings (over 100), the fact that this was the first deep cave rock art known for the Upper Midwest, and that there were perishable materials such as birch bark torches and a leather moccasin sole lying on the surface. He also removed over 100 beer cans, and initiated a plan for preservation, commencing with a call to Dr. George Huppert of the UW-La Crosse Geography and Earth Science Department and Vice President for Conservation in the ACCA.

A Sense of Urgency

In the early 1980s a different pictograph site in south-



DR. GEORGE N. HUPPERT

Roy Powers admiring his work.

ern Wisconsin received extensive publicity. Unfortunately, this brought a trespasser who used a mason saw to attempt to cut away one of the drawings, severely marring 1000-year old art. Based on this experience and because of the presence of perishables on the surface, it was essential that access be restricted. The preservation plan included mapping the cave, recording the rock art, and constructing a gate.

The initial mapping and recordation were completed in the spring of 1999 through a workshop in conjunction with the International Rock Art Congress, held in Wisconsin that year. The mapping was done with a total station transit, and the recordation consisted of tracing and extensive photography, including the use of infra-red film.

Roy Powers in Action

At Huppert's urging, ACCA President and cave gater extraordinaire Roy Powers agreed to put Arnold Cave into his crowded cave gate construction schedule for 2000. "But George," he said, "I have to have a detailed

video so that I can order materials in advance." Armed with a video camera that they were unfamiliar with plus a measuring rod for indicating heights, George and Ernie returned to Arnold Cave to record their own "Blair Witch Tape," complete with feet scuffling through leaves, dizzying shots that zoomed from sky to tree to cave, and muffled remarks along the lines of "How do you aim this thing?" The finished product displays the wide, tapering cave entrance, with the rod held vertically at intervals to give an indication of the height changes. The tape included footage of the pictographs, which got a "significant!" verdict from the archeologists in Virginia, where Roy resides.

Roy gave Ernie a shopping list for cave gate materials, and on Memorial Day Weekend in 2000 Roy, assistant Bruce Ventura from Michigan, Huppert, Boszhardt, Arnold, and a group of young students showed up to help carry the angle iron to the cave entrance, over the hill from where it had been dropped off at the road. Under Roy's instruction, the workers leveled the floor at the outside edge of the entrance, so that they could position the gate's base plate.

On the first day, Roy and Bruce cut the angle iron into pieces; on the second day welder, artist and caver Mike Houle and son took over the cutting and welding, while Roy directed the work. "It was amazing to watch Roy pull it together," said George, "He is so efficient, and knows exactly what he needs just by looking - he doesn't have to measure."

During the cave gating, workers made every effort to conceal their activities from view of the road nearby, and in the long run are trying to re-establish growth to conceal what had been a well-traveled trail to the cave entrance. By September of 2000 when Huppert and Boszhardt took cave archeology authority Dr. Patty Jo Watson for a visit, there were no signs of anyone having messed around at the site.

Findings To Date and Plans for Future Research

Soon after the initial discovery, Wisconsin's state archeology office provided the researchers with a \$10,000 grant for the mapping, recordation and gating. Addi-



Modern graffiti mingles with centuries-old petroglyphs.

Petroglyphs are being assessed, meanings sought ... Possibly the work of the Winnebago tribe ...

