

May 2014

Cave Research Foundation Quarterly, Volume 42, No. 2, May 2014

Laura Lexander

Follow this and additional works at: https://digitalcommons.usf.edu/kip_articles

Recommended Citation

Lexander, Laura, "Cave Research Foundation Quarterly, Volume 42, No. 2, May 2014" (2014). *KIP Articles*. 753.

https://digitalcommons.usf.edu/kip_articles/753

This Article is brought to you for free and open access by the KIP Research Publications at Digital Commons @ University of South Florida. It has been accepted for inclusion in KIP Articles by an authorized administrator of Digital Commons @ University of South Florida. For more information, please contact digitalcommons@usf.edu.

CAVE RESEARCH FOUNDATION

QUARTERLY NEWSLETTER
VOLUME 42, NO. 2

MAY 2014



SURVEY IN THE OZARKS

See Scott House's report on page 14

CRF NEWSLETTER

Volume 42, No.2
established 1973

Send all articles and reports for submission to:
Laura Lexander, Editor laura.lexander@cave-research.org
21551 SE 273rd Ct., Maple Valley, WA 98038

The CRF Newsletter is a quarterly publication of the Cave Research Foundation, a non-profit organization incorporated in 1957 under the laws of Kentucky for the purpose of furthering research, conservation, and education about caves and karst.

Newsletter Submissions & Deadlines:

Original articles and photographs are welcome. If intending to jointly submit material to another publication, please inform the CRF editor. Publication cannot be guaranteed, especially if submitted elsewhere. All material is subject to revision unless the author specifically requests otherwise. For timely publication, please observe these deadlines:

February issue by December 1
May issue by March 1
August issue by June 1
November issue by September 1

Before submitting material, please see publication guidelines at: www.cave-research.org

NEWSLETTER STAFF:

Content Editor: Laura Lexander,
laura.lexander@cave-research.org
Layout/Photos: Ralph Earlandson,
ralph.earlandson@gmail.com
Mailing: Bob Hoke, bob@rhone.net

©2014 Cave Research Foundation

Cave Research Foundation Board of Directors

President - Charles Fox, charles.d.fox@cave-research.org
Vice President - Ed Klausner, klausnere@gmail.com
Treasurer - Bob Hoke, treasurer@cave-research.org
Secretary - John Lovaas, jlovaas@mc.net
Hamilton Valley Director - Pat Kambesis
George Crothers, Elaine Garvey, Joyce Hoffmaster, Ben Miller, Kayla New, Derek Bristol

Operations Council

Scott House (Ozarks), John Tinsley (Lava Beds), Dave West (Eastern), John Tinsley (Sequoia/Kings Canyon)

For information about the CRF contact:
Charles Fox
5527 Nighthawk Drive
Indianapolis, IN 46254
charles.d.fox@cave-research.org

Donations to CRF should be sent to:
Bob Hoke, CRF Treasurer
6304 Kaybro St.
Laurel, MD 20707-2621
bob@rhone.net

Public Scoping for Cave Management Plan at Mammoth Cave

Vickie Carson, Public Information Officer at Mammoth Cave National Park, sent the following announcement.

(MAMMOTH CAVE, Ky., April 10, 2014) – Mammoth Cave National Park Acting Superintendent Russell Runge announced planning has begun for development of a cave management plan for the park. The park is now seeking public comment regarding the scope of the plan. Park personnel will be available for discussion at Hamilton Valley during July Expedition; date and time to be announced.

In order to comply with the National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act, environmental documentation (an Environmental Assessment or an Environmental Impact Statement) will be completed.

The public scoping period will be open June 1 through July 31, 2014. The public may provide written comments about the scope of the project online at the National Park Service Planning, Environment, and Public Comment website at <http://parkplanning.nps.gov/maca>, or by letter to Mammoth Cave National Park, Attn: Ranger Larry Johnson, P.O. Box 7, Mammoth Cave, KY 42259.

Comments are typically treated as public record and made available for public review. Individuals may request that the National Park Service withhold their name and address from disclosure. Such requests will be honored to the extent allowable by law.

-NPS-

On March 17th of this year Pat Kambesis defended her dissertation on the Influence of Coastal Processes On Speleogenesis and Landforms in the Caribbean Region at the Department of Geosciences, Mississippi State University to Director John Mylroie, also a CRF member. This was the last step toward earning her PhD. She is now officially Dr. Pat Kambesis! She will be taking a position at Western Kentucky University in the Fall. Many congratulations to her on this outstanding achievement! A summary follows on the next page.

On the Cover

Jon Beard surveys in Root Column Cave, Mark Twain National Forest, Christian County, Missouri. Photo by Matt Bumgardner.

President's Column

By: Charles Fox

It's the evening of Friday, February 14, 2014 and I find myself standing around talking to friends at a celebration. Given the date, you might guess that I was at a Valentine's Day party. You'd be wrong.

Instead, I am standing in the Grand Canyon room in Crystal Cave in Mammoth Cave National Park with a group of CRF and Park Service friends celebrating the 60th anniversary of the C3 expedition. On February 14, 1954, a group over 60 cavers from the NSS gathered at Crystal Cave for what was the first large scale, organized effort to unlock the secrets of this vast cave system. The C3 expedition had some successes but left many questions unanswered. Some of the cavers involved realized that the work was going to take more than a week long push; it would take months and perhaps even years of sustained effort. Out of that conviction, the Cave Research Foundation was born.

An amazing aspect of our celebration was that not one but two members of the C3 expedition were present with us. Roger Brucker and

Roger McClure were part of the C3 expedition and sixty years later both are still active in CRF. It was exciting to hear them share their perspectives on C3 and CRF.

Those of us for whom CRF has become a very big part of our lives owe those C3 cavers a lot. I doubt that any of them would have imagined that the work would still be going on and still be unfinished 60 years and over 400 miles of cave later. It probably never occurred to most of them how many lives would be spun off into new directions.

So to those C3 cavers: Thank you! Thank you for your vision and foresight in founding an organization like CRF before the Park Service had ever thought about partnering with cavers to do that kind of work. Thank you for giving us all an outlet into which we could redirect our love for caves and caving towards doing important research and being part of something significant.

Sixty years and the work goes on . . .

Summary of Pat Kambesis' PhD Dissertation:

Influence of Coastal Processes on Speleogenesis and Landforms in the Caribbean Region

Evolution of rocky coastlines is controlled by littoral, biological and fluvial processes. Resultant landforms are overprinted and/or new ones formed as a result of changes in sea level caused by glacioeustasy and/or local tectonics. On carbonate coasts, chemical erosion in the form of karstification takes on a dominant role. Type of karstification is an important factor in understanding carbonate coast evolution and landform development so it is critical to identify type of karstification. In this research, fractal indices were used to distinguish cave and thus karstification type. It was determined that fractal indices effectively differentiated cave types and the indices were used to distinguish cave types at study sites on Barbados, the ABC Islands (Aruba, Bonaire, Curaçao) and the Caribbean coast of the northeast Yucatan peninsula, Mexico. This research evaluated caves located in the phreatic, epiphreatic and vadose zones of the northeast coast of Quintana Roo, Mexico to determine the relationship between the caves and to coastal processes. Three distinct coastal landforms associated with caves on the study

sites were evaluated to quantify and model the interplay of littoral, fluvial and karstic processes and cave and karst development. On Barbados, the combination of surface fluvial processes, and mixing-zone and fluvial-karstic dissolution, resulted in the formation of gullys. Some gullys contained caves in their bounding walls and/or served as points of recharge to fluvial caves. Bokas of the ABC islands are distinctive geomorphic structures that formed from the interplay of fluvial, littoral and mixing zone karstification. The morphology of the bokas was a function of dominant geomorphic process. The caletas of the Yucatan Caribbean were formed by karstification processes that also produced features with mixing-zone-like morphologies but with fluvio-karstic function. The results of this research expand the Carbonate Island Karst Model (CIKM), which explains eogenetic dissolutional processes and landforms on small carbonate islands, to one that includes carbonate islands of all sizes, and carbonate continental coasts.

Philip M. Smith, First President of Cave Research Foundation

By: Roger Brucker

Philip M. Smith of Santa Fe, NM died February 16, 2014 of congestive heart failure after a brief illness. He was born in May, 1932 in Springfield, OH. Phil Smith was a leader in national and international science and technology policy and a manager of federally sponsored research for more than fifty years. He was executive officer of the National Academy of Sciences and the National Research Council of the National Academies of Sciences and Engineering for thirteen years in the 1980s and 1990s. His posts included Associate Director of the White House Office of Science and Technology Policy and Branch Chief of Science for the Office of Management and Budget. From 1959 through 1971 he directed polar and oceanographic research at the National Science Foundation. He was one of the founders and first President of the Cave Research Foundation. A list of his awards and honors is extremely long.

In a lengthy interview with Dian O. Belanger in 1998 about his Arctic and Antarctic service in various capacities, he revealed that he saw his life in several phases in which he would leave behind one phase and move onto the next. His Arctic duties involved ice trail building in Greenland and pioneering crevasse detection and crossing as part of a set of transportation problems. His next phase in support of the International Geophysical Year saw him building an Antarctic trail to an advance station across a miles-wide crevasse belt. Next he moved into the logistics of science support, then science policy, then formulating science and technology policy and budgeting at the top level of government. His CRF phase followed similar lines, intense involvement for a few years, then moving on to his other phases.



Philip M. Smith at the Spelee Hut, circa 1969. Photo by Stan Sides.

In 1981 Phil described the origin of his efforts to establish CRF in the Preface of *Cave Research Foundation: Origins and the First Twelve Years*¹. "The remarkable advances in exploration in Floyd Collins' Crystal Cave and in other nearby caves in the mid-1950s showed the immense potential extent of the cave systems. It was quite obvious that some new institutional or organizational arrangement was needed to provide a long-term base for the exploration and scientific investigations that would be required if these caves were to be understood. What was needed was a framework for organizing exploration and explorers to support scientific research, in contrast to the broader and generally sport-oriented scope of the National Speleological Society. We needed an institutional format with which to work with universities and individual scientists, to provide scientists support they could not obtain otherwise, to deal with agencies of the U.S. government responsible for much of the Kentucky cave region, to establish relationships with private cave owners, and to sustain and coordinate this work over many years."

Phil Smith edited the first four CRF Annual Reports, setting a government style for accurately describing the research summaries and exploration accomplishments. As a result of this solid beginning other project cave managers joined with CRF to enlarge the scope of CRF sponsored research and explorations worldwide. Smith's vision became an encouraging model for much of project caving in the U.S. As recently as a few months before his death he described the necessity of long range planning vs. short range for big scientific undertakings. He cited the CRF program as one example. He leaves an enviable legacy.

Phil Smith grew up in Springfield, OH, and his early life was spent with Roger McClure, also a founder of CRF. They were Boy Scouts together, attended the Philmont Scout Ranch, and became Eagle Scouts. They always loved outdoor activities. At the Ohio State University, where they were roommates, they founded the Central Ohio Grotto of the NSS and started the Ohio Cave Survey. During hitchhiking trips to Kentucky they met Jim Dyer, Manager of Floyd Collins' Crystal Cave, and were later introduced to Bill Austin who subsequently managed the cave. Both Smith and McClure participated in the NSS C3 expedition in 1954. Smith

¹ Watson, Richard A., Ed. *The Cave Research Foundation: Origins and the First Twelve Years*, Cave Books, 1981, p.5

graduated OSU majoring in Geology, and obtained a Masters degree in Science Education in 1955.

What kind of man was Phil Smith personally? Roger McClure tells us: "Phil was extremely goal oriented, even in college, where he developed a list of lifetime goals he hoped to achieve. As I recall, being a major university president was one of his top goals. While he may not have achieved all those goals, he achieved many, and was very successful in every endeavor he pursued. He was a highly skilled administrator and logistics planner, and served in many capacities in science and technology management. Being a year or so older than me, he was kind of like an older brother, as we went through scouting together. The same was true as roommates at Ohio State where we developed our caving interests and activities, and spent many hours discussing and solving the world's problems. He was the driving force in the development of CRF, its first President, but most importantly, he was a friend for over 60 years."

