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Missouri Speleological Survey President's Message September 2016. Congratulations are in order to both Scott House and Mick Sutton. At the 2016 NSS Convention in Ely, Nevada, the two were awarded the National Speleological Society's Lew Bicking Award. The Bicking is a true cavers award and is often viewed, unofficially, as the highest honor a caver can receive within the nation. The award is given in recognition of their immeasurable contributions to Missouri speleology for four decades, through the exploration and survey of many hundreds of Missouri caves in addition to orchestrating highly productive cooperative relationships between government agencies in the Ozarks and the regional project caving community via the Cave Research Foundation, Ozarks Operations. Congratulations Mick and Scott!

From the NSS Website: *The Lew Bicking Award has been established to recognize a dedication to the thorough exploration and mapping of a cave or a group of caves. The award may be given to an individual, or to a pair of cavers who, through specific joint actions, qualify equally for the award based on the exploration they have done together. One such award may be made each year. Names of candidates will be solicited from NSS members and Internal Organizations by the Awards Committee, and the recipient(s) will be approved by the Board of Governors upon recommendation of the Awards Committee. The recipient(s)*



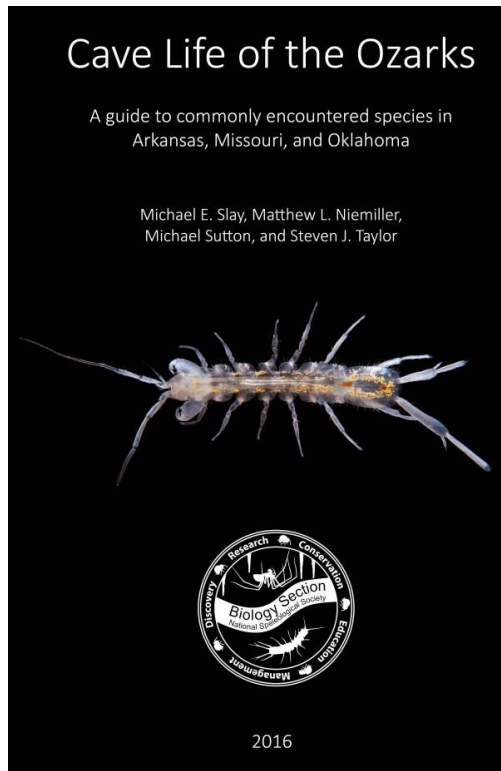
Photo by Bill Frantz

must have been member(s) in good standing of the Society for at least two years immediately prior to his/her/their names being submitted as a candidate(s). The Awards Committee shall give preference to candidates who have not received the Outstanding Service Award or Honorary Membership. The name(s) of the recipient(s) shall be announced at the annual convention and the recipient(s) will receive an appropriate certificate signed by the President. The Chairman of the Awards Committee shall notify the recipients in writing of the award and shall enclose a check in the amount of the award.

Our next meeting is quickly approaching. It will be held at the MCKC's Lloyd and Ethel Hoff Underground Nature Preserve, atop Berome Moore Cave in Perry County on Sunday, September 25th, 2016 at 10 AM. In addition to the MSS meeting and the MCKC meeting expect a full weekend of caving as well. Continuing our work with the City of Perryville, a new gate is planned for Streiler City Cave to be installed on Friday and Saturday. This will no doubt require the help of many volunteers. Contact Scott House if you'd like to help. In addition there will likely be survey and possibly other trips to any number of area caves including Berome

Moore Cave, finishing the survey of City Park Cave and possibly multiple teams working on a large new cave in Ste. Genevieve. Contact Chad McCain if you're interested in the Ste. Genevieve trip, however, previous survey experience is preferred. If we end up with a crew of people inexperienced at survey who want to learn we can likely conjure up a trip for them as well.

The MSS store will have some new items for sale including an excellent new publication called *Cave Life of the Ozarks: A Guide to Commonly Encountered Species in Arkansas, Missouri and Oklahoma*. Written by Mike Slay, Matt Niemiller, Mick Sutton and Steve Taylor this wonderful resource is printed on heavy, glossy stock for durability in the field. In addition, high quality photographs, descriptions and range maps are included for a wide range of regional cave life. The book is a must have for MSS cooperators contributing to our cave life data. Also, we have a limited number of new posters for sale, with an original design by Indiana caver Charlie Vettters.



Lastly, elections will occur for both President and Vice President of the MSS at the next meeting. These are two year positions with elections held in the Fall. Nominations must come from the Board, which also has the responsibility to vote for candidates.--Dan Lamping

Identifying Cave Life: Part 2 – Other Amphibians

In the March-April 2016 issue we looked at the cave adapted lungless salamanders (Plethodontidae). This time we'll look at other amphibians you may come across in a cave. First are the **mole salamanders** (Ambystomidae). Mole salamanders as a group are reasonably easy to distinguish – they are much more heavily built than the typical cave-dwelling plethodontids (cave salamanders, grotto salamanders, etc.). Mole salamanders are adapted to life underground, typically inhabiting animal burrows, but are not well adapted to cave life and are regarded as accidentals, although they do turn up occasionally in deep cave sites especially in the sinkhole plain caves of Perry County. Five of the six Missouri species have been documented from caves (the exception is found only in the non-cavernous southeast lowlands).