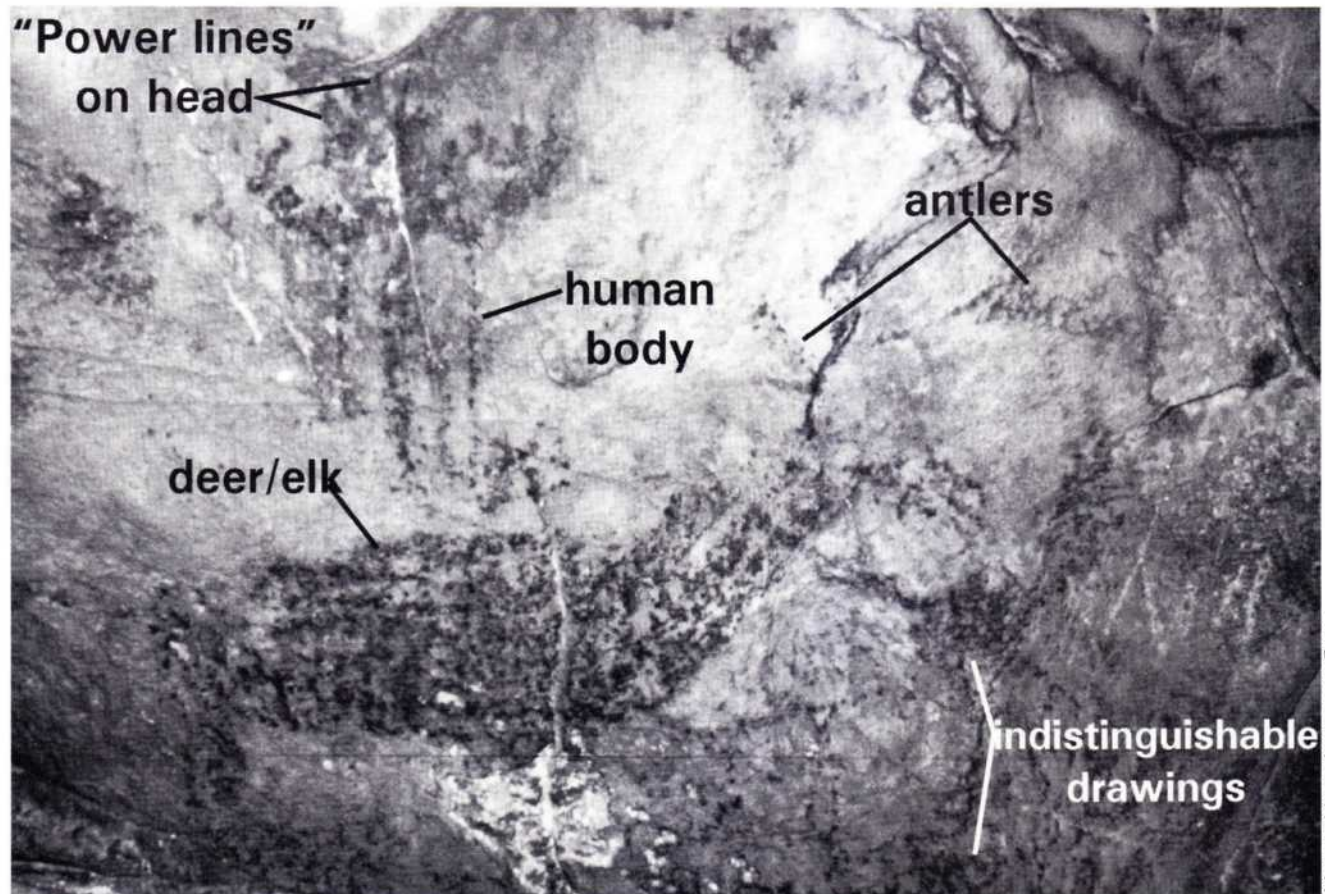
tional funds were provided by the Richmond Area Speleological Society (RASS), located in Virginia, and by the National Speleological Society (NSS), located in Huntsville Alabama, for radiocarbon dating of the pictures and other artifacts found in the cave. Additionally, an in-house university grant was provided by UW La Crosse. Funding is being sought for 2002 and beyond, when this team of researchers hopes to further explore the floor of the cave, and survey the region for other such caves.

An assessment is being made of what has been found to date, with attention paid to the possible meanings of the murals and other drawings. The one hundred pictographs are complemented by several petroglyphs and pottery fragments, animal bone, and nut shell. What do the symbols communicate? Some of the glyphs depict bow hunters, deer and birds, while others are abstract designs. There is much that needs to be deciphered and interpreted. For example, what was thought by some to be a warrior holding a spear, is thought by others to represent a baby on a cradle board in a naming ceremony.



Running deer.

Historically, southern Wisconsin has been home to the Winnebago tribe, today regaining prosperity as the Ho-Chunk Nation. Native American occupancy of this area extends back at least 12,000 years. Nationwide, three types of art have been found at Native American cave sites: pictographs, petroglyphs (stone carvings, two of which have been found to date at this location), and



Close-up of petroglyphs, with interpretations.

The cave art has been AMS dated at 1,300 years old ... More mapping of the cave in the future ...



MISSISSIPPI VALLEY ARCHAEOLOGY CENTER


Deer and hunters. Note the representation of a pregnant deer at center.

mud glyphs, shaped from cave mud. Only a few caves have been found that contain all three. At Arnold/Tainter, Ho Chunk elders and staff of the tribe's Historic Preservation Office have been consulted and shown the site.