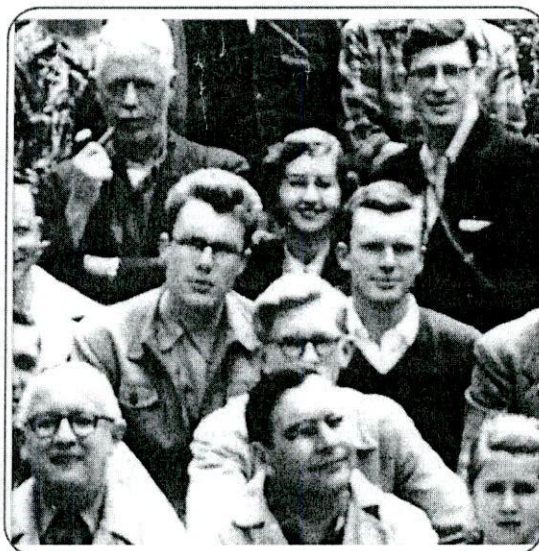
Patty Jo Watson, Edward Mallinckrodt, Distinguished University Professor Emerita, Dept. of Anthropology, Washington University, St.

Louis, MO, recalls Phil Smith encouraged her as a young scientist to investigate the dark-zone archaeology of Salts Cave and Mammoth Cave. Later in her own career she guided many of her students in learning about and contributing to knowledge concerning indigenous peoples of Eastern North America, including those ancient cavers who roamed many miles of Salts, Mammoth, and other caves 2,000 to 4,000 years ago. "Phil Smith knew that you can't set a date for completion when you are investigating the unknown, contrary to government practice of wanting estimates for percentage of work completed and expected date for project termination. Scientific knowledge is cumulative, but is always a moving target."

Phil Smith is survived by his brother David Smith of Centerville, OH, two nieces, and their five children. He is also survived by a worldwide network of famous and near-famous people who call themselves "Friends of Phil."

Philip Smith's lasting contributions to speleology, caving, Mammoth Cave, polar science, and science and technology policy are without parallel in this country and probably the world.²

² Edited from the *Santa Fe New Mexican* from Feb. 22 to Feb. 23, 2014 and other Internet sources.



Left and Upper Right: Photo of Philip M. Smith from 1953 NSS Convention at Mammoth Cave. To his right is Roger McClure. **Lower Right:** Philip M. Smith circa 1955 at Roger McClure's wedding.

The Call of South Toohey Ridge

By: Mark Wenner and Pat Kambesis

This article is dedicated to Brent Cooper, the photographer and videographer on the trip, who lost his life in the Yucatan late last December.

History and Hiatus:

For the past thirty years, the cave potential of South Toohey Ridge, one of the biggest ridges in the Mammoth Cave area, has eluded exploration efforts in the Roppel section of the Mammoth Cave System. But lack of success does not mean diminished potential. The cave "genetics" of the region are characterized by multi-mile cave systems nestled within the confines of limestone ridges. The Mammoth Cave System, in its 400+ mile extent only has 27 entrances and over half of those are man-made. So it is no surprise that South Toohey still holds its secrets. It is just a matter of time that through the persistence of cave exploration, in all of its formats, will eventually find a way to crack the ridge.

The upstream sumps that terminated "air-filled" exploration became the focus of a series of sump dives between 1984 through 1999 with the hopes of breaching the sumps and tasting the miles of passages that lie beyond. The 1984-85 dives were staged from the "Old" Weller Entrance. Over the course of several dives (and with support from tank hauling crews), Wes Skiles, Ron Simmons, and Roberta Swicegood collectively laid 1,500 feet of line into the sumps one and two. Poor visibility and crumbling tie-offs put a big damper on dive efforts, but while de-staging the sump area Roberta discovered the lead to what later became known as Swicegood Avenue.

Ron Simmons and John Schweyen returned to the area in 1993, this time via the "new" Weller Entrance, and added another 1,600+ feet to the original survey. High water levels and bad viz constrained their efforts and it would be six years before another attempt was made at the sumps. In 1999, the objectives for that return trip included continuation of the mapping of Swicegood Avenue and another push on the sumps led by Ron Simmons and Tim Payne. Their diving conditions were vastly improved, but they had to pull dive line out of two feet of silt. They picked up the survey from the previous trip and added another 1,000 feet of survey in Swicegood Avenue.

As is bound to happen in long term projects, cavers get distracted by other efforts, plus it often takes a number of years before the sting of logistical challenges wears off – in this case it would be eight years before the sumps of upstream Logsdon saw the light of exploration. In

2007, a team of divers consisting of Brian Williams, Matt Vinzant, and Mark Wenner along with a large support team took on the exploration challenge of cracking South Toohey Ridge. Also joining them were Jill Heinerth and Jerry Murphy to complete a second dive team.

The challenge of running two dive teams and their associated mounds of gear to the sump paled in comparison to managing the logistics of safe exploration. Team one, consisting of Williams, Vinzant, and Wenner was to recon the conditions of the original dive lines, vintage 1984 and 1999. If the lines were buried in two feet of mud during the previous dive in 1999, then they'd surely need evacuation on this dive upstream. Knowing that there were two lines in place dealt the team a daunting proposition in the determination of which line would be the correct one to take. Another objective would be to check the conditions at sump two, while reporting that to dive team two, as they were staged to dive the following morning. Last, but not least, would be to ascend the mud bank denoted on the maps provided by Canadian caver Doug Hayes and to continue the search for leads up Swicegood Avenue. These were enough projects for one night.

Dive team two, consisting of Jill Heinerth and Jerry Murphy, was to enter the water once dive team one returned to the surface and reported their findings, then dive sump one on their lead and continue to drag four large side-mount tanks to sump two, to continue where Ron Simmons left off. As Ron Simmons had passed away only months earlier, it is easy to imagine the mental attitude of the team. They used his dive bag to transport gear that day, thanks to good friend Barbara AmEnde. Years later, this is still a bit overwhelming for Mark Wenner.

Dive number one went without a glitch, with Matt Vinzant hitting the water, showing no remorse, no fear. He reported reaching the buried lines, and tugged them up for more than a few hundred feet to free them for Brian and Mark. Indeed, one line could not be freed from the mud, and they were able to let go of the two line purchase, and continue the dive on one. If there was any chance for visibility through the sump, it was history on Matt's first pull. Mark was the second diver in the water and found himself so positively buoyant (due to his climbing equipment being not weighted) that he immediately turned up to face the ceiling of the cave, and proceeded to crawl/kick the 1,000 feet to reach open water. Brian was the last remain-

ing person through and had bothered to throw as many rocks in his pack, to balance the air's positive affect. Once on the "other side" of the sump they whooped and howled, just to hear their voices, and then hiked upstream to sump two.

At the water's edge of sump two they found Ron Simmons' line attached to his tie off, and Brian pulled on it, finding it loose. They managed to extract all the line, and finally found it attached to the metal wire spool that Ron had used his last dive in the Logsdon. This piece of history was returned to a cave dive museum in Florida for safe keeping.

Without going into too much detail, the most impressive thing about Swicegood Avenue was that the tracks from each person, from each proceeding expedition, were cleanly imprinted in the sand floor of the passage, reflecting where they had turned around. That night the team managed to find two going leads, one being a small crawlway at A29 that open up to a 32 foot deep pit, with seemingly going passage at its base, which they immediately called "Simmons' Pit". The second lead was a series of domes off A33 which remains to be truly the "going" upper level lead.

On the second dive, into the second sump that night, Jill and Jerry managed to empty her exploration spool of its knotted 890 feet of dive line, tying off at a depth of 60 feet deep. This passage is yet to be continued, with the use of "rebreathers" on the next push dives.

After another hiatus, this time of six years, cave divers returned to continue exploration in the sumps. Their objectives included replacing dive line and continued mapping of the passages that they discovered in 2007.

Back to the sumps in 2013:

The 2013 CRF Labor Day expedition was the target date for the next round of attempts on the sumps. Divers included Mark Wenner, Brian Williams, and Matt Vinzant, with the addition of veteran rebreather diver Mike Young.

Divers and support entered the Weller Entrance of Roppel Cave on August 30th to deliver all tanks (nine - including a "side mount" rebreather) to the floor of the cave, and most of the personal dive gear bags - (ten) to the sump, 19 bags in total. This was done through the North Downey Entrance (new Weller Entrance) and involved descending a series of 20 foot ladder sections, approximately 135 feet, and traversing a list of restrictive squeezes and crawls. This was their chance to recon the water level of the Logsdon River and review dive conditions in general for the next day's dive. Low water tables produced five to ten feet of visibility, which is rare (for the first diver). They

were in and out of the cave in four hours, which is an amazingly short time frame. Pat Kambesis had a nice dinner waiting for everyone at Hamilton Valley, and it was time for most of the team who had traveled far, to catch up on sleep. Slowly, the CRF cavers started to wander in and assemble, and Mark proceeded to hit up everyone he knew for help with the next day's tank haul. You can imagine the response. Roaring River objectives seemed to be getting all the attention, which surprised their party, and they worried about how they'd manage the gear to the sump in the morning.

On August 31st they entered the cave with enough support to transport all remaining gear and tank bags. Two of the tanks were carbon fiber, and not stored in travel bag protection which was a worry to team members. Naturally the divers had some of the load, which is not the best of worlds in conservation of vital energies. They reached the sump for the second time at 3 PM, and out of the water on the "other side" at 4 PM.

New, knotted J2 dive line (a strong blend of Dacron) was expertly run by Matt Vinzant, being followed by Brian Williams 15 minutes later with survey tools to re-survey this underwater section with a fresh line tied off to four silt screws they had left in the cave in 2007. Mark Wenner followed Brian, counting the dive line knots tied in ten foot increments (70 knots, or 700 feet) and Mike Young followed with two large bags of gear, using his Side Kick rebreather. Mike then repeated his efforts and returned through the sump to grab the two remaining gear bags. The dive went perfectly, and they were successful in re-lining and re-mapping the sump.

Except for Mike in his wet suit and cave suit, the team wore dry suits, with all bringing a second dry cave suit and insulation in dry bags to ease the long night they'd have climbing and surveying the pit and dome "leads" from 2007. Once on the other side of the sump and suited up, they split into two teams, one to work Simmons Pit and the other to start the dome climb.

Simmons Pit Team Account (Mark Wenner and Mike Young):

Wenner led Young to sump two by accident while completely missing the turn up to Swicegood Avenue; the mud bank area and opening had been made much smaller with the rains of 2010 plugging most of the path with mud. Soon enough though, they were at sump two, which was liquid blue in color, standing quiet with the dive line Jill Heinerth had left tied off to a large rock near the water's edge in 2007. Next to Jill's line placement, buried in the sandy beach were eight ¾ inch PVC silt screws, all

ready for the next attempt. Mark didn't want to spend much time at Sump two, knowing that Brian and Matt were right behind them, and they needed to get into caving clothes, pack up the Swicegood's mud bank entrance, and set up camp for brunch. It was 6 PM as they set up camp, sporting two stoves, a water purifier with a clean source of water a stone's throw from station A31, where they chose to put base camp. This quickly became "Camp 31", as it was the 31st of August, and they were at station A31. Everyone was excited and packed ready for most of what the cave could offer. Some of their lost energy returned with hot food and drink.

Once nourished, Young and Wenner broke off from the foursome to find the tie-in station of BW4, which terminated in a small crawl found by Wenner in 2007, looking out over a 32.5 foot pit. This pit appeared to lead to going walking passage at its bottom. They spent from 7 PM until 10 PM rigging a very ominous pitch with multiple points of protection, providing a one inch tubular foot loop as a hold to pull themselves up over the thin lip they would rapel. Mike went over the lip first, as Mark dealt

with the survey book, the tie into their previous unrecoverable station B4, and then the -90 front sight from B5 to the bottom of the pit. In a matter of minutes, Mike called up, saying "I hate to tell you this, but the cave chokes off after 50 feet with all the water running into this pit disappearing through a slot in the floor". Mark's heart fell, after having waited six years for this moment hoping this would lead them back to the river, and possibly beyond sump two. Obviously, that wasn't the case.