Clockwise from top left: 1) spotted salamander (Ohio Department of Natural Resources); 2) ringed salamander (MDC); 3) marbled salamander (NPS); 4) tiger salamander (Jim Rathert, MDC).

Of these the most common is the spotted salamander (*Ambystoma maculatum*), recorded from 13 Missouri caves. Note the distinct yellow spots in two rows on the body and tail. Unfortunately, color patterns on the mole salamanders are quite variable, and the spots may be reduced or even absent. The spots on the head are usually orange but may be yellow. Also encountered fairly frequently is the ringed salamander, *A. annulatum*. This is an Ozark endemic, found nowhere else. The narrow yellow or whitish “rings” are usually distinct but may be broken at the mid-line, as in the example shown, where the marking behind the head is broken. The other look-alike is the tiger salamander (*A. tigrinum*, the most widespread and common mole salamander outside caves). It too has yellow spots, but it also has blotchy yellow stripes and patches along the sides, but again, the pattern and color are variable. You are less likely to encounter the other two mole salamanders: the small-mouthed salamander (*A. texanum*, not shown) is dark gray and unmarked; the marbled salamander (*A. opacum*) is black with white or silvery saddle markings down the back, grading to rings around the tail.

Another salamander-like creature that occasionally shows up in Missouri caves is the central newt (*Notophthalmus viridescens*), the only member of the newt family in Missouri. Unlike salamanders, adult newts have the tail tapered to a narrow fin. The aquatic adult has a two-color pattern – pale yellow below, reddish brown above – with numerous small black spots. Like salamanders, newts have aquatic larvae but that is followed by a terrestrial phase called an eft. Efts are quite distinctive - squat, lumpy and reddish brown with small black and red spots. Many cavers are familiar with the pickerel frog (*Lithobates palustris*),



Central newt adult (left) and eft (right) (MDC photos)

the frog most commonly seen in Ozark caves, but may have trouble distinguishing it from other frogs. The most likely confusion is with the southern leopard frog (*L. sphenoccephala*). Ground colors are variable, but note the squarish spots in two rows of the pickerel frog compared with the smaller round spots, more irregularly distributed, of the leopard frog. The dorsolateral fold (the raised ridge running from behind the eye) extends all the way to the rear in the leopard frog, but stops short in the pickerel frog. You are more likely to come across the pickerel frog, which routinely shelters



Pickerel frog (left) and southern leopard frog (right) (MDC photos)

in caves, sometimes in large numbers. They occur at all times of year, but more so in winter. Another pair of look-alikes are the bullfrog (*L. catesbianus*) and the green or bronze frog (*L. clamitans*).



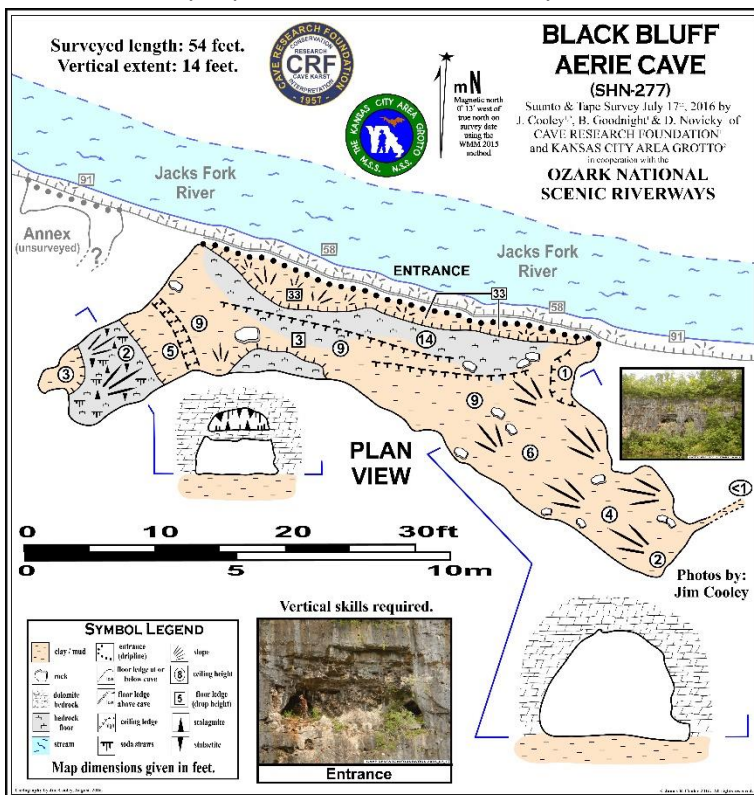
Green frog (left) and bullfrog (right) (MDC photos)