Radiocarbon dating is providing some clues. The mocasin fragment has been dated to 570 B.P. (Before Present). The pictographs themselves are a dating challenge, as removing charcoal damages the art. However, with the advent of AMS (Accelerator Mass Spectrometer) dating, samples as small as 5 milligrams (5/1000 of a gram) can be dated. An AMS date from one of the drawings at Arnold/Tainter reveals that the picture was created 1300 years ago.

The next stage of understanding will come with careful examination of the cave's relatively dry, sandy floor. Based on what has been found in similar situations elsewhere, it is assumed that the cave floor contains hundreds of years worth of debris discarded by its human occupants. Ground penetrating radar will be used

during the summer or fall of 2001 to gain information about habitation levels that lie below the surface. Also during 2001, caver and cartographer Patricia Kambesis will map the floor of Arnold/Tainter Cave. This will provide a record of the present cave floor configuration. Once researchers are satisfied that they have a full understanding of human history in Arnold/Tainter Cave, the contents and floor of the cave will be restored to their present state.

In this way, both the needs of modern science and the need to respect earlier inhabitants can be met. The map will assure restoration and closure for this precious site, and the ACCA's gate will assure its protection. 

December 3, 2000 ACCA Board of Directors Meeting Summary

The board approved a motion to discontinue the separate allocation of dues contributed for ACCA chapter membership. All dues currently withheld for chapters should be placed back into the ACCA general fund and chapter categories will no longer be included on ACCA membership materials. This policy may be reinstated or revisited by the board at a future date. For the time being chapters will be encouraged to request funding assistance from ACCA for special projects rather than have ACCA hold the funds until they are needed. The board approved a 5% pay raise for the ACCA Executive and Associate Directors. The following slate of nominees were approved to serve board terms beginning on January 1, 2001 and ending on December 31, 2003: Thomas J. Aley; David G. Derrick; Dr. L.G. Dickinson; Dr. George N. Huppert; Dr. James W. Middleton, Jr.; Austin W. Musselman, Jr.; Chuck Pease; Anna G. Smith; and Ronald R. VanStockum, Jr. The 1999 Audit as prepared by Hilliard & Fisher Certified Public Accountants was approved as was an estimated budget for the year 2001.

Next Meeting

The next meeting of the Board of Directors of the American Cave Conservation Association will be Saturday, July 21, 2001 at 1:00 p.m. (central time) at the American Cave Museum in Horse Cave, Kentucky. Members are invited to attend. Please contact the ACCA office for directions or additional information.

The Dig at Hidden River Cave

Dr. Darlene Applegate & Debra Heavers



During November and December 1999 an archaeological assessment was conducted at the American Cave and Karst Center under the direction of Dr. Darlene Applegate, Anthropology Program, Department of Modern Languages and Intercultural Studies at Western Kentucky University. The assessment was completed at a 2 x 3 x 1.6 meter area in the Hidden River Cave sinkhole where a drainage system to filter street runoff was to be constructed. Due to the fact that much of the ground in the cave entrance and sinkhole had been previously landscaped, it was expected that most, and possibly all, the soil deposits contained in this area would be disturbed.

In the early 1900s local townsfolk and tourists played tennis at a court constructed in the cave entrance and planted terraces sloped down toward the cave. It is suspected that the tennis court and terraces were formed from fill excavated for the foundations of the buildings that surround the sinkhole.

Despite landscape alterations, an undisturbed section in the test area was found. According to Dr. Applegate, "This yielded a comparatively low density of mostly prehistoric remains, including a Middle-Late Archaic period Matanzas Side Notched projectile point and a sherd of limestone tempered pottery that probably dates to the Woodland period. Chronologically diagnostic artifacts recovered from the other stratigraphic

zones suggest prehistoric occupations spanning the Early Archaic to early Mississippi periods and historic occupations post-dating the 1800s."

This past May, Dr. Applegate again returned to the American Cave and Karst Center with a summer field study group. This student group set up two excavation blocks along the edge of the top of the sinkhole. The recent excavations are important because artifacts are being recovered from intact rather than disturbed soil deposits. Among the items recovered from these blocks are prehistoric projectile points dating to the Middle Archaic (6000 BC) through Late Woodland (AD 800) periods and dateable historic artifacts like ceramics, nails, medicine bottles and marbles. The recovery of additional Middle Archaic artifacts is significant since this time period is poorly documented in western Kentucky. The current research is providing additional insight in relation to the 1999 assessment in terms of the spatial patterning of prehistoric and historic activities along the sinkhole plateau.