Mark passed his camera down the line to Mike and they shot a few photos of what still seems to be going passage, for the smallest of stature. The decision was made to pull the plug on their "Simmons Pit" lead, due to the termination of it and put all their energy on helping Brian and Matt with their climbing lead. Mark knew they needed help as their aid climb lead was six stations from A33, the closest tie-in point.

Despite the tricky nature of the passage it didn't take long to find Brian and Matt who were on task at the dome climb lead. There was Brian, in typical fashion, hanging from a rope in



The "Mammoth" team photo. Left to right: Brent Cooper, Mike Young, Michael Wright, Mark Wenner, Stephanie Petri, Brian Williams, and Matt Vinzant. Photo by Brian Williams.

some precarious perch, with Matt letting out the belay. In an instant they were on task to survey from A33 to Brian and Matt's junction.

Under the dome was more complex passage and Mark did some reconnaissance of the area. There were no discernible stations for reference but he speculates that this area is upper Swice-good passage. He has reviewed the maps since and found that what he saw does not resemble the existing map, at all. The floors were laden with undisturbed sand, but the floods of 2010 could have leveled all the footprints of previous exploration.

Dome Climb Team Account (Brian Williams and Matt Vinzant). Brian reports the following:

After fueling up on a hot lunch, Matt and I made our way up the small, wet side passage at A33 to attempt the dome lead we had discovered on the 2007 expedition. Not surprisingly, it was right where we left it. This time we were armed with copious amounts of climbing pro, a 75 foot dynamic rope and bolt kit. We climbed up through the gray friable limestone shelf in the ceiling of the crawlway which gave us access to the bottom of Blade Pit; so named due to the razor like blades of limestone ready to slice and dice the falling climber. When we discovered this dome on the last expedition we were already ten hours on the far side of the sump and wet, cold, and hungry so the decision was made to leave it until we could come back fresh. Now we were fresh and it was obvious that the first pitch could be free climbed with minimal protection from a few well-placed slings and chocks.

I geared up with rack of pro while Matt got on belay. The first pitch was only 25 feet to a sloping floor in the main dome room and we

easily managed the climb with two slings and one chock, cleaning the wall as I climbed. Once in the upper pitch with plenty of walking around room, I rigged the rope on a bomber and Matt climbed up with our ascenders. We could see right away that the dome was roughly 70 to 80 feet to the ceiling, and a typical figure eight shape with fluted walls, smooth rock on one side and mud and light tan crumbly rock on the other. Matt poked around through a tight passage upslope and popped into yet another smaller dome room. This one had a small pool and a slight overflow of water running down a tight slot leaving the room on the other side. We determined the only way left was up.

Matt lit up the blackness of the dome with a super bright LED dive light and we could see that the dome had cut down through a passage about 40 feet above where we were currently perched. The passage was on both sides of the dome and so now it was just a choice of which side to climb. We picked the best side for climbing and I took all the slings, chocks, and hooks I had up with me.

After over an hour on the wall trying to figure out the safest route, I managed to climb to within 15 feet of the horizontal passage, and this is where things got challenging. The rock layer at this level was extremely rotten and each pull on a possible anchor just ripped the rock off the wall to come crashing to the floor. There were no suitable cracks for chocks, and no sling placements that were safe. I had been climbing for over two and a half hours and it was time to back off. Not even a bolt would work here for fear of pulling down larger boulders. I believe the climb is doable, but it would have to wait for a return trip. I came back down and cleaned



Left: Diver Mark Wenner with Sherpa Stephanie Petri and John DeLong in rear overseeing. We are washing the mud off our gear downstream, hoping not to bring it into the dive. **Right:** Diver Brian Williams, with Matt Vinzant in the rear. Brian just finished the underwater re survey of sump one, and hangs from our newly installed dive line. Photos by Brent Cooper.

the wall with the exception of one sling and biner. We rigged the dynamic line to a permanent anchor in anticipation of the next expedition and surveyed our way out from the last dome room. We took a few pictures and some video, but concentrated on climbing instead of photography.

At this time, Mark and Mike were surveying in to us from station A33 in Swicegood Avenue. I had decided to call this area Skiles Dome as Wes was one of the original explorers of this passage on the other side of sump one. Matt reconned further down the passage as I was packing gear and reported going passage in a stream canyon, complete with a waterfall. There is yet one more new passage to come back to. There is plenty left to do on this side of the sump and I feel sure we will find the way to larger passage and further in to South Toohey Ridge. We had another hot meal in preparation for the pack out and even after making it back through the sump and hauling 22 bags toward Cumquat staging for the sherpa team we were exhausted, but making plans for a return trip. The logistics are challenging, but with the right support crew the sump is just a small obstacle when one considers the possibilities of what's waiting on the other side.

Exodus:

After completing the tie in and climbing lead work, they returned to the camp area and prepared the last of their rations. It was now 4 AM, and the cold asserted its authority. The team didn't want to start acknowledging the need to exit, but it was heavily on everyone's minds. They ate, packed, and slipped out of Swicegood Avenue following the muddy tracks made on the way in; only aided by their downward profile to the river. At the sump, they changed out of their muddy gear into relatively clean dive suits, and donned heavier bags packed with mud.

The diving is always the easier part of the equation, floating effortlessly. The goal now was to safely navigate the new dive line, and

the two remaining old dive lines which they chose to not remove.

They were out of the outgoing side of the sump at 5 AM, all gear packed ready to leave for the entrance at 6 AM which was exactly when they said they'd exit. Their support was staged ready to meet them for the challenge of exiting with all the gear. Since no one was there to greet the team, they chose to haul the tanks to the very edge of a muddy section known as Cumquat (a water filled, slimmed out muddy stream causeway), and drop them there for pick up. Then, grabbing their favorite two personal bags (Mike grabbing his rebreather), they headed out of the cave.

The team exited the cave at 9 AM Sept. 1, after 19 hours total travel time, to a beautiful day. They returned to Hamilton Valley, and proceeded to eat, while answering as many questions as possible. The support team was leaving for the cave shortly after they arrived, and they'd be at it, pulling the gear out for the next six hours. They caught some sleep and anticipated the return of the support team so that they could finish packing for their collective returns home.

Acknowledgements:

Support for this trip was provided by, and in conjunction with Cave Research Foundation/Hamilton Valley Station: Pat Kambesis, Dick Market, Mike Wright, Brent Cooper, Stephanie Petri, John DeLong, Helena DeLong, John Sies, and Danielle Aguilar. Our special thanks for their hard work, and dedication.

We would also like to thank Dave Weller for the key to his private entrance, Dick Market for being such a great keeper of the key, Bob Osburn for expedition leadership, Pat Kambesis for logistical consideration, and Jim Borden for the help, and what will be weeks of paperwork to page through. I truly appreciate the experience level of the divers and cavers on this project (and others), and it's always an honor to be associated with you all!

REGIONAL EXPEDITION REPORTS

Lava Beds: Expedition Report of Presidents' Day Weekend, February 15-18, 2014

By: John Tinsley, Manager CRF-SEKI Operations

Presidents' Day weekend is when we convene the annual organizational meeting for Lava Beds operations, when CRF personnel meet with National Park Service managers and staff to review present and future research, inventory and monitoring activities and set the expedition schedule for the coming field season. Usually there is also field work on various projects, and this year was no exception. Folks arrived on either Feb 15 or 16. The organizational meeting was convened at 10:00 AM on Monday, February 17 in the Lava Beds Research Center. Most departed late in the day on the 17th, and a couple departed on the 18th. Activities were as follows.

Saturday, Feb 15: A travel day for most attendees. Lava Beds is 400 miles each way from the S.F. Bay area, for example, and thus participation typically requires at least two days of driving. Efficiency increases the longer CRF personnel can remain on site conducting productive endeavors. The so-called "local" CRF folks still have a 1-2 hour drive, depending upon the weather and snow conditions. All this is partly why the CRF-conceived (and largely funded) Research Center is such a valuable asset for our activities at Lava Beds.

Sunday, Feb 16:

1. Bill Frantz assisted Liz Wolff with the Cave Loop Survey.
2. Peri Frantz remained in the RC, working on Photo Monitoring data with her trusty computer.
3. John Tinsley conducted surface reconnaissance on the east side of Caldwell Butte near the margins of the Valentine Cave flow, and continued working on the digital cartography of Sentinel Cave for Liz Wolff.
4. Liz Wolff organized a couple of survey teams to check the surveys of the Garden Bridge area that dated back to 2000. Bill Frantz led Ed Bobrow and Jim Wolff into Hidden Cave to add detail to Janet Sowers' survey; they covered roughly half of the cave. They clarified the relations in several areas that were not easily understood using the older survey. Katrina Smith led Bill Devereaux and Liz Wolff through Labyrinthian Bridge and into Cave B, finding that

the Labyrinthian survey was precise and detailed. They also discovered that Labyrinthian connects to South Labyrinth Cave through a breakdown crawl. The Cave B survey needed to be redone as huge compass discrepancies occur in the older survey. The re-survey started at the reference pin, thence through the cave, and out into the sink across from the Channel Z and That Bridge entrances, and then looped back to close on the pin. We had one station with a 10-degree discrepancy; near those same points, the older survey showed a 31-degree error. This was Katrina's second day of learning to keep the survey book, and she did an outstanding job. 5.A potluck supper was assembled with great enthusiasm; more food was on-site than responsibly could be consumed, which is a nice problem to have, considering all the alternatives.

Monday, Feb 17:

The annual meeting convened at 10:00 AM. Nancy Nordensten, Chief of Resources Management, Katrina Smith (Resources), and Jesse Barden (Interpretation) attended on behalf of NPS. CRF was represented by John Tinsley, Bill and Peri Frantz, Jim and Liz Wolff, Bill Devereaux, and Ed Bobrow. Bill Broeckel and Scott House were not able to attend, but each provided Tinsley with complete reports on behalf of their respective projects. During the next three hours, the group reviewed the current suite of research permits, discussed plans for a database to track the status of cave surveys, inventory, and monitoring, and additional potential projects of interest to all. A tentative expedition schedule was agreed to, to include all long weekends during the remainder of 2014, with special trips to be scheduled as personnel and circumstances permit.

Tuesday, Feb 18:

Bill and Peri Frantz conducted photo-monitoring in Symbol Bridge and at Juniper Cave Entrance. They also discussed future plans with NPS management, cleaned the research center, and then departed for home. All travelers arrived home safely.

Carlsbad Caverns National Park, February 8-14, 2014

By: Ed Klausner

Twelve cavers gathered at Carlsbad Caverns National Park to survey in Slaughter Canyon Cave and Carlsbad Cavern from February 8th to the 14th.

On Saturday, Feb. 8th, Derek Bristol had a team consisting of Shawn Thomas, Garrett Jorgensen, and Pete Johnson for the long awaited trip to Halloween Hall, discovered on Halloween in 2013. Shawn and Garrett surveyed the huge hall (100 feet wide, 100 feet long, and 20 to 50 feet high) while Derek and Pete climbed the dome on the south side of the room. There were no leads left when they finished and Halloween Hall (and Spirit World) are now surveyed.

That evening, Derek, Pete, Garrett, and Jonny Prouty went to the Main Corridor of Carlsbad Cavern to climb a lead above Iceberg Rock. They surveyed the lead that ended in a drop to Appetite Hill.

I led Elizabeth Miller, Chris Beck, and Jeanette Muller to Lower Cave (LA survey) to check leads and re-sketch portions where the older sketches did not fit together well before the Naturalist Room. Several of the ceiling leads could easily be reached with a 20 foot extension ladder and this will be used on a future expedition. We had some time and went to the LC survey to do some re-sketching in a confusing area.

On Sunday, Derek led Pete, Garrett, and Jonny to the Hall of the White Giant. They were looking for a connection to the Spooky Chimney and found two. They then surveyed the lead west of GRF15 which came out high above Spooky Chimney. The lead off RFG21 was surveyed as well as a pit below GRF17/18.

Dave West led Karen Willmes and Mark Jones to Slaughter Canyon where they went to

the Tom Tucker Room and annotated the map and checked leads. One lead did not go and the second needed a 30 foot ladder. They then went to the C survey to work on the profile view and also worked on the profile of the Mole's Run. Then they moved on to resurvey the B201 letter series and surveyed nearly 300 feet and then the B206-B208 area before running out of time.