Bullfrogs are generally larger, but a small bullfrog can easily be confused with a green frog. Both lack distinct patterns on the back and both have variable amounts of green around the head – usually that is more prominent in the bullfrog. But the best distinguishing feature is again the dorsolateral fold (arrowed in the green frog), which is lacking in the bullfrog. In southeastern Missouri caves, the green frog is replaced by a subspecies, the bronze frog, which lacks green around the face. In Perry County, bronze frogs encountered in caves were dead or appeared to be dying from starvation – they seem ill-suited to cave life. **Next time: Crustaceans.**--Mick Sutton

Missouri Speleological Survey Files Report for May – August 2016. Busy as always with lots of contributions from all over. **Kirsten Alvey** sent: 570 (more or less) faunal reports (bat counts) from Missouri Bat Census, incorporated by Ken Grush into the faunal records; Locations for 30-something new cave locations from a variety of counties including McDonald, Boone, Ralls, Newton, Maries, and Dallas; Four new caves from Warren County, entered by Ken. **Jon Beard** sent new cave locations from the ridgewalking efforts of Brandon Van Dalsem. This batch was from Mark Twain NF lands in Barry County; Map of Secret Garden Cave, McDonald County; Map of Stone Barrier Cave on MTNF land in Barry County; Information on FF Highway Cave in Greene County. **George Bilbrey** sent a faunal sighting from Round Spring Cave. **Josh Brewer** sent maps of Slab Filled Cave (MTNF Barry County) plus Armadillo Cave and Gnatty Crawl Cave, which may be on MDC land near Roaring River. **Shelly Colatskie** of MDC sent 288 faunal records (bat counts) from a variety of privately owned caves. **Jim Cooley** sent five new cave maps, all from Lake of the Ozarks State Park where Jim and others have been actively mapping all the unmapped caves and finding new ones; High Cave map from Ozark Riverways; Cave maps of four new caves from Shannon, Camden, and Oregon County; Map of Pin Oak Cave from Lake of the Ozarks State Park; Faunal and monitoring records for a bunch of caves in Lake of the Ozarks SP. The faunal records alone were something like 134; Map of Conduit Cave in Shannon County. **Ken Grush** sent aforementioned faunal records from Kirsten Alvey; Aforementioned faunal records from Shelly Colatskie; Numerous corrections; New maps table for the database; Big pile of related records from Sainte Genevieve County; Eight new faunal records gleaned from old records; 295 related records from St. Louis and other counties from a variety of sources including materials sent by Joe Light; New main table records for City of St. Louis, incorporating various sources but especially material from Joe Light; New related and modified records from Perryville. **Paul Hauck** sent trip reports for Crevice Cave, Perry County. **Scott House** added odds and ends corrections and deletions, etc.; Various faunal records; A bunch of cave maps that had been finished over the previous year including Thompson Creek Cave on Pioneer Forest in Shannon County, Lawrence Hollow Cave in Shannon, a revised version of White Oak Onyx Cave in Barry (thanks Jon for adding a profile), Vine Shelter (SHN) redraft, Buttram Hollow Cave and Bench Cave in Taney, and a variety of odds and other ends. **Gary Johnson** sent maps of Clymore Cave, Stovepipe Cave, Hickory County. Stovepipe was mapped some years ago and Gary salvaged the map from the old notes; Biology notes from Clymore Cave. **Dan Lamping** sent draft map of Wallace Cave in the Ozark Riverways; Report and faunal records on Ralphord Cave, Boone County; Faunal and use monitoring records from several caves along the Jacks Fork River; Faunal and use monitoring records from Hamilton Spring Cave in Meramec State Park; Faunal and use monitoring records from Catacomb Cave in St. Louis County; Detailed database reports and faunal records on several caves in Ste. Genevieve County; New monitoring records from Ozark Riverways; Related records for Powder Mill Creek Cave; Faunal and other associated records from Cliff Cave, St. Louis Co; Very nice photos from a bio-inventory trip in Welch Spring Cave, Ozark Riverways; Final map of Corral Cave on Mark Twain NF in Washington County. **Joe Light** sent report on Grone Brewery Cave in St. Louis city; Information on the partial destruction of Coon Cave, Franklin County; A bunch (and I mean a bunch) more material from St. Louis city and county. **Alex Litsch** sent cave reports for three new MTNF caves in Pulaski County; Five cave maps from Pulaski, Newton, and Osage Counties; Monitoring and faunal reports from Callaway and Boone Counties on USFS land; Reports on a search for a cave lead near Columbia. The lead came from a person who visited the cave in the late 1950's but the entrance apparently collapsed some decades ago; Map of Sears Cave and Sears Spring Cave in Newton County, co-drafted with Jon Beard. **Chad McCain** sent in updated map of Gegg Cave, Ste. Genevieve County; New cave