ACCA

Below America

BY BOB SPRINGSTON

U.S. Fish & Wildlife Service Grants Help Endangered Cave Life

Among the 48 grants recently distributed by the U.S. Fish and Wildlife Service are several aimed at protecting caves and the species that rely on them. The grants, part of the Endangered Species Act Landowner Incentive Program, go to citizens engaged in conservation activities that protect endangered species on private property. Among the grants are two (totaling \$165,340) designated for karst conservation and point-source pollution reduction efforts in Missouri's Tumbling Creek Cave recharge area. The cave critters to benefit from the grant will be Indiana and gray bats, Ozark cavefish, cave crayfish, and the Tumbling Creek cave snail. Also among the grants are one for \$75,000 to gate caves in Arkansas, protecting bats, amphipods, cavefish, and isopods in the process, and another for \$5,000 to replace the gate in Huntsville, Alabama's Shelta Cave, home to the endangered cave shrimp and cave crayfish.

Source: M2 Presswire via COMTEX, 2 May 2001; USFWS Press Release, 2 May 2001, <http://midwest.fws.gov/ExternalAffairs/Release01-22.html>

Texas Cave Gets Much-Needed Cleanup

The recent cleanup in an Austin City park marked the end of a well-coordinated six-year effort to restore the entrance to Midnight Cave. Over the years, volunteers

ranging from cavers to concerned citizens and correctional facility work crews to groups of AmeriCorps volunteers, used an overhead boom and pulley system to hoist 250 yards of trash from the cave's entrance before reaching its bottom nearly 60 feet below the surface. Among the refuse were pesticide and paint thinner containers as well as others holding a variety of other toxic substances. The containers were a part of the trash dumped there while the entrance was still on ranch land, long before it became surrounded by suburbia.

The cleanup was particularly important as recent die-tracing studies have shown that water entering the cave travels very quickly (more than a mile a day) through the beleaguered Edwards Aquifer. This leaves little time for any toxic material to be filtered out before it arrives at Barton Springs, home to a number of endangered species some 9.5 miles away from the cave's entrance.

Source: Barton Springs/Edwards Aquifer Conservation District website, <http://www.bseacd.org/midnt.htm>

Arizona Caves To Receive Federal Management

Shortly before leaving office, President Clinton signed into law a bill establishing the Las Cienegas National Conservation Area and the Sonoita Valley Conservation Planning District in southeastern Arizona. Under the law, most past and current land uses (including grazing and ATV use) will remain in

place. While the designations will not provide the degree of protection that the National Monument status sought by some would have, management plans must now be developed and put in place to protect many of the caves found on the nearly 180,000 acres of land affected.

Sources: House Reports Online via GPO Access (wais.access.gpo.gov), DOCID: f:hr934.106; BLM Arizona - Las Cienegas National Conservation System Fact Sheet, <http://www.az.blm.gov/azsol/lascienegas/lascfctsh.htm>

Large Chunk of Subterranean Real Estate Found in Southern Kentucky

Awestruck cave explorers recently made public the discovery of the largest room yet found in a Kentucky cave. The massive void covers two and a half acres and has ceilings soaring up to 90 feet high, surpassing a two-acre room found in Mammoth Cave. The "new" room, reached following a tortuous crawl, was found by a group of cavers affiliated with Western Kentucky University while they were mapping the southern Kentucky cave in an effort to better understand its relation with the surface and local water supply. At the time of the January report, 4,000 feet of the cave's passage had been mapped but many areas still remained to be explored.

Sources: Associated Press report, Rebecca Yonker, January 21, 2001

Grand Canyon Cave Hosts a bit of History

Great news in the effort to re-establish wild populations of California Condors was reported this past March when Peregrine Fund biologists made public the news that condors nesting in the caves of the Grand Canyon had laid the first egg conceived in the wild in 15 years. Although the egg was broken, not unusual for condors on their first nesting attempt, the event is a good omen for their future. Condors do not reach breeding age until they are six to eight years old and typically only produce one egg every other year if their nesting cycle is successful.

Currently, only 49 California Condors out of the total world population of 160 live in the wild, making this joint reintroduction project between The Peregrine Fund, the U.S. Fish and Wildlife Service, and numerous other partners, a crucial step in returning the species to natural viability.

Sources: U.S. Fish & Wildlife Service News Release, March 28, 2001, <http://news.fws.gov/newsreleases/>; The Peregrine Fund website, http://www.peregrinefund.org/notes_condor.html

Missouri Cave Named State Natural Area

Mossy Spring Cave and the 170 acres that surround it in Washington County were recently named the Show Me State's 176th State Natural Area. The gated resurgence cave (where an underground stream reaches the surface and becomes a surface stream) has long been owned by the Missouri Dept. of Conservation and is known to be home to four endangered species, including Central Missouri Cave and Onondaga Cave amphipods as well as both Indiana and gray bats.