I led Elizabeth, Chris, and Jeanette to the L survey in Lower Cave. This was an aqua socks lead and we came prepared. The lead was surveyed and cleared up an additional lead as well, since a lower level came out in the main L passage that was too delicate to get through. We surveyed to each end of the passage and established light and voice connection. We then spent some time in the boneyard of the LC survey near LC96 to do some re-sketching. We looked at several leads in the LC survey and found all of them to be too small to enter, but did find an additional lead that will require a ladder to reach.

On Monday, Derek led Garrett and Jonny to the Hall of the White Giant, Guadalupe Room, and Lower Pit Series. There was a report of a high level area with beaded helictites. They found and surveyed this upper level area. They then went to the Guadalupe Room and picked up the survey at GC29I and surveyed a series of boneyards. Then they travelled to the Lower Pit Series and surveyed high leads above GRC147 and tied to GRC116 and GRC142.

Dave Led Karen, Elizabeth, and Jeanette to Slaughter Canyon Cave and went to the Mushroom Passage to add to the profile from the Sentinel to Toad's Palace. They then went to Fossil Avenue to work on the profile. They gathered ladder requirements so an extension ladder could be used to reach some leads. They also surveyed a side passage of Fossil Avenue that was overlooked by the initial survey.

I led Shawn Thomas, Chris, and Mark to the Upper Talcum Passage. Chris was the only one among us who knew the route. It is easy to follow and neither Shawn nor I should have any trouble finding our way in the future. Our main objective (besides learning the route) was to tie the far end of the upper level to a station we left in the middle level several months ago. Fortunately, it was an easy tie as it was 40 feet directly below us and the station below was easily visible (Chris was the one who set the station). After that, we went to the opposite end of Upper Talcum Passage and re-sketched two areas. We also looked at some of the pits along the way and found one that could be free



Shawn Thomas in Talcum Passage . Photo By Ed Klausner.

climbed. Shawn climbed down and found himself on a ledge where he could see, but not reach, a red and white rope. Later we returned to Lower Cave and Shawn climbed the fixed rope near the Stegosaurus formation. We thought there were two ropes there, one to a ledge and then a rope that couldn't be reached from the floor of Lower Cave, but probably went higher once you got up the first rope. It turned out that the second rope was the same as the one Shawn saw previously, but was actually a long piece of flagging tape. Finally, we started the re-sketch of a complex area in the LC survey before heading out.

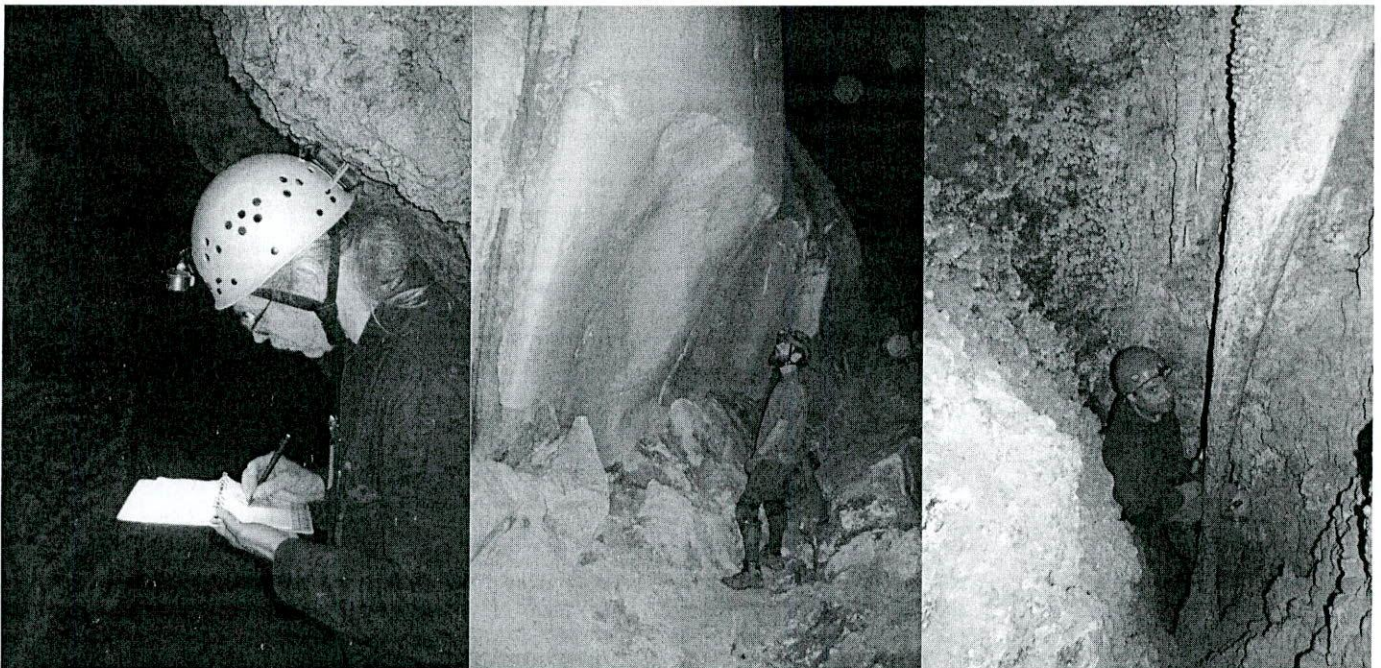
On Tuesday, Dave again returned to Slaughter Canyon, but after a delay waiting for the icy roads to clear. At the Mole's Run they surveyed the ledge from B203. In the Pool Room he drew a profile of the portion that was visible, but did not enter the water to finish it. In the Toad's Palace they surveyed a small chamber and then did a profile of the BB survey before doing a profile from Subterranean Disaster through the Pillar of Hercules.

I also got a late start because Chris slipped on the ice outside the hut and we waited to see if he was OK. I led Elizabeth, Chris, and Karen to the long awaited small lead under a ledge that goes big after a squeeze in Middle Earth. We had to wait until late in the day because the rigging point for our first pit (52 feet) is just off the tour trail at Top of the Cross in the Big Room. We used the time to resurvey and re-sketch a loop in the D survey of Lower Cave

that did not close well. When we finally got down the 52 foot pit into Middle Earth we rigged the second rope for the 33 foot pit that was along a crawlway heading north. This was an awkward place to rig the second rope and we were running low on rope pads. We used everything we had (besides the pads, we used packs and clothes), but ran out of padding before actually going down the second pit. We left the second rope in place, but had to derig the top rope as it was close to the tour trail. We planned on returning the following day.

On Wednesday, Dave led Chris and Jeanette to Slaughter Canyon to the lead at Z3-4. Chris was able to free climb it and determined that the lead ended in ten feet. They continued working on detail for the profiles. Finally, they went to the Black Forest Passage to get two lengthy cross sections and details of a lower chamber while checking leads. They surveyed a crawl near Fossil Avenue before returning to the research huts.

I returned to Carlsbad Cavern with Elizabeth, Mark, and Karen and plenty of rope padding along with the rope for the 52 foot drop. Since we again had to wait for the end of the day, we did some surveying in the LD boneyard while checking other leads. Finally, it was late enough to rig the rope and drop both pits. We shed our vertical gear, and followed the passage to an eight foot climb up and then an eight foot climb down. Continuing east, we got to the squeeze and started our survey. The first few shots were all short, three to four feet each.



Left: Dave West sketching in Slaughter Canyon. Photo by Jeanette Miuller. **Center:** Shawn Thomas and a gypsum block. Photo by Ed Klausner. **Right:** Mark Jones checking a lead. Photo by Jeanette Miuller.

Once we got past the squeeze, the passage was indeed big, but not virgin. We put in a long shot and then some shots down a side passage. We were getting close to 13 hours so we looked down a side passage and discovered another non-virgin room with several holes in the ceiling. One was an easy climb up to known survey – Z208. We will return to finish the survey on the next trip.

On the final day, Dave led Karen to Subterranean Disaster and the Mole's Run in Slaughter Canyon for a short trip to a pit lead which they surveyed. In the Mole's Run they investigated the passage at the end which connects to the far end of the Pool Room. They needed different clothes as their coveralls would have been

shredded. Finally, they surveyed the lead at B205 before returning to camp.

I was tired and for the sixth day of caving, I led Elizabeth and Jeanette to the LDD survey in Lower Cave. The LDD is mostly boneyard, but opened up to a fairly large room at LDD10. This room was surveyed in sections by each of the nine or so surveys that tied into it. I plotted it out on a large piece of graph paper and sketched the entire area.

Thanks to all the surveyors for your help, to Derek and crew who surveyed Halloween Hall that I will draft as part of the Big Room map, and to Stan Allison and Shawn Thomas, both Cave Technicians at Carlsbad Caverns National Park, for making the trip possible.

Ozark Operation Activities: November 2013 - March 2014

By: Scott House

After a dismal Fall, the hard-working CRF folks of the Ozarks have been extremely busy despite one of the most wretched winters in memory. Sadly, the spread of White Nose into our area has kept the monitoring of its advance a priority.

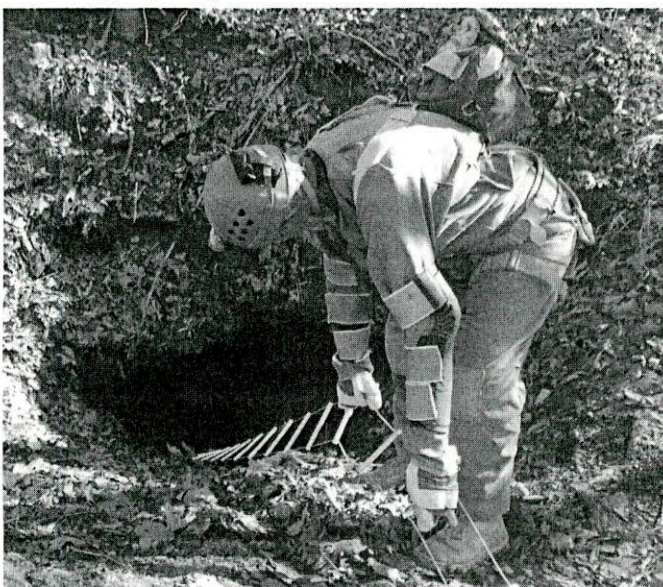
OZARK NATIONAL SCENIC RIVERWAYS

January 12, 2014:

Jim Cooley, Ken Grush, and Mark Jones monitored Lost Man Cave and Cave Spring Cave, both in Carter County, MO, on the lower Current River. All bats seen, nearly 100, were healthy.

January 13, 2014:

Jim, Ken, and Mark monitored several caves near Big Spring or Van Buren on the lower Current.



Sue Hagan prepares to enter Brazil Pit Cave, Mark Twain NF. Photo by Mick Sutton.

rent. One of these is a major bio cave, with bats in the summer, and many other species throughout the year.

January 14, 2014:

Jim, Ken, and Mark continued their monitoring work on the lower Current River by checking a number of caves at the extreme south end of the park. Getting back to the research center by 7 pm meant that by 11 pm they were actually done with gear cleaning and decontamination; par for the course in the Ozarks.

January 15, 2014:

The stalwart trio went forth, checking a couple of gates/locks on gated caves, attempting to replace one lock (was keyed with the wrong district core) and then spent a long and fruitless afternoon looking for a long-lost cave. Not fruitless, actually, now they know where it is not.

January 16, 2014:

The three amigos went forth and monitored yet two more caves in the lower Current area. One of these is particularly wet and muddy, and the three, braver than most, cleaned off in the river (immediately outside the entrance) when finished. Brrrr.

January 17, 2014:

Scott House and NPS ecologist Kim Houf counted bats in the entrance passage of Round Spring Cavern, finding very good bat diversity (six species) in just a few hundred feet of passage.

January 18, 2014:

Jeff "Spike" Crews, Shawn Williams, and Krista Bartels took the long hike and monitored Jam-Up Cave, on the upper Jacks Fork River.

On the way back, they monitored several more caves of interest in a deep hollow off the river.

