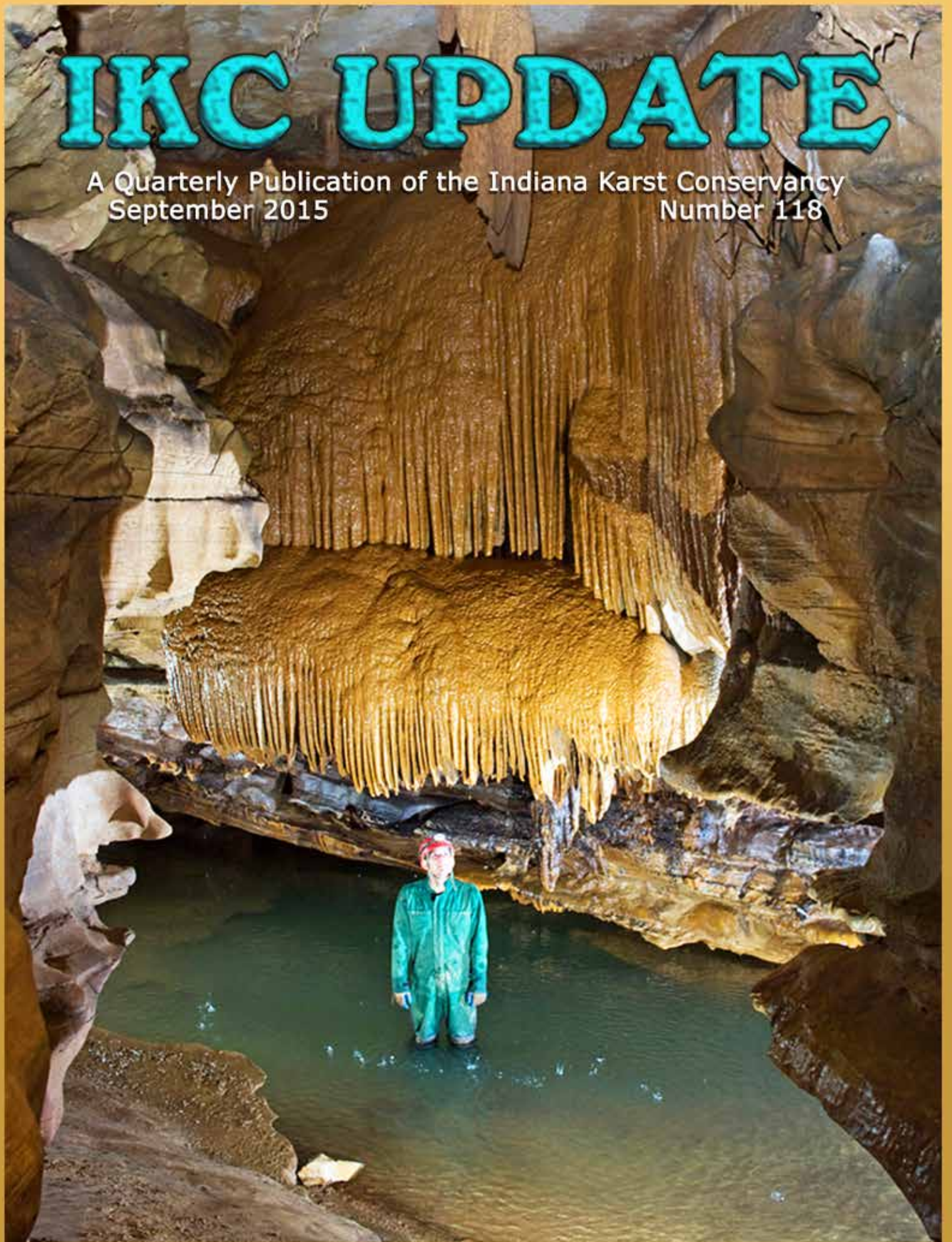


IKC UPDATE

A Quarterly Publication of the Indiana Karst Conservancy
September 2015
Number 118



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ikc.caves.org

Affiliated with the National Speleological Society



The Indiana Karst Conservancy is a non-profit organization dedicated to the conservation and preservation of caves and karst features in Indiana and other areas of the world. The Conservancy encourages research and promotes education related to karst and its proper, environmentally compatible use.

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IKC QUARTERLY MEETING & COOK-OUT REMINDER
SATURDAY, SEPTEMBER 26th, 4:00 PM EST
FERDINAND STATE FOREST, INDIANA
HOME OF CARLA & JAMIE WINNER

The quarterly meetings are for the elected Board to conduct business and for our members and other interested persons to have an open forum to talk about caves and karst conservation and related topics. Past, present, and future IKC projects are discussed to solicit comments and input from our members and the caving community as a whole. The meetings are informal, and everyone is encouraged to attend and participate. The IKC Board wants your input.

Preliminary Agenda Items: Brief reports on the various IKC preserves, summer stewardship activities, and possible fall workdays at Buddha and Shawnee properties; Chestnut tree planting proposal and discussion; Land acquisition projects; Financial reports; and more....

Following the quarterly meeting (around 6 PM) will be the annual pitch-in cook-out. The main entree(s) will be provided. Please bring a salad, dessert, and/or other covered dish to share. If there are enough entries, we will also have a dessert contest. *Please bring a lawn chair if you want to sit down during the meeting.*

Meeting directions and camping details: See the inside back cover (page 15).

ACTIVITIES CALENDAR

Sept 26 – IKC Quarterly E-Board meeting and cook-out (see above)

Oct ?? – Workday at Shawnee Karst Preserve

Oct ?? – Workday at Buddha Karst Nature Preserve

Dec ?? – IKC Quarterly Board Meeting (date & location to be determined)

For more information on the Indiana Karst Conservancy, visit our website at ikc.caves.org or write to our PO box. Membership to the IKC is open to anyone or any organization interested in supporting cave and karst conservation. Annual dues are \$15. Please see inside the back cover for a membership application form or to make a much-appreciated donation. Donations can also be made by credit card using the donation button located on our website's home page.

The IKC Update, distributed for free, is published quarterly for members and other interested parties. The purpose of this newsletter is to keep the membership and caving community informed of IKC activities and other news related to cave/karst conservation. Submission of original or reprinted articles for publication is encouraged.

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RAMBLINGS FROM THE PRESIDENT...

This Ramblings addresses on being a caver... a tale of “the right tool for the right job”. Over the summer, Salisa and I, being biological consultants, have been working on a project for the U.S. Fish & Wildlife Service (USFWS), conducting an evaluation of the populations and habitats of four species of cave beetles that are candidates for placement as federal endangered species. All four species have in common that the populations are small, they are difficult (leaning towards nearly impossible) to find, and the caves they occur in are “problematic”. I evaluated three of the four species in the mid-1990s, but unsurprisingly, no action was taken at that time toward the listing process.

My tale in this article is about the situation surrounding the Clifton Cave beetle (*Pseudanophthalmus caecus*). My friend, the late Tom Barr, a past president of the NSS, had discovered this cave beetle on June 24, 1963 in Clifton Cave, near the little town of Clifton, Kentucky. The cave entrance is in the floor of a ditch in a road cut and was probably opened up when the road was built. The cave had about 1,200 feet of walking height passages, plus some crawlways. Apparently the beetles were pretty common in that cave as Tom collected 24 of them, but the species was known from nowhere else. A few years after the Clifton Cave beetle was discovered, more work on the road resulted in closure of the entrance so completely that it is now difficult to tell where it was located. Various attempts at digging open the entrance as well as gaining permission to drill an entrance on private property adjacent to the cave had failed.

In 1994, Tom Barr and I visited another small cave about a mile from Clifton Cave in hopes of discovering a new population of the Clifton Cave beetle. It was a bizarre trip. Tom drove his jeep into a pasture and stopped next to a dubious-looking horizontal slot. At that point Tom had gotten a bit too old to push caves, so my job was not only as a biologist familiar with collecting cave beetles, but as a caver able to get into the holes the beetles inhabited. Apparently



Tom knew things about this particular cave that I didn't, and asked me, “Would you like some flea powder?” I thought he was kidding.

So, I put on my helmet and with collecting vial in hand, got down and did the belly crawl into the entrance of Richardson Spring Cave. The good news was that apparently the “spring cave” designation was only as a flood-water overflow, as there was no water coming from the entrance. The bad news was I found out why Tom thought I might want to douse myself with flea powder: the cave was an active coyote den. The foot high passage looked like it might have been the prop room for one of the “Predator” movies... several intact vertebral columns of some former mammal, along with a variety of other bloody bones and skulls with bits of rotting meat hanging on them. It was gnarly beyond belief, even for me, and biologists are generally accustomed to dealing with gross stuff. But I had a job to do, so I started digging around the moist gravel on the floor and there they were... the Clifton Cave beetles. I collected four of them and then got out of that little piece of perdition.

Interest in the status of the Clifton Cave beetle has waxed and waned over the years, and the USFWS contracted for another evaluation of cave beetles in 2005 that included another search at Richardson Spring Cave. A biologist friend of mine ... but not a caver... was assigned the duty of re-evaluating the cave and the beetle project, probably because he was employed by a Kentucky state agency tasked with doing such things. He did not find the beetles, apparently because the cave was considered “too small to enter”. At that point the beetle had not been seen for eleven years, and placing a species on the endangered list is problematic if it can't be demonstrated that the species actually still exists.

So Salisa and I found ourselves at Richardson Spring Cave on July 31, 2015. When we arrived it was immediately obvious that the cave was unenterable... Mother Nature had been busy since my 1994 visit, filling the entrance with thin slabs of

So Salisa and I found ourselves at Richardson Spring Cave on July 31, 2015. When we arrived it was immediately obvious that the cave was unenterable... Mother Nature had been busy since my 1994 visit, filling the entrance with thin slabs of

breakdown cemented down by layers of sand and gravel. Any normal person would have taken a look and written this one off as a lost cause. Cavers aren't normal people, and we took one look and started digging. We normally carry a trowel with us for planting pitfall traps in mudbanks, so with trowel in hand, I started moving pieces of breakdown and digging through the sand and gravel. It was easy digging and slowly, but surely, I was able to inch my way into the cave – luckily the passage was wide and there was more than enough room to deposit the rocks to the side. After about 10 feet of digging, the belly crawl turned to the left and there was a little seepage pooling next to the wall. And as I moved the rocks and gravel, there was the first Clifton Cave beetle scurrying about on a rock. In the cramped quarters it was difficult to maneuver, but I had a “water color” collection brush out already. A quick dip into the alcohol wetted the brush, and I used it to swipe the

beetle off the rock and consigned it to the alcohol vial. Bingo. I yelled out to Salisa that I'd caught a beetle, and while continuing to enlarge the path a little I found two more in short order.

At that point Salisa was champing at the bit to have a look, so I backed out and handed her the trowel. She continued forward, scraping gravel and rocks out of the way as she progressed, and collected five more specimens of the Clifton Cave beetle. I crawled back in behind her to take a photo of the habitat of the beetle, such as it was, a low, wet belly crawl to a human, but 100 times higher than a beetle, so more than enough room for the cave's tiny inhabitants. Any doubts about the continued existence of the Clifton Cave beetle are now erased and we'll give it a green light for listing as an endangered species.

So, the moral of the story: sometimes a caver is the right tool for the job!

Jerry Lewis

Footnote: In reviewing this article, Keith Dunlap asked the question: If these are such rare critters, why are we killing them? For the Louisville Cave beetle (*P. troglodytes*) we discovered a new population and collected only three specimens, sufficient to identify the species and prove their existence. We saw the beetles again on a subsequent trip to the same cave and didn't collect any more of them... just made note of their presence. For the Clifton Cave beetle, the situation is different, because there is a second, more widespread species present in Clifton Cave that might also be found in Richardson Spring Cave (and they can't be identified with certainty in the cave). So a larger sample sufficient to assure that we'd collect at least one Clifton Cave beetle was necessary, just in case the sample was a mixture of two species. The other issue is one of the taxonomy of the species. There is some question as to the validity of the Clifton Cave beetle as a separate species from another closely related species. As it stands currently, it's considered a valid species, but just in case that identification is questioned, we've collected and preserved enough specimens to be allow for DNA analysis in the future. Yes, it's an imperfect process to get an endangered species designated as such.

NEWS BRIEFS...

- ❑ At the June IKC meeting, Paul Uglum was