Sources: Missouri Natural Areas Newsletter, Spring 2001; MOCaves posting

by Jerry Vineyard, April 04, 2001; <http://www.conservation.state.mo.us/nathis/bioreport/2.htm>

New Mexico's Jewel Gets Much-Needed Protection

More than 55 cavers and Carlsbad Caverns National Park staff members took part in an industrial-strength effort to replace the corroded and inefficient cave gate in Lechuguilla Cave, one of the world's finest caves. The need to replace the original gate was decided after an environmental assessment that found the existing hardware posed a threat to both cavers and the cave itself. The culvert and ladder had corroded to the point that safety became an issue and the airlock used to seal the cave was no longer capable of stopping the winds that at times whistle through the cave's excavated entrance at more than 60 miles an hour. It was feared that the latter could lead to a dangerous drop in humidity levels in the cave's interior.

To prevent these concerns, the original hardware was removed and the entrance slope stabilized before a 36-inch diameter stainless steel culvert was put in place. The area around the culvert was then backfilled and a 14-inch thick slab of concrete was poured to anchor the culvert and guard against any air exchange. Once that was accomplished, a stainless steel ladder was put in place and construction of a new airlock was begun.

The new-and-improved entrance set up will go a long way toward protecting and adding security for the cave, and will increase the safety factor for those mapping and performing research in its hallowed voids.

Source: Canyons & Caves, Issue No. 19, Winter 2000-2001, <http://www.texascavers.com/caca/caca19.htm>

Important Virginia Karst Purchased by The Nature Conservancy

The Nature Conservancy's Virginia chapter recently acquired two tracts of land totaling 155 acres in one of that state's most significant karst areas. One of the tracts contains a karst window, a place where cave passage has collapsed, providing a view into a small part of the underground world so crucial to the area. Noting the number of the area's threatened and endangered species that rely on caves, including the globally-rare Lee County cave isopod, Nature Conservancy staffers plan to develop karst-friendly management strategies accordingly before the land is transferred to the state to become part of the Cedars Natural Area Preserve.

Source: "Acquisition Protects Rare Plants, Karst Features," January 3, 2001, <http://nature.org/states/virginial/news/news420.html>

Texas Cave Critters Added to Endangered Species List

Following almost 10 years of pressure by various concerned groups, the U.S. Fish and Wildlife Service this past December designated nine species of invertebrates known only from a handful of caves in the San Antonio area as federally endangered. Among the species listed are the Robber Baron Cave spider, the vesper cave spider, the Government Canyon cave spider, Madla's cave spider, the Robber Baron Cave harvestman, and three beetles, the Helotes mould beetle and two that have no common names. The species, which many biologists refer to as "karst invertebrates," are currently being threatened by the area's ever-increasing urbanization and the in-

vasion of fire ants, a non-native species which both preys upon and competes with the endangered critters for the limited food resources found in caves.

Planned protection measures will include fire ant control programs, gating cave entrances, protecting caves from contaminated run-off, and maintaining native surface vegetation above the caves. These efforts will hopefully safeguard against extinction a group of species whose population levels, due to their relatively long life spans and low numbers of offspring, would respond very slowly to a catastrophe—if they were able to respond at all.

Source: U.S. Fish and Wildlife Service, Southwest Region, News Release, December 21, 2000, reprinted in North American Biospeleology Newsletter, Number 48, February 2001

Maine Passes State Cave Law

The caves of The Pine Tree State will officially receive state protection on August 9th, after a 90-day waiting period that follows the Governor's signing of The Maine Cave Protection Act, which had passed both the House and Senate of the state's legislature without a dissenting vote. The Act establishes landowner liability limits and enacts a requirement for prior written landowner approval before anything can be removed or excavated from a cave. It also includes language prohibiting dumping in or defacing of the state's karst or pseudokarst resources and sets fines of up to \$1000 for violations of the Act.