January 19, 2014:

Scott House and Spike Crews monitored four caves, two on the upper Current and two others on the lower Jacks Fork. Some of these get monitored because of potential visitation while others are archaeological sites.

Shawn Williams and Krista Bartels monitored the interesting Liberty School Cave in an area of mostly igneous rock. The cave itself is developed in calcareous rocks lying up against the older igneous knobs.

January 20, 2014:

Shawn Williams, Scott House, Dan Lamping, and Jeff Crews did a quick bat count at the entrance sections of Wallace Cave. Scott and Shawn, joined by George Bilbrey then monitored bat populations in Medlock Cave, a gated cave with important summer bat populations. A very good diversity of bats was recorded on this date, with no unhealthy individuals.

January 23, 2014:

Scott House and Kim Houf joined Tony Elliott, Shelly Colatskie (Missouri Department of Conservation) along with researcher Amanda Janicki and volunteer Kirsten Alvey in swabbing bats at Powder Mill Creek Cave, an MDC-owned cave within the authorized boundaries of the park. No unhealthy individuals were seen.

February 14, 2014:

Mick Sutton and Scott House monitored bats in Bluff Cave near the Powder Mill Research Center. Plenty of diversity was noticed with no obvious signs of WNS.

February 16, 2014:

Two survey crews of Dan Lamping, Bob Lerch, Joe Sikorski, Shawn Williams, and Derik Holtmann surveyed 400'+ in Wallace Cave, upper Current River. One crew continued the lower level stream and crawl passage while the other surveyed in the first upper room.

February 21, 2014:

Jim Cooley, Ken Grush, and Mark Jones monitored a bunch of caves on the upper Jacks Fork and did lock maintenance on a couple of cave gates. Other than one lock being frozen/rusted shut, the results were good.

February 22, 2014:

A large crew (Cooley, Jones, Steve Potter, Laurel and Gabe Dunn, Wes Dowler, Brian Sauer, and Michael Morris) monitored a large, un-gated bat cave on Pioneer Forest land within the authorized boundaries. The bat populations were good (as evidenced by guano), but some adventures were incurred in getting to the cave (a flat tire) and getting through the cave (the dreaded Coral Crawl).

February 24, 2014:

Jim Cooley, working at gate and lock maintenance, replaced a lock on a remote bat cave.

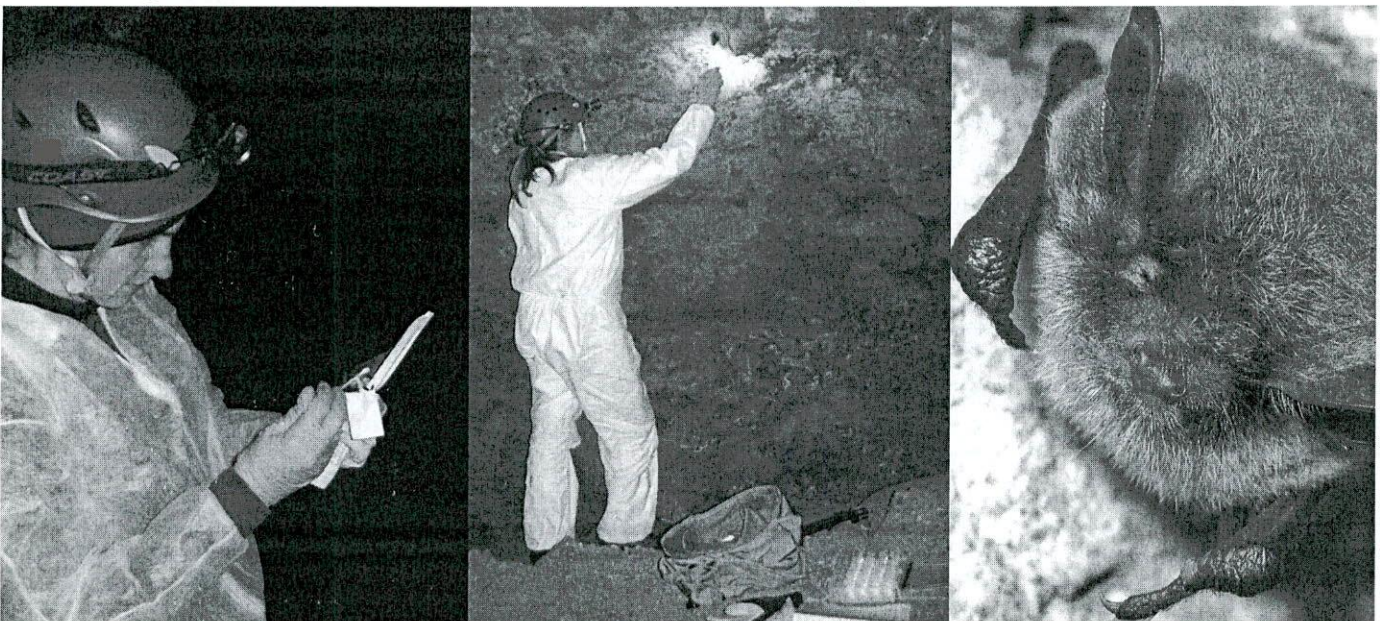
BUFFALO NATIONAL RIVER

Buffalo National River trips are temporarily on hold due to Arkansas WNS concerns.

MARK TWAIN NATIONAL FOREST

November 29, 2013:

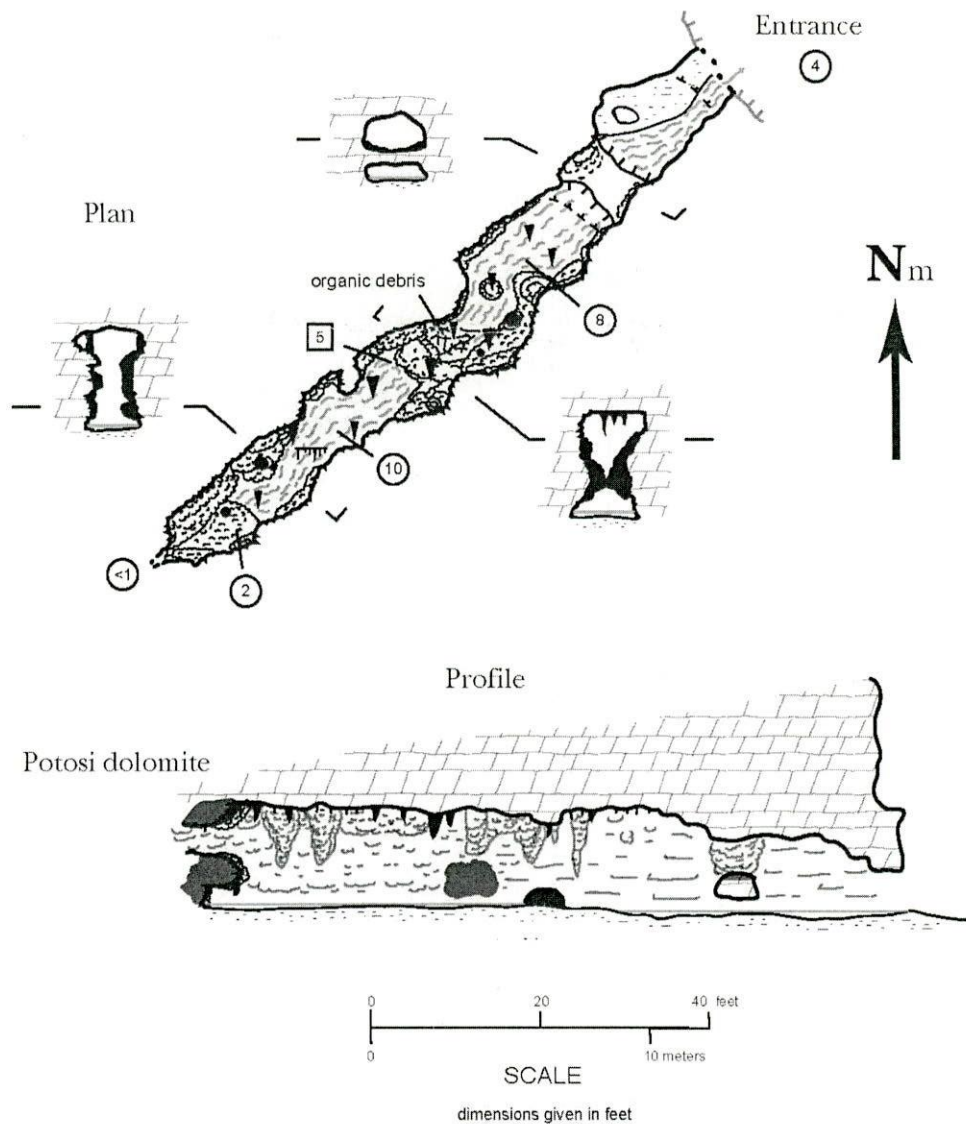
Ben Miller, Katie Ingram, and Aaron Soles took a long hike into the Sinkhole Ridge area of



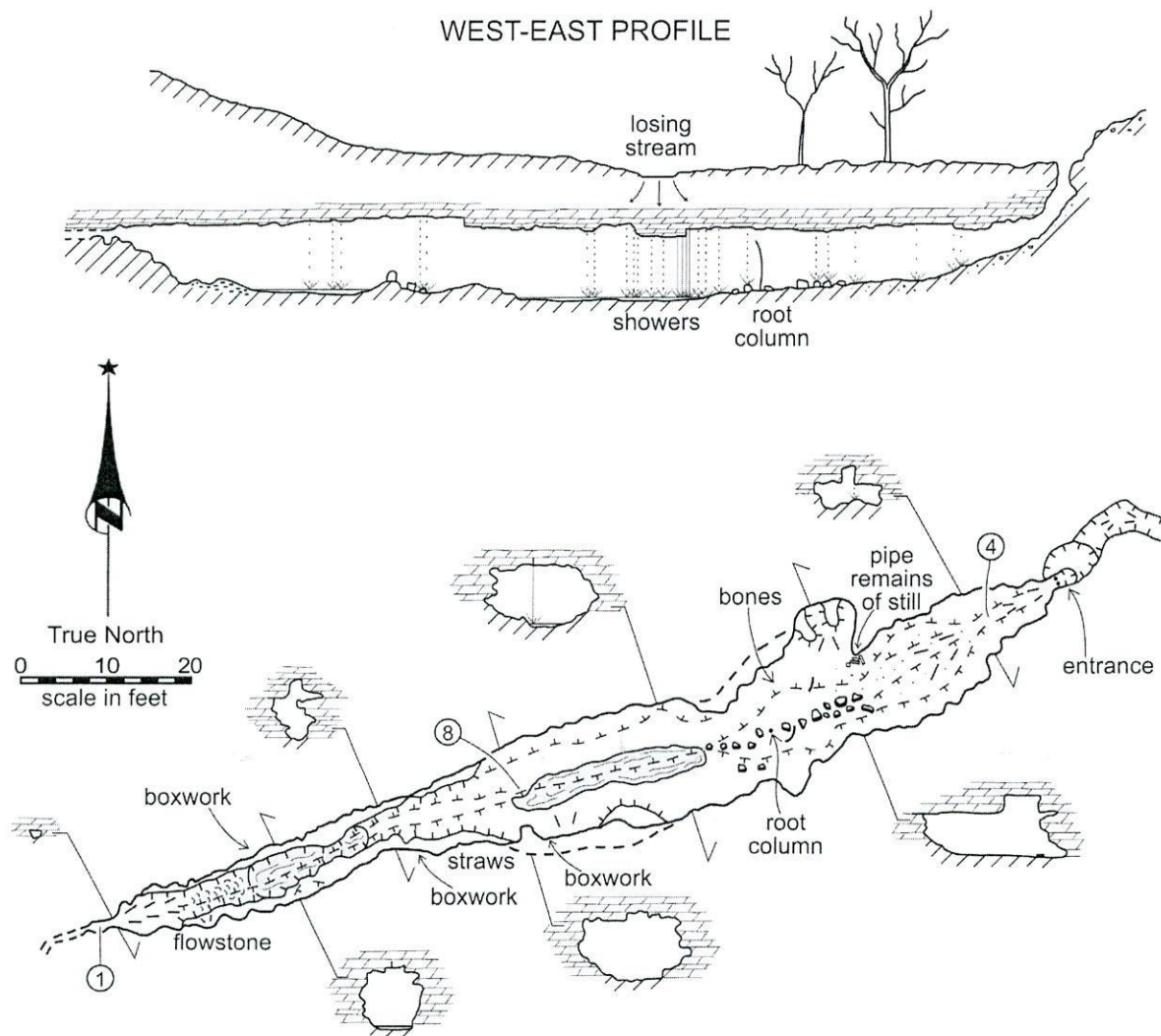
Left: Shelly Colatskie of the Missouri Department of Conservation swabs a bat. **Center:** Kim Houf, ecologist for Ozark National Scenic Riverways swabs a bat. **Right:** A northern (long-eared) bat, *Myotis septentrionalis*, in Round Spring Cave, Ozark NSR. Photos by Scott House.