report for a cave in Franklin County; One hundred seventy-nine trip reports as related records. This includes a vast number of trips to Blackfathom, Crevice Cave, etc. Chad sent these all neatly ready as database records that were easy to import into the main database; Map of Batty's Cave, Ste. Genevieve County; Map of Tannerite Cave, Franklin County; Nearly 100 modified records from Ste. Gen County. Chad added dimensions, notes, lengths, descriptions, etc. to all of these records, tracked and exported them for easy incorporation into the master database. Really nice work! New related records from Rob Kavaliauskas and others; Various maps and line plots from the Gegg Cave project. **Ben Miller** sent map of Blunderbuss Cave, McDonald County, and Dauber Cave, Barry County; Nice map of Chilton Creek Cave, Carter County, which is, confusingly, within the borders of Ozark Riverways but actually on the Chilton Creek Preserve, owned by The Nature Conservancy. **Rhonda Rimer of MDC** sent new faunal records for Rantz Cave in Christian County. **Jim Sherrell** sent a faunal report from Adam Marty on a Dent County cave. **Chris Shulse** of MoDoT sent photos and other information on a new cave in Franklin County. **Mick Sutton** sent entire new data set for the species table in the database. That now stands at 1156 different species (or at least near species) found in caves in the Ozarks. Mick works with Mike Slay in AR to make sure the tables are compatible. **Edmund Tucker** sent GPS coordinates and photos of cave leads and improved locations of caves near Perryville. **Craig Williams** sent a report on investigations on several caves on US Forest Service and NPS lands. **Shawn Williams** sent detailed report on McCubbin Spring Cave, Shannon County. **Alberta Zumwalt** sent photographs of Goodwin Pit, Laclede County.--Scott House, Missouri Cave Database, 1606 Luce St., Cape Girardeau MO 63701. 573-651-3782 scott_house@hotmail.com

Kansas City Area Grotto: Some June trips were not previously mentioned: **June 11:** Jack Peters led a Carroll Trip looking for carbide dumps. **June 23:** Heidi Fletcher took a Mormon girls (church) group through Cleveland Cave. **July 17-21:** Jim Cooley had a number of odd jobs to complete for ONSR, MTNF and private initiatives in Shannon and Carter Counties. Working with local residents Dennis Novicky and Brenda Goodnight, they were able to accomplish a number of necessary tasks for the agencies. First, they worked on an ONSR survey trip on the Jacks Fork to map Black Bluff Aerie Cave. Being in a sheer cliff face 33 feet above the normal level of the Jacks Fork River and 58 feet below the top of the cliff, this cave entrance effectively discourages casual visitation, or casual survey trips, for that matter! Nearby Bear Hollow Mud Cave was then monitored. The next day Cooley



and Novicky proceeded to the lower Current River to replace a lock on the recently breached and repaired Lost Man Cave, and did a biological inventory; maintained locks on Big Spring Well Cave, Granite and Little Granite Quarry Cave while taking a biological inventory of the latter two caves. They also assessed nearby Coalbank Cave for fence repairs, a project Novicky has agreed to take on. Then Cooley and Novicky worked with MTNF personnel Angie Trombley, Dana Sturgeon and Kelly Whitsett to assess the substandard, frequently breached White's Creek Cave gate, on the Irish Wilderness, for gate enhancements and "fortification." Next, Goodnight and Novicky met up with Cooley to assess survey needs to finish the map of Banker Cave, a Shannon County cave owned by our good friend and USFS retired Cave and Karst Manager, Randy Long. They also conducted a biological inventory, and did quality control checks on the map of Long's nearby Conduit Cave. The next day, Cooley and Novicky returned to

Banker Cave to make repairs to the gate, which had been the object of an unsuccessful breach attempt some time ago. Finally, Cooley, Novicky and Goodnight visited the gated Turner Spring Cave on the Eleven Point River, to assess it for a better cave gate to replace the current substandard arrangement. The first 3,000 feet of this 5,000+-foot-long mapped spring cave were visited, up to a (complete) sump, to investigate gray bat usage. No live bats were seen; but 25 deceased, decomposed bats of unknown genus were counted, and other biota noted. **July 26:** Novicky and Goodnight returned to survey a 142-foot segment of water crawl in Banker Cave, to complete the fieldwork for a map for Long. (Bob Osburn is the primary cartographer.) The same day, they discovered some very well preserved, rather old-looking *Odocoileus* bones very far back in a privately owned cave. Pictures were sent to a university-based paleontologist, who expressed an interest in examining and possibly curating them at his museum. On **July 27-28**, Cooley and Novicky traveled to Arkansas to meet with the Ozark National Forest, and then visited a badly deteriorated cave gate that the Forest had contracted to be removed and replaced, located deep in the Sylamore Ranger District. The contractor for this project, RC Schroeder of Timbo, Arkansas (a talented welder and gate designer, best known to Missouri cavers as the gate keeper of Arkansas's magnificent Alexander Cave, and as the fabricator of the complex gate that secures that grotto), had completed about half of the gate removal when a section of the gate collapsed unexpectedly. Schroeder suffered a near-fatal and disabling injuries, which prevented him from finishing the project. Schroeder contacted Cooley and asked if he could take over the remaining gate demolition, and then rebuild this very large cave gate (50 feet wide, 18 feet high) to fulfill Schroeder's contract with the Ozark National Forest. After some scratching of heads and soul-searching (after all, this is a man-eating cave gate!), and only thanks to advanced technical expertise in demolition provided by general contractor Max White (SPG), Cooley and Novicky agreed that this project just might be feasible. **August 11-14:** Cooley, Novicky, Goodnight, White, James McKnight (Arkansas caver), and Bryant Galloway (Little Rock Grotto) demolished and cut up the second half of this badly deteriorated cave gate. The cave is a major Indiana bat (*Myotis sodalis*) hibernaculum and will be getting a new gate from **September 1st through the 11th** to be built by Cooley, Novicky, and a select crew of caver volunteers. Please contact Cooley at coolstoi@kc.rr.com or (816) 753-8111 if you might interested in pitching in on this important project. En route home from the demolition, Cooley visited Flippen Cave in Benton County, Missouri, which was recently breached, to assess the damage. It is now scheduled for repair on the way home from the Arkansas project. **August 20-21:** Jack Peters led a Scout trip to Cleveland Cave.—Ken Grush

Springfield Plateau Grotto. July 2nd, 6th, 9th, 28th—Jon Beard continued the process of cleaning over 700 broken speleothem pieces in Paul's Gallery of Fitzpatrick Cave (Christian Co). This is step one. Step two will be determining where the pieces were broken from. Step three will be rejoining them. **July 3rd**—Richard Thompson and Jon Beard checked cave entrances to Boswell Tractor Pit Cave and Cave Spring Cave (Polk Co), two of the more significant caves in that county. GPS coordinates and entrance photos were obtained for the cave database. Richard will try to coordinate more serious visits to these for surveying if possible. **July 4th**—With landowner permission finally obtained (long story), Richard Thompson and Jon Beard removed the tractor tires from atop the entrance pit to Boswell Tractor Pit Cave (Polk Co), then photographed most of the known cave's ~1,000 feet. Richard will be gating the entrance pit and a survey will be forthcoming. **July 10th**—Treavor Bussard and friend Candace visited Fitzpatrick Cave (Christian Co) to check on the gate and to check progress on the restoration of Paul's Gallery. On the way out they saw one pickerel frog and three cave salamanders. **July 11th**—Jon Beard guided one of the owner's friends, Robin Johnston McGehee, her two kids Sebastian and Jackson plus a friend Julie Craft through the Main Room, 100 Foot Room and Split Knee Passage of Breakdown Cave (Christian Co). They were shown some of the restored cave as well as some of the cave critters. After this, they visited the lower level of Fitzpatrick Cave nearby, finding two cave salamanders and a grotto salamander. Of note was the oldest identified signature in the cave, E. I. West of April 24, 1880. **July 16th**—On the way to the NSS convention, Jon and Alicia Beard visited Rifle Falls State Park in Colorado, photographing the three falls as well as the eight caves formed in tufa (from past falling water). One of the caves exceeds 200 feet in length. Further down the road, Jon and Alicia photographed several arches in Arches National Park in Utah. **July 18th**—Jon and Alicia Beard took a tour of "Lehman Caves" (actually one cave) in Great Basin National Park, Nevada, about an hour from the convention in Ely. The cave is well-decorated and

is most known for its profusion of shield formations. **July 20th**—Taking another break from the convention, Jon and Alicia Beard hiked the trails at Cave Lake State Park, about 18 miles from convention. Along the way was an entrance to an apparent large limestone cave and a big shelter cave containing petrified rat feces (known as amberat) visible from outside. **July 26th**—Treavor Bussard took a good friend, Blake Montag, who is interested in caving, to Breakdown Cave (Christian Co). They visited the walking passage sections of the Main Room because Blake didn't yet have kneepads. They noted one male and one female cave salamanders, one pip and two dead pickerel frogs. They also visited nearby Fitzpatrick Cave briefly to show Blake Paul's Gallery and what vandals can do to a cave. In Fitzpatrick they saw two cave salamanders, a male and female, five pickerel frogs and two pips. Also —On the last day of travel from the NSS convention, Jon and Alicia Beard stopped at the Castle Rock Badlands in Gove County, Kansas, where they photographed Cobra Rock Cave, a short cave in chalk. Later they visited the Sternberg Museum in Hays, well-known for its incredible fossil displays (some over 20 feet in length!). **July 30th**—Brandon Van Dalsem and Dillon Freiburger manned the tapes and instruments while Jon Beard sketched during a day of survey in Shoal Creek Cave (Newton Co). They amassed over 300 feet in nearly all bellycrawl anastomotic maze, ending the day at The Hole, a small opening into the deeper half of the cave, which is linear and contains considerable walking passage. Thus far over 1,650 feet of passage is surveyed. The survey is expected to pass the half-mile mark in what could be the longest mapped cave in the county. Cave biota included springtails, rhagidiid mites, grotto, cave and dark-sided salamanders, house centipedes, orb weavers, webworms and earthworms. **Aug. 2nd**—Clayton Russell and Cynthia Spoering did some digging in Sand Cave on their property to possibly extend the cave. Also—Doug Gouzie visited Boy Scout Cave, Indian Tunnel and Buffalo Cave in Craters of the Moon National Park in Idaho, some of the lava tube caves within the area. **Aug. 5th**—Jon and Alicia photographed Ha Ha Tonka Natural Bridge, spring and other features on a day at the state park in Camden County. **Aug. 7th**—Brandon Van Dalsem and Treavor Bussard assisted Jon Beard in some wrap-up survey work in Crystal Caverns (Barry Co), the former show cave leased by the MCKC for nearly 20 years. Complex cross sections were measured and sketched plus added detail to the Fossil Room and Dripstone Attic. Brandon found the crinoid calyx fossil Jon had been hunting in vain for years, located on the ceiling of the Fossil Room. Brandon also found a polydesmid (blind, white) millipede. Cave salamanders, a grotto salamander, a dark-sided salamander, a HUGE female fishing spider with egg sac, a lone bat and cave crickets were also seen. **Aug. 10th**—Jon Beard visited Pearson Creek Cave (Greene Co) with the intention of doing a little bit of mop-up restoration work (the project was officially completed earlier in the year). It's surprising how much restoration there is to do in "mop-up" work! Traces of red spray paint and calcified candle soot were removed, speleothems were cleaned of muddy handprints and traces of trash were collected (including a hidden, intact beer bottle). As Yogi Berra once said, "It ain't over 'till it's over." **Aug. 13th**—Brandon Van Dalsem, Cynthia and Clayton Russell, Corey McCraney, Dillon Freiburger and Jon Beard photographed passages, speleothems and cave critters in Three Forks Cave (OK). At the end of the day, an estimated 1,400 feet of passage was found not on the map, most or all of it virgin passage with no end in sight. Prior to this, Jon measured for a new bat-friendly cave gate at another entrance to the cave. **Aug. 13th-14th**—Max White joined Jim Cooley and others to help with the removal of the second half of a cave gate to be replaced on the Ark. cave. **Aug. 14th, 23rd, 25th**—Jon Beard cleaned about 130 broken speleothem pieces in Fitzpatrick Cave (Christian Co) as part of the restoration project there. There are roughly 50 pieces remaining to be cleaned before the next stage of finding out where the 700+ pieces belong so they can be rejoined. Biota was noted and added to the Missouri cave fauna database. **Aug. 15th, 16th, 17th, 19th**—Jon Beard, teamed with Treavor Bussard on the second day, reprimed the siphon system at Garrison Cave #2 (Christian Co) in preparation of a trip to that cave later in the week. The 300-foot 1.5-inch diameter hose had to be filled eight times with the cave's water before the siphon would work (due to lots of air in the hose). The siphon removes about 52 gallons a minute. During the week, the siphon removed approximately 47,000 gallons of water, lowering the water level about six inches. **Aug. 17th**—Jon Beard shut off the external Garrison Cave #2 (Christian Co) siphon system gate valve, then guided Crowder College geology professor Jennifer Witt through Crystal Caverns (Barry Co) in preparation of a field trip for her students in October. While there, Jon photographed three variant-pigmented cave salamanders (one orange piebald, one yellow piebald, one orange-red piebald) as well as 2mm terrestrial white isopods, then did some mop-up sketching for the future cave map. After this Jon drove to Sarcoxie Cave (Jasper Co) to photograph the stainless steel entrance gate installed nearly 20 years ago by Richard Thompson et al. As with Crystal Caverns, Sarcoxie Cave is managed by the MCKC. **Aug. 20th**—Colton Zirkle, Max White, Brandon Van Dalsem, Corey McCraney, Dillon Freiburger, Treavor Bussard and Jon Beard plus Arkansas guests Derik Thompson and Meghan Gallo spent over seven hours counting bristly cave

crayfish and other biota and taking many photos in Garrison Cave #2 (Christian Co). They went no further than Three Rivers some 6,200 feet into the cave. Along the way, while searching for the back entrance to the Flat Rooms, Meghan and Jon managed to crawl into 500 feet of virgin cave off of the map, an overflow route for the main cave stream, Cambarus Creek. Also—Clayton and Cynthia Russell took Riley into Three Forks Cave (OK). **Aug. 27th**—Melvin Johnson reports that the Sequiota Cave (Greene Co) Federal Endangered Gray Bat Flight Sat., Aug 27, '16 wasn't up to par to the 2014 flight. The 2016 flight was slightly below average. This has been the case since early July when there seemed to have been a human disturbance within the cave. In spite of the threat of rain, some 63 people, including two from "down-under", turned out to view the flight. About 1/3 of them got to experience the flight up close within the circle. Their experience was thanks to the volunteer efforts of the MDC Jr. Leaders. Teen Vols. & Conservation Crew 2006 Teen Vols. A survey of "Walk-All-The-Way" Cave still did not show any signs of Big Brown Bats. There have been no signs of Big Browns there since what seemed to have been a human disturbance to them last April. The International Bat Week Bat Flight Event was co-sponsored by the Springfield Plateau Grotto & the Missouri Master Naturalist Springfield Plateau Chapter, with special thanks to Springfield - Greene County Park Board's Outdoor Initiatives & Missouri Dept. of Conservation. Additional promotional support was provided with thanks to: Interpreters Coalition of SW MO, James River Basin Partnership, News-Leader WEEKEND, Springfield Environmental Resource Center, among others. FB hits & shares topped 1,400. Also—Dillon Freiburger did some ridgewalking in Barry County, finding a natural bridge and some shelters but no caves. Also—Colton Zirkle took the "Discovery" tour at Blanchard Springs Caverns (AR). His Boy Scout troop out of Rogers, Arkansas took their families. Colton was impressed overall with the quality of the tour and the expertise of the guides. He have never heard such an in-depth talk on karst hydrogeology as the young guide gave them, she never misspoke once. The tour lasted 1.75hrs, the hike was 1.2 miles with 700 stairs! **Aug. 28th**—Charley Young, Bill Palmer, Jim Huckins and Roy Gold participated in the photo tour of Blanchard Springs Caverns (AR). Lots of photographs were taken. —Max White.

Missouri School of Mines Spelunkers. May 7th - Jeremy Weih led Jacob Lipina, Mark Hampton, and Nathan Durfee into Finley cave. There were a lot of new claw marks from a small mammal in the cave. **July 3rd** - Alex Litsch joined cavers from SEMO grotto for a survey trip to the Mammoth Cave System in KY. They surveyed virgin passage in North Croutchway. **July 9th** - Alex Litsch, Jeremy Weih, Jessica Self, Olyvia Self, Benn Sullins, Krista Bartel, Ian King, and Andrew Bulen took a float trip on the Big Piney River to look for caves, and to test out one of the float trip routes that will be offered at next spring's MVOR. 3 known caves were located. **July 18th** - Alex Litsch, Michael Bradford, Jessica Self, Olyvia Self, Owyn Self, and Scott Jones, from Ohio Cavers and Climbers, took a trip to Railroad Cave in Pulaski County for photography. **Aug. 5th**- Jessica Self went to the Little Rock Grotto to make new connections and invite them to next spring's MVOR. **Aug. 6th-7th** - Andy Free, Alex Litsch, and Jessica Self helped CRF survey Lime Kiln Mine in Hannibal, Missouri. **Aug. 9th** - Alex Litsch and Matt Wibberg surveyed a Root Cave in the Cedar Creek National Forest. **Aug. 20th** - Alex Litsch, Jeremy Weih, and Michael Bradford helped survey Gegg Cave in St. Genevieve County. **Aug. 26th**- MinerRama. **Aug. 31st**- New Members meeting -MSM has been collaborating with Roubidoux Grotto to build an education Caves and Karst Room at the new Children's Museum in Newburg, Missouri. Lukus and Jessica made contact with several local landowners in Phelps County, and received permission to walk on properties to locate new caves. Alex Litsch has done some ridge walking and surveying in Callaway County.-- Jessica Self

Middle Mississippi Valley. Early 2016 —Lois Walsh visited Makauwahi Cave in Kauai, Hawaii, the only limestone cave in the Hawaiian Islands. It is a significant site with Polynesian artifacts, blind cave spiders, fossils of extinct birds and traces of a tsunami 400 years ago. **Feb. 2016** - Mark Elbert, Chip Arnold, John B and Daughter Cloe did some work on the Berome Moore property including cutting down the big tree over the sinkhole. A little caving was done to introduce 10 year old Cloe to caving and she did great! Jim Sherrell, Laura Belarbi, Travis Dane Driskill, Denise Hill, Susie & Carrie Asmar worked on some sinkhole cleanup over Berome Moore. Three sinkholes were completely cleaned in cooperation with the L-A-D Foundation. Emma Iffrig and three of her classmates from the Grand Center Arts Academy got a tour of Berome to Base Camp and helped with a bat count. The bat count headed by Jim and James Sherrell took place in Cat Track Passage. The count

was 88 bats which is down from a high of 300+. This may be due to WNS which has been detected in Berome. Very bad news. **Mar. 4th-6th** - Don Dunham and seven other CRF cavers visited approximately 20 caves on Forest Service property. The purpose was monitoring, surveying and performing bio-inventories. **Apr. 9th** - Jo Schaper, Eugene Vale and Laura Belarbi hosted the Portable Cave during Bat Fest at the World Bird Sanctuary. 321 people went through the cave. **Apr. 17th** - Jo and Eugene again hosted the Portable Cave during Bat Day Celebration at Hannibal Armory. This was followed by a trip to Hannibal's Sodalis Nature Preserve. **May 22nd** - Bryan, Laura, Ian and Maggie McAllister visited the Powder Mill Research Station at Blue Spring during the MCKC / MSS meeting weekend with the purpose of introducing the kids to Blue Spring. **May 24th** - Jo Schaper did a podcast on the Geology and History of TCE contamination of Meramec Caverns. It was done for environmentalecho.com in coordination with Don Corrigan, co-publisher of the Webster and Kirkwood Times, and edited by Holly Sharks. Invaluable to the podcast were notes taken from a website that was updated by Jo between 1997 and 1998. "Old notes are good to keep!" says Jo. **Jun. 6th -10th**- Jo Schaper and Eugene Vale attended the WNS Conference in Denver, CO. It consisted of four days of Federal Meetings on WNS research, decontamination update, networking and talking about WNS in Washington State. Some interesting things: 1) Rick Toomey did a paper on decontamination in dishwashers. 2) Caves are now referred to as subterranean bat roosts. 3) Cavers are getting better press amongst the Feds. 4) There is work to produce more user friendly protocol info. During the week, Jo and Eugene saw black-footed ferrets at the Rocky Mountain Arsenal National Wildlife Refuge. Making a comeback from near extinction 30 years ago, there are still only about 300 existing in the wild. **Mid Aug.** - Don Dunham and others completed the Hannibal Mine survey effort. The completed survey yielded 20.1 miles of passage. This mine is now known as the Sodalis Nature Preserve.--Doug Leer

Roubidoux Grotto. Meetings in July and August show 21 paid members completing our first year as a Grotto. We are calculating lighting options for 6 loaner helmets RBX has obtained. RBX Grotto will be helping set up the educational component of the Newburg Children's Museum exhibit. Our Roubidoux Cave cleanup was postponed due to weather. **July 2nd** - Diana and Vic Bentele went to unnamed caves on the Current River near Round Spring. Jessica Self, and her daughter Olyvia and son Owyn went to Railroad Cave to show an Ohio caver a Missouri cave. **July 8th** - Jessica and Olyvia also went floating/landowner scouting on the Big Piney in Texas County. They found 3 caves and 1 landowner. **July 24th** - Karen Hood & Laura Huffman attended the Lake Ozarks Grotto cookout at the Lather home. They both enjoyed meeting the club members and remarked that the food was delicious. Laura was able to spend some time visiting with Dwight Weaver. Ron & Lorely Lather are Karen and Laura's Master Naturalist mentors. **Aug. 4th -9th** - Andy Free was part of the survey at Sodalis Nature Preserve near Hannibal. Andy brought in a draft of the survey map and told the club of the history behind the project. **Aug. 18th** -Dan Slais has resumed leading public tours at Onondaga. **Aug. 27th** – Ryan Thompson led a tour of MCKC cave, Perkins Cave in Camden County with a group of RBX members including Mark Briner, Lucas Shoffner, and Karen Hood. They slid in mud past 9 members of the KCAG Grotto also visiting the cave.—Dan Slais

Lake Ozarks Grotto. July – Grotto picnic at the home of Ron & Lorely Lather. Despite very low turnout at our meetings, there was a huge turnout for the picnic, including two Roubidoux Grotto members. **August** – Ken Long is working with others on the MCKC acquisition of Kiesewetter Cave, which he has been the caretaker for many years. Since Grotto members started the MCKC, we are proud of what the organization has accomplished. **Aug. 9th** – Gary & Alberta Zumwalt checked out Goodwin Sink before the scheduled work trip on the weekend. Gary entered the cave and took some pictures. The work trip was cancelled because of too much water in the cave. – Alberta Zumwalt

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MCKC website – <http://www.mocavesandkarst.org>

Caves of Missouri Discussion Group – <http://groups.yahoo.com/group/cavesofmo>

Petroglyphs, inscriptions, & pictographs: rockartmo.com

The new MoCaves: <https://groups.yahoo.com/neo/groups/mocaves/info>

MSS annual reports were due at the Winter meeting. Reports have not been turned in by: CAIRN, CCC, MMV, MSM, MVG, & PEG. Please get them to Jon Beard as soon as possible.

MSS Affiliation fees were also due at the Winter meeting. Chouteau, MVG, MSM, & PEG have not paid. The fee is \$25.00 and goes to the MSS Treasurer, Don Dunham.

CALENDAR:

Sept. 24th – MCKC meeting, 6 pm, Berome Moore pavilion, Perryville, MO.

Sept. 25th – Fall MSS meeting, 10 am, Berome Moore pavilion, Perryville, MO. Activities will be planned for the weekend.

Sept. 29th-30th, Oct. 1st-2nd - Fall MVOR, Bonneville Kentucky at the Lonestar Cave Preserve, hosted by Windy City Grotto and Louisville Grotto.

Nov. 1st – Next Liaison deadline.

MSS meeting directions: From Perryville, go to the junction of MO Highways 51 and 61, go north on Hwy 61 approx. 1.5 miles to County Road V. Take a right on Hwy V. Go about one mile to County Road 906, on left. Go approx. one mile on County Road 906 to the third house on right. Pull in the gate at the driveway on right just before the pole barn. You should be able to see the green pavilion, before you arrive. GPS settings: latitude 37-46-26 Longitude 89-53-04. –courtesy of Jim Sherrell.

First Class

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