Source: The NSS Conservation Forum website, May 18, 2001, http://www.caves.org/cgi-bin/ubb5/ultimatebb.cgi?ubb=get_topic&f=2&t=000009

Big Stink over Proposed Minnesota Sewage Lagoon

It is hoped by many that the legal fallout following an attempt by a family of the dairy farmers to build a 500-cow dairy farm on the prime karst land of southeastern Minnesota's Fillmore County will set a precedent that will discourage similar attempts in the future. In this case a nasty battle ensued between the dairy farmers and those concerned over the proposed construction of storage lagoons that would hold up to 7.3 million gallons of feedlot runoff and sewage on a farm within the recharge basin for Mystery Cave, the largest in the state. With the backing of farm advocates, the family sought to avoid the cost of an Environmental Impact Statement (EIS), which caused concern among many who worried about the increased potential for groundwater contamination in the porous limestone landscape.

After the Minnesota Pollution Control Agency (MPCA) gave the project an OK without requiring the Impact Statement, 26 members of the Land Stewardship Project (LSP), all local farmers and rural residents, filed a lawsuit in the Minnesota District Court challenging the MPCA decision. The LSP was supported in the challenge by the Minnesota Department of Natural Resources and the Minnesota Public Health Department.

Last December the judge ruled that the MPCA had failed to consider the possibility of an underground collapse below the large lagoons, and wondered in his decision how groundwater contamination would be stopped if the basin were to collapse. Following that decision the MPCA filed a request to bring a Motion for Reconsideration before the Fillmore County District Court

but was denied. The proposed project all but died when the state Attorney General and the family originally proposing the plan decided not to file an appeal.

Sources: Associated Press online report, May 22, 2000; Land Stewardship Project press releases, Jan. 5, Feb. 2, and Feb. 21, 2001, <http://www.landstewardshipproject.org/pr/>

Beyond America

Vietnam's Ha Long Bay Again Recognized by UNESCO

First listed in 1994 by UNESCO (United Nations Educational, Scientific and Cultural Organization) as a World Natural History Site for its archeological and historical values, northern Vietnam's Ha Long Bay has now been added as well to that organization's list of World Geological Heritage Sites. The designation is in large part due to the area's outstanding tropical karst landscape, which contains caves formed by three distinct cave formation processes. The area also owes much of its uniqueness to erosion caused by invading seawater when sea levels last rose, creating the world's largest collection of submerged karst towers.

Source: AsiaPulse newswire via COMTEX, Dec 13, 2000, <http://library.northernlight.com/FC2000121219000018.html?cb=0&dx=1006&sc=0#doc>

Bahamian Stalagmite Raises Doubt over Accuracy of Carbon Dating

Tests done on a stalagmite that began forming in a cave on one of the Bahama Islands roughly 45,000

years ago have led the researchers involved to question the validity of older dates assigned by the carbon dating process. The process is based on relatively stable levels of carbon-14 in the atmosphere over the last 16,000 years. Results of the testing on the stalagmite however extend those records back an additional 30,000 years, and yielded evidence that the levels of carbon-14 in the earth's atmosphere has at times been twice as high as their modern level. Apparently the ratio of stable carbon atoms to radioactive carbon atoms in our atmosphere has changed considerably over time as well, further calling into question the accuracy of dates previously assigned to older objects.

Possible reasons cited by researchers for the fluctuations include increases in galactic cosmic rays, which account for most of the carbon-14 in our atmosphere. They theorize that bursts of cosmic rays may have been caused by shockwaves created by a supernova. But that alone could not ac-

count for the increases in levels of C-14. Some change in the earth's magnetic field must also have occurred in the past to allow enough rays to enter the planet's atmosphere. One possible explanation for the latter cited by the researchers is weaker oceanic circulation patterns having coincided with the higher rates of ray bombardment.

Whatever the explanation, the fact that events occurring light years away from a little cave in the Bahamas had a profound enough effect to change the chemical constitution of its formations raises the concept of interconnectivity to new heights. This extreme example of possible galactic cause and effect has also led researchers to go beyond just questioning the accuracy of carbon dating on older objects but also to note that any climate changes caused by industrial pollution may well have many unforeseen consequences.

Source: *PhysicsWeb*, "Carbon clock could show the wrong time," May 2001, <http://physicsweb.org/article/news/5/5/7/1>



2002 - 2004 Board of Directors Elections

The Nominating Committee is seeking candidates to serve on the Board of Directors of the American Cave Conservation Association for terms beginning on January 1, 2002 and ending on December 31, 2004. Candidates should possess abilities and expertise to benefit the Association and to successfully fulfill the job requirements of an ACCA Director. The Nominating Committee will consider nominations from the general membership that are accompanied by a petition signed by 10 members in good standing. Petitions must be received by August 30, 2001 to be considered.

For additional information or a Director's description of duties please contact Debra Heavers or David Foster at the ACCA office.

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