CAMP BRANCH CAVE
 MARK TWAIN NATIONAL FOREST
 Washington County, Missouri
 WSH-028

Surveyed 1/26/2014 by
 S. House, J. Crews, M. Sutton
 of
CAVE RESEARCH FOUNDATION
 Cartography by Scott House



Cave Length 80ft/25m



Mark Twain National Forest
 Christian County, Missouri
 Surveyed February 23, 2014 by
 Jonathan Beard, Roy Gold and Matt Bumgardner
 Suunto compass/clinometer
 fiberglass tape and Leica distometer
 Surveyed cave length: 124.5 feet
 Adobe Illustrator Cartography by J. Beard
 Host rock: Cotter Dolomite
 Springfield Plateau Grotto, NSS
 Cave Research Foundation
 Missouri Speleological Survey



A project of the Springfield Plateau Grotto



Barry County, on the Cassville district, mapping one cave and finding another new one.

December 5, 2013:

Eric Hertzler and Max White surveyed in Robert L. Taylor Memorial Cave, in the Ava district, Christian County. The duo netted about 200 feet of new survey.

December 18, 2013:

Jim Cooley attended a Forest Service gating meeting in Potosi, MO. The next day, he and FS personnel did a field visit to the various sites which are all old mines. The gates are designed to allow bat use, but keep visitors out of these dangerous, collapsing places.

December 31, 2013:

Mick Sutton and Sue Hagan counted bats and did other biological survey in two caves (yes, two sets of gear each) on the Potosi district in Crawford County. All the bats there were healthy.

January 11, 2014:

A large crew met at a mini-mart in Seligman, MO, checked objectives on the Cassville district, Barry County and split up. Scott House, Jon Beard, Don Dunham, Matt Bumgardner, and Colton Zirkle tried to go to a couple of caves, but the roads were not just washed out, rather completely destroyed by recent flooding. They instead went to an unmapped cave, Goins Cave, which was surveyed. A short bit of field work revealed another cave in the same area and it was also mapped. Then the groups split up: Scott and Don first went and inventoried one small cave, and then tried to make it, via another route, to the original objective but found more washed out roads which prevented them from using that route. The rest of the party inventoried another FS cave nearby. Meanwhile, Kayla Sapkota and Kyle Moore from AR managed to get to their objective (a cave that was

once the site of a treasure trove permit) via a long route from MO, into AR, and back into MO to get to the cave. They surveyed the bulk of their objective, waiting for warmer and drier times to finish. They then left MO and went back into AR and home.

January 12, 2014:

Don and Scott inventoried a relatively short cave on the Cassville district in Barry County. The surprise was that the 400' long cave had hundreds of healthy pipistrelles (yes, we know all about that tri-colored name). A cave on a state park was inventoried the same day.

Jon, Matt, and Colton relocated one missing FS cave, proved that another was just a pseudonym for the first, verified a new location (and monitored it) and then made it onto the nearby state park (elsewhere), all in Barry County.

Mick and Sue inventoried Brazil Pit Cave, Potosi district, Washington County, and found that it is still being heavily used by partiers. They also checked nearby Sinkhole Cave, which some years back was not enterable; Mick and Sue found that it was still not enterable.

January 18, 2014:

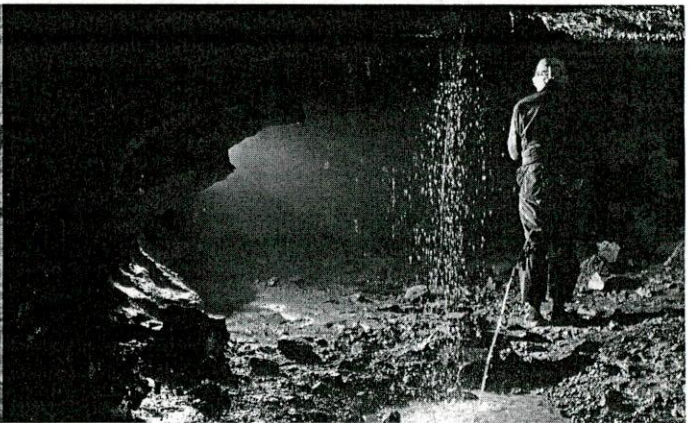
Jon Beard and Matt Bumgardner surveyed the new cave on Cassville District, Barry County.

January 19, 2014:

Several caves on the Ava district, Christian County, were relocated and monitored by Jon Beard, Matt Bumgardner, Greg Sanders, and Eric Hertzler. Entrance photographs and new GPS points were also obtained.

January 20, 2014:

A cave on the Potosi District, Crawford County was monitored by Mick Sutton and Sue Hagan. Unfortunately several bats had visible WNS symptoms.



Left: Jim Cooley writes monitoring reports outside the entrance of a cave in Ozark National Scenic Riverways. Photo by Ken Grush. **Right:** Jon Beard sketching in Root Column Cave Photo by Roy Gold.

January 24, 2014:

Mick Sutton and Scott House met with FS folks to discuss various projects, data, and other issues.

January 26, 2014:

Scott House, Mick Sutton, and Jeff "Spike" Crews monitored two caves and surveyed one of them on the Potosi district, Washington County. One of the caves had a bat suffering from obvious WNS, but the other cave was clean, so far.

February 2, 2014:

Jon Beard, Matt Bumgardner, and Eric Hertzler relocated and monitored a couple of mostly missing caves on the Ava district, Christian County. One of them, Root Column Cave, runs under a losing surface hollow and is slowly collapsing. They found it to be smaller than the original reports of some years ago.

February 15, 2014:

Matt and Jon returned to the Cassville district, Barry County, and did some ridge-walking. They found two new caves, monitored both, and surveyed one of them.

February 16, 2014:

Jon and Matt went back to the Ava district, Christian County, and continued to ridge-walk looking for missing caves. They found a few, mapped and monitored one, but a couple of others are still missing.

February 17, 2014:

An attempt to get to Rattlesnake Pit, Potosi District, Washington County, Mick and Sue was foiled by the sheets of solid ice covering the extensive gravel roads needed to get anywhere near the cave (in the Ozarks, "near" means within a mile or two).

February 21, 2014:

This time, Mick and Sue managed to get the cooperation of the weather and made it to Rattlesnake Pit. None of the eponymous reptiles were

found but, sadly, at least one bat with WNS was noted.

February 23, 2014:

Jim Cooley and Derrick Norris searched for a reported cave in the Eleven Point district, Oregon County, but no cave could be located.

Mick, Sue, and an FS intern, Sierra Comer, monitored an interesting cave, with two entrances, on the Potosi district, Washington County. A dead bat with fungus on its nose was noted...

Meanwhile, some hundreds of miles away, Jon Beard, Matt Bumgardner, and Roy Gold surveyed Root Column Cave, needing to get it done before the thing finishes collapsing. A prominent ceiling joint under the sinking stream provided for "a veritable shower of water" keeping the crew thoroughly soaked.

February 26, 2014:

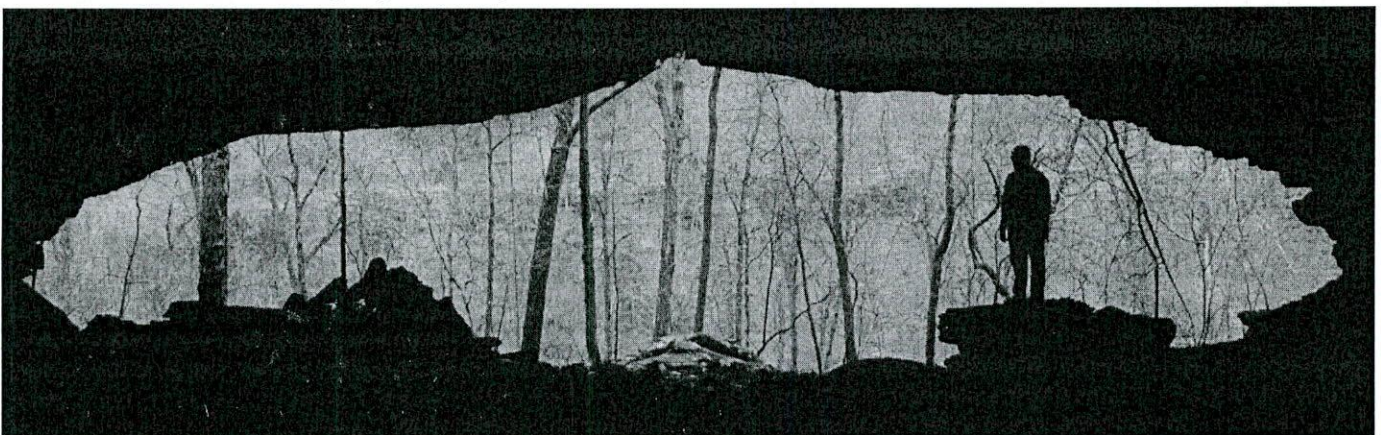
Mick Sutton accompanied a crew of FS people plus Tony Elliott and Shelly Colatskie of the Missouri Department of Conservation on a bat count of an important bat site in Iron County. Unfortunately, once again there were several bats with WNS signs.

March 1, 2014:

The stalwart crew of Beard and Bumgardner (sounds like a law-firm!) hiked for several miles on the Cassville district, Barry County, locating and monitoring one cave and finding a few non-cave shelters. They also monitored another cave, but the old records were misleading and we're still not sure if this was a new cave or a known one.

BEROME MOORE CAVE PROJECT**December 21, 2013:**

Major flooding enlivened this trip. Scott House, Dan Lamping, Norm Gallup, and Don Dunham had an objective but the fountains and waterfalls in the cave cancelled that. Instead the



Looking out of a previously undescribed cave on Mark Twain NF, Barry County Missouri. Photo by Matt Bumgardner.

crew used the time to photograph stream floods, waterfalls, and hauled out some trash from the base camp. Jon Beard, Wes Dowler, and Matt Bumgardner had better luck and got a couple hundred feet more done in Cat Track Passage which also had a healthy stream flowing through it.

January 12, 2014:

Chad McCain, Norm Gallup, and Richard Young began the survey of the Drum Crossover, connecting the Main Stream with Cat Track Passage. (Note, the passage was named for Dennis Drum, one of the founders of SEMO Grotto and a director of CRF) Eventually they ran out of time, vowing to return.

January 13, 2014:

And so they did, the next day. Chad, Norm, and Michael Bradford continued the Crossover survey, finishing it up and also surveying another side passage that also connected to Cat Track. The rest of us are all glad that Chad and crews got this one done!

MISSOURI STATE PARKS

January 12, 2014:

In conjunction with their trip on nearby FS lands, Jon Beard, Colton Zirkle, and Matt Bumgardner relocated and began mapping Cave of the Winds on Roaring River State Park. Same day, same park, Scott House and Don Dunham monitored Moonshiner Cave which was dry and had little life.

January 18, 2014:

Jon and Matt finished their map of Cave of the Winds which, as Jon relates "is a fine example of vadose speleogenesis in the Pierson Limestone, a dominant cavernous rock along the Eureka Springs Escarpment."

ELSEWHERE

December 7, 2013:

Dan Lamping, Tony Schmitt, Joe Sikorski, and Jim Ruedin attended a bat identification and monitoring workshop in St. Louis, MO.

January 13, 2014:

Scott House and Don Dunham monitored life at a soon-to-be show cave in Taney County, Missouri. Despite construction work and recent bitterly cold temperatures they counted more than 70 salamander larvae in one of the new artificial pools.

January 17-18, 2014:

Trying to get to an ongoing project cave (privately owned) in Oregon County, MO, Jim Cooley, Ken Grush, and Mark Jones were turned back by a deep river ford and settled for mapping a newly-found smaller cave on the safe side of the 11 Point River.

January 18, 2014:

Returning to the same locale, the trio of Jim, Ken, and Mark finished the survey of a small cave and then surveyed some of the main objective, a large entranced cave that houses summering gray bats.

January 19, 2014:

Continuing work in the large cave, Jim, Ken, and Mark surveyed about 300 feet of fairly large passage.

January 20, 2014:

The same crew put in another 272 feet of survey in the cave, measuring guano piles as they went.

January 24, 2014:

A crew of Jim Cooley, Ken Grush, Jon Beard, Scott House, and Mick Sutton helped Jeff Crews with the cave files in Rolla, MO.

February 18, 2014:

Returning to the large Oregon County cave, Jim Cooley, Mark Jones, and Ken Grush surveyed 350 feet of passage that continues without showing any signs of ending.

February 19, 2014:

Jim, Ken, and Mark surveyed one short cave, before finding and surveying yet another in the same ranch.

Mammoth Cave: Thanksgiving Expedition, November 27-December 1, 2013

Expedition Leader: Dave West, Camp Manager: Buz Grover

Twelve parties mapped in several sections of Mammoth Cave including Boiled Egg Passage, Stevenson Avenue, East Bransford Avenue, and New Discovery in Mammoth Ridge, Fritch Avenue in Joppa Ridge, and WOW Shaft, Pike Chapman, Salts Main Trunk, East Salts, Ralph's River Trail, and Stort's Trail in Flint Ridge. At the request of the Park, Blight Cave was surveyed by two parties for the bat monitoring program. Charles Fox will draft the map in coming

weeks. We will endeavor to survey at least one of each of the requested caves each expedition until finished. One party utilized the calibration course we have set up in CRF's Adwell Cave for laser surveying devices. All told, approximately 1,076 feet of new passage was surveyed and 1,940 feet of passage had replacement surveys finished for a total of 3,016 feet of survey.

On Thursday trips were relatively short to enable folks to return in time for our annual

Thanksgiving feast, prepared by Buz Grover. Ed Klausner led a group to the Boiled Egg Passage in Mammoth. En route, they checked some leads in the Rotunda area and were surprised to put in nine stations of survey into a small mined passage that had not been previously surveyed. Eventually reaching the Boiled Egg area, they only had time for two shots before running out of time. Lynn Brucker spent the day calibrating Disto-X units in Adwell Cave. Mick Sutton took a party to some canyons that connect Pike Chapman to Blue Arrow in Salts Cave. About 400 feet of survey was accomplished, a mixture of new and replacement. Charles Fox led a party to New Discovery to close a loop that had been left unsurveyed only to find that the "lead" did not exist except in an old trip report. Other leads were examined, but found to have already been resurveyed. The party returned to camp without survey, but Charles was able to cross a few objectives off the list. Jim Greer took a party to Ralph's River Trail in Unknown Cave, where a replacement of an old Z survey was finished up.

Friday saw seven parties out of camp. Ed Klausner went to the Stevenson/Opossum area where a number of small leads were either surveyed, found to be already surveyed, or removed from the lead list. Lynn Brucker led a party to East Bransford to continue the replacement of an old C survey. Over 670 feet of survey was accomplished, with 48 of that being new survey. Mick Sutton returned to Salts Cave to get more accurate cross sections in the main trunk. At least one was 108 feet wide, another had over 50 feet of vertical extent although not all in the same plane. Most required temporary stations to accomplish. Eleven sections were completed. Bill Koerschner led a party to East Salts, where 320 feet of mostly new survey was accomplished. Charles Fox led a party to Blight Cave where the survey came to a halt at a

twenty foot pit. Jim Greer returned to Unknown Cave with a party that replaced an old I survey near Stort's Trail. Other work remains in these crawls which do not close well, and generally lack elevation control until replaced. Doing so will help fix the location of Blindfish River better, in the continuing attempt to connect Great Onyx Cave to the system. Bob Osburn led a party to Fritsch Avenue in Proctor Cave, and surveyed about 780 feet.

On Saturday only three parties left camp. Charles Fox returned to Blight Cave where a bypass to the pit was found, making all of the vertical gear unnecessary. The survey of the cave was completed. Tom Brucker took a party to WOW shaft in the Bedquilt portion of Colossal Cave. They were unable to locate the old stations to repair a backsight mismatch and started the replacement of an old A survey that lacks elevation control. Bill Koerschner led a party to New Discovery where about 300 feet of survey was accomplished.

People pitched in and kept camp reasonably tidy. Helping Buz with the kitchen duties were Roger and Lynn Brucker, Bob and Judy Parrish, Pat Kambesis, and Ana Greer. Many thanks to them and everyone for a great expedition.

Boiled Egg: Ed Klausner, Elizabeth Miller, Karen Willmes, Sue Hagan; **Adwell:** Lynn Brucker; **Salts Cave:** 1) Mick Sutton, Brandi Zinn, Elizabeth Winkler; 2) Mick Sutton, Sue Hagan, Fred Wilkinson; **New Discovery:** 1) Charles Fox, Chris Caswell, Peter Zabrok; 2) Bill Koerschner, Krista Bartel, Chris Caswell, Peter Zabrok; **Ralph's River Trail:** Jim Greer, Noboru Sakabe, Fred Wilkinson; **Stevenson / Opossum:** Ed Klausner, Elizabeth Miller, Elizabeth Winkler; **East Bransford:** Lynn Brucker, Karen Willmes, Dave West; **East Salts:** Bill Koerschner, Chris Caswell, Matt Mezydlo, Peter Zabrok; **Blight Cave:** 1) Charles Fox, Roger Brucker, Nathan Grover, Matthew Frassica; 2) Charles Fox, Tim Green, Fred Wilkinson, Dave West; **Stort's Trail:** Jim Greer, Tim Green, Brandi Zinn; **Fritsch Avenue:** Bob Osburn, Krista Bartel, Noboru Sakabe; **Bedquilt:** Tom Brucker, Noboru Sakabe, Karen Willmes.

Mammoth Cave: New Year's Expedition, December 27, 2013-January 1, 2014

Expedition Leaders: Ed Klausner and Elizabeth Miller

The New Year's Expedition provided for four caving days and the weather mostly cooperated. We had one rainy day that stopped a planned ridgewalking trip and a snow storm on the afternoon when people went home making some travel difficult.

On Saturday, the first day of caving, Bill Copeland ridgewalked in Doyel Valley and Locust Grove Cemetery. As usual, he provided a very detailed report of the caves he located. Stan Sides led Norman Warnell, Mark Jones, Bruce Hatcher, and Jeremy Reedy to Potato Cave. Norman had located the cave recently and

this greatly reduced the time to find their objective. They brought a rope and had a cable ladder as well, but the cave turned out to be much deeper than they expected and they could only get part way down and surveyed 45 feet. This cave is part of Stan's history project and he expected to find cultural materials. Due to the nature of the cave (vertical), this turned out to not be the case. It remains a mystery as to why it is called Potato Cave. In the morning, Dave West, Karen Willmes, and Roger Brucker ridgewalked in Wilson Cave Hollow, hoping to find a new entrance. Unfortunately, they didn't. Kayla Sap-

kota, Bryant Galloway, and Kyle Moore went in search of a small cave to survey that was on the list given to us by the park. They wanted maps of a number of small caves that are used by bats as a hibernacula. They found and mapped Luna Cave, a bit over 50 feet long. Tom Brucker led Andrew Wilkinson, Aaron Tester, and Matt Mezydlo to Colossal / Bedquilt and surveyed at Bird Dome before continuing on to Colossal Dome. They added a section of ladder to the three that were in the cave to reach a passage that crosses the dome. Finally, they headed to Grand Avenue to replace a J survey. In the evening, Dave West led Mark Jones and Lynn Brucker to the Frozen Niagara entrance to set stations for a very detailed (ten feet to the inch) survey to be used by Kurt Helf, an ecologist for the National Park Service who will use it for his cricket study.

On Sunday, Bruce Hatcher led Jeremy Reedy and Matt Mezydlo to New Discovery to survey two canyons at the end of Big Avenue. They added 258 feet of new survey. Lynn Brucker led Kyle Moore, Bryant Galloway, and Lee Ann Bledsoe to East Bransford to continue the resurvey of the C survey off A16 in Bransford Avenue. They resurveyed a bit over 500 feet. Kayla Sapkota led Mark Jones, Andrew Wilkinson, and Aaron Tester to Miller Avenue to replace some of the V survey beginning at F39. They could not fit into this passage. Fortunately, Mark had surveyed in Miller Avenue before and knew of some areas that needed to be surveyed and they got 147 feet. Dave West led Karen Willmes and John Davis to Left of the Trap in Crystal Cave to replace the N survey. They replaced 209 feet and added 37 feet of new survey.

On Monday, Bill Copeland continued his ridgewalking in Floating Hill Hollow and Eaton Valley. He found one unreported cave (now called Slot Cave) and one that had a brass cap but Bill didn't know which cave it was. Later, he found another unreported cave and named it Critter Cave. Mark Jones led Tim Green, Karen Willmes, and Matt Mezydlo back to Potato Cave with a longer rope. It turned out that this rope was still too short so they returned to camp for an even longer rope and added 127 feet (mostly vertical) of new survey. Lynn and Roger Brucker volunteered to stay in camp so I could lead a trip, so I took John Davis and Andrew

Wilkinson to Roppel Cave to continue the resurvey of Swell Way where we tied it into Crece-lius Dome and then surveyed from the dome to North Crouchway. Pat Kambesis, Kurt Helf, Dave West, and Aaron Tester started the sketch of the Frozen Niagara entrance area. They found that it was too difficult to survey and sketch while there were tours, so they returned after 4 PM.

On the final day of the expedition, Bill Copeland led Dave West and Tim Green to Upper Doyle Valley in search of new caves. They found three new caves and an enterable spring. Mark Jones led Karen Willmes and Andrew Wilkinson to Bedquilt to do a profile view of the main Bedquilt route. Pat Kambesis, Dave West, and Tim Green continued the detailed survey of the Frozen Niagara entrance area and finished the survey.

Special thanks to those who helped make this expedition a success. Elizabeth Miller was camp manager and provided us with tasty meals. John Feil was not planning on coming to the expedition, but came when we had stove problems and fixed the regulator on the stove. Lynn and Roger Brucker volunteered to act as EL and Camp Manager for the day so I could lead a trip to Roppel cave as we were short of sketchers. Kay Sides helped Elizabeth in the kitchen and everyone pitched in to help keep the place clean.

One unfortunate note. There were three bats observed in Bedquilt / Colossal that showed symptoms of White Nose Syndrome.

Dec. 28. Ridgewalking: Bill Copeland. Potato Cave: Stan Sides, Norman Warnell, Mark Jones, Bruce Hatcher, Jeremy Reedy. Luna Cave: Kayla Sapkota, Bryant Galloway, Kyle Moore. Ridgewalking Dave West, Karen Willmes, Roger Brucker. Colossal Cave: Tom Brucker, Aaron Tester, Andrew Wilkinson, Matt Mezydlo. Evening Frozen Niagara Entrance: Dave West, Mark Jones, Lynn Brucker. **Dec. 29.** New Discovery: Bruce Hatcher, Jeremy Reedy, Matt Mezydlo. East Bransford: Lynn Brucker, Kyle Moore, Bryant Galloway, Lee Anne Bledsoe. Miller Avenue: Kayla Sapkota, Mark Jones, Andrew Wilkinson, Aaron Tester. Left of the Trap: Dave West, Karen Willmes, John Davis. **Dec. 30.** Ridgewalking: Bill Copeland. Potato Cave: Mark Jones, Tim Green, Matt Mezydlo, Karen Willmes. Roppel Cave: Ed Klausner, John Davis, Andrew Wilkinson. Frozen Niagara: Kurt Helf, Pat Kambesis, Dave West, Aaron Tester. **Dec. 31.** Ridgewalking: Bill Copeland, Dave West, Tim Green. Bedquilt Cave: Mark Jones, Andrew Wilkinson, Karen Willmes. Frozen Niagara Entrance: Pat Kambesis, Dave West, Tim Green.

2014 EXPEDITION CALENDAR

Before attending any expedition, you must contact the expedition leader as trip sizes may be limited. Failure to contact the leader may prevent you from attending the expedition as the trip may be full.

Eastern Operations - Mammoth Cave Schedule

Memorial Day, May 23-26. John DeLong,

johnrdelong@yahoo.com.

Independence Day Week-Long, June 26-July 6. Dave West, d270@bellatlantic.net.

Friendship Day, August 1-3. Roger and Lynn Brucker, roger.brucker@sbcglobal.net.

Labor Day, August 29-September 1. Bob Osburn, osburn@levee.wustl.edu.

Columbus Day, October 10-13. Rick Olson, rick_olson@nps.gov.

Thanksgiving, November 26-30. Dave West, d270@bellatlantic.net.

New Year's, December 31, 2014 - January 4, 2015. Ed Klausner and Elizabeth Miller, klausnere@gmail.com or millerer@blue.ewwg.uiowa.edu.

All Eastern Operations CRF JVs who have not attended an expedition safety orientation must do so before participating in expedition activities. The safety orientation is scheduled at the beginning of each expedition after the morning meeting. Those who have attended a safety orientation are not required to participate in another. New JVs should arrange to be at the expedition early enough to attend the orientation. Those who do not attend will not be allowed to participate in expedition activities. Contact expedition leader for more details on the orientation.

Cumberland Gap National Historical Park

Expeditions for Cumberland Gap National Historical Park are the last full weekend of each month except December. Contact: Mike Crockett, mickcrockett@hotmail.com.

Ozarks

Contacts: Scott House, scott_house@semo.net.

Mick Sutton and Sue Hagan, sue&mick@mail.tigernet.gen.mo.us.

California - Lava Beds

Contact: John Tinsley, jtinsley@usgs.gov.

Before participating on any of these expeditions, please contact the Operations Area Manager, John Tinsley, at least two weeks before the expedition. Please do not just show up as there may be limits on the number of participants we can accommodate.

May 24-26. Liz Wolff or John Tinsley, ringbat1@gmail.com or jtinsley@usgs.gov.

June 14-22. John Tinsley, jtinsley@usgs.gov.

July 2-5. Liz Wolff or John Tinsley, ringbat1@gmail.com or jtinsley@usgs.gov.

August 31-September 1. Liz Wolff or John Tinsley, ringbat1@gmail.com or jtinsley@usgs.gov.

October 11-13. Liz Wolff, ringbat1@gmail.com.

November 27-30. Liz Wolff or John Tinsley, ringbat1@gmail.com or jtinsley@usgs.gov.

California - Lilburn

Some basic rules of engagement for California expeditions: Contact the expedition leader preferably two weeks ahead of time; please don't spontaneously show up. We have to deal with head count limits, particularly on our Lilburn trips, so we need to know who is planning to attend. Contact John Tinsley; 650-329-4928, jtinsley@usgs.gov.

May 24-26. Damian Grindley or H. Hurtt, cavin.pom@gmail.com or howard.hurtt@gmail.com.

June 21-22. Bill Frantz, bill@frantzfamily.us.

July 4-6. Jen Hopper, jennifer.hopper@ucr.edu.

July 26-27, Mineral King. Elaine and Mark Scott, egarvey@gmail.com or mark@deepbrews.com.

August 9-10. Fofo Gonzalez and Jen Hopper, jennifer.hopper@ucr.edu.

August 16-17, Mineral King. John and Marcia Rasmussen, marcias@bigbaldy.com.

August 31-September 1. Fofo Gonzalez and Jen Hopper, jennifer.hopper@ucr.edu.

September 13-14. Charlie Hotz and Lynne Jesaitis, charliehotz@sbcglobal.net.

September 27-28, Mineral King. Elaine and Mark Scott, egarvey@gmail.com or mark@deepbrews.com.

HSS/CRF Hawai'i Caving - Big Island

Contact Pat Kambesis, 309-762-3860, pnkambesis@juno.com.

Carlsbad Caverns

Contact for all expeditions:

Barbe Barker, barbebarker@gmail.com.

William and Tammy Tucker, william.tucker@att.net.

ADDRESS CORRECTIONS

If you have changed phone number or e-mail, or have moved, please send your information to:

Phil DiBlasi

110 S. Campbell St., Unit 204

Louisville, KY 40206-1863

pjdiblasi@gmail.com

THE CRF WEBSITE

www.cave-research.org

Contact your operations manager for the user id and password for the members-only section

CAVE BOOKS Publications

Bridgemon & Lindsley	South China Caves	7.95	pb
Brucker	Grand, Gloomy, and Peculiar: Stephen Bishop at Mammoth Cave	21.95 hb, 15.95	pb
Bullitt	Rambles in Mammoth Cave	9.95	pb
Casteret	Ten Years Under the Earth	11.95	pb
Chevalier	Subterranean Climbers	7.95	pb
Collins, H. & Lehrberger	The Life and Death of Floyd Collins	14.95 hb, 12.95	pb
Conn & Conn	The Jewel Cave Adventure	16.95	pb
Courbon et al.	Atlas: Great Caves of the World	24.95	pb
Crowther et al.	The Grand Kentucky Junction (Signed by all 7 authors, Ltd ed.)	100.00	pb
Davidson & Bishop	Wilderness Resources, MCNP	3.00	pb
De Paepe	Gunpowder from Mammoth Cave	10.95	pb
DeJoly	Memoirs of a Speleologist	10.95 hb, 7.95	pb
Despain	Hidden Beneath the Mountains: The Caves of Sequoia and Kings Canyon National Parks	15.95	pb
Exley	Caverns Measureless to Man 125.00 Ltd ed hb	32.95 hb, 24.95	pb
Farr	Darkness Beckons: Supplement	4.25	pb
Heslop	The Art of Caving	9.95	pb
Lawrence & Brucker	The Caves Beyond	15.95	pb
Lera	Cave Post Offices	29.95	pb
McConnell	Emergence, a novel	19.95 hb, 10.95	pb
Moore & Sullivan	Speleology	19.95	pb
Northup et al.	A Guide to Speleological Literature of the English Language 1794-1996	34.95 hb, 24.95	pb
Nymeyer	Carlsbad, Caves, and a Camera	17.95	pb
Olson	Mammoth Cave by Lantern Light	9.95	pb
Olson	Nine Miles to Mammoth Cave	9.95	pb
Olson	Prehistoric Cavers of Mammoth Cave	9.95	pb
Olson & Hanion	Scary Stories of Mammoth Cave	9.95	pb
Palmer	Cave Geology	49.95	hd
Reames et al.	Deep Secrets: The Discovery and Exploration of Lechuguilla Cave	32.95 hb, 24.95	pb
Sides	Diamond Caverns	4.95	pb
Steele	Huautla: Thirty Years in One of the World's Deepest Caves	24.95	hb
Steele	Yochib: The River Cave	10.95	pb
Steward	True Tales of Terror in the Caves of the World	12.95	pb
Watson, P.	Archeology of the Mammoth Cave Area	24.95	pb
Watson, R.	Caving	3.00	pb
Watson, R.	Under Plowman's Floor	12.95	pb
Watson, R.	The Runner	7.95	pb
Watson, R. et al.	CRF Origins, 1957-1968	12.00	pb
Willmes	CRF Personnel Manual	10.00	pb
Oliphant	Alpine Karst 2004, Vol. 1	14.00	pb
Oliphant	Alpine Karst 2006, Vol. 2	17.00	pb
Oliphant	Alpine Karst 2008, Vol. 3	19.00	pb
Greaser	Alpine Karst 2012, Vol. 4	19.00	pb

CRF	1974 - 1978 Annual Reports	15.00	pb*
CRF	1975 - 1976 Annual Reports	3.00	pb ea.
CRF	1977 - 1980 Annual Reports	4.00	pb ea.
CRF	1981 - 1993 Annual Reports	5.00	pb ea.
CRF	1994 - 1997 Annual Reports	10.00	pb*
CRF	1998 - 2000 Annual Reports	10.00	pb*
CRF	2001 - 2003 Annual Reports	10.00	pb*
CRF	2004 - 2005 Annual Reports	10.00	pb*
CRF	2006 - 2007 Annual Reports	12.00	pb*
CRF	CRF PIN (3/4" diameter, enameled)	5.00	

* = one volume

Maps

Carlsbad Caverns	2.00
Kaemper Map of Mammoth Cave (ca. 1908)	3.50
Lee Cave, Mammoth Cave National Park	4.00
Mammoth Cave Map Card	1.75
Mammoth Cave Poster Map	3.50
Mammoth Cave Poster Map (Collector's Edition)	25.00
Ogle Cave, Carlsbad Caverns N.P.	1.50
Eighth International Congress Poster (1981)	2.00

Other Publishers

Ackerman	The Moon by Whale Light	19.95	hb
Black	I Don't Play Golf	12.95	hb
Borden & Brucker	Beyond Mammoth Cave	59.95 hb, 29.95	pb
Brucker & R. Watson	The Longest Cave (new edition)	26.95 hb, 21.95	pb
Callot, F.-M. & Y. Carstens & P. Watson	Photographie Sous Terre Of Caves and Shell Mounds	20.00	hb
Dasher	On Station	28.95	pb
Faust	Saltpetre Mining in Mammoth Cave	17.00	hb
Finkel	Going Under/Endurance, poems	5.95	pb
Fletcher	The Man from the Cave	9.95	pb
Griffin	Listening in the Dark (Bats)	9.50	hb
Gurnee	Gurnee Guide to American Show Caves	6.00	pb
Halliday	Floyd Collins of Sand Cave	19.95	pb
Hemple & Conover	On Call	4.95	pb
Hill & Forti	Cave Minerals of the World	28.00	pb
Kerbo	Batwings and Spider Eyes	70.00	hb
Klimchouk et al.	Speleogenesis	8.00	pb
Lewis	Carter Caves State Park	60.00	hb
Long	Rock Jocks, Wall Rats, and Hang Dogs	14.95	pb
McClurg	Adventure of Caving	11.00	pb
Murray & Brucker	Trapped! The Floyd Collins Story	14.95	pb
Noswat	Maws: Death in Big Cave National Monument	19.95	pb
Nowak	Walker's Bats of the World	3.00	pb
NSF	Ensueno Cave Study	19.95	pb
NSF	Fountain N.P. Study	5.00	pb
Padgett & Smith	On Rope	5.00	pb
Prosser & Grey	Cave Diving Manual	32.00	hb
Rea	Caving Basics	32.95	pb
Rother, H. & C. Siffre	Lost Caves of St. Louis Les Animaux des Gouffres et des Cavernes	19.00	pb
Simpson	Sex, Lies, & Survey Tape	7.95	hb
Steward	Tales of Dirt, Danger, and Darkness	11.95	pb
Stone & Ende	Beyond the Deep	8.95	pb
Taylor	Cave Passages	26.95	hp
Taylor	Dark Life	15.00	hb
Turner	The Vampire Bat	12.00 hb, 11.00	pb
Valli & Summers	Shadow Hunters: The Nest Gatherers of Tiger Cave	10.00	hb
Watson, P.	Prehistory of Salts Cave	15.95	hb
Watson, R.	In The Dark Cave (Children)	9.95	pb
Wefer	Where the Sun Don't Shine	5.95	pb
Williams	Blue Crystal, a novel	19.95	hb

Send Orders To:

CAVE BOOKS, 4700 Amberwood Dr., Dayton, OH 45424

E-mail orders: rogmcclore@aol.com

Make checks payable to: CAVE BOOKS

Postage & Handling: \$3.50 for the first book, \$.75 for each additional book. \$4.00 for one to ten maps or map cards rolled in one tube. (Outside USA - double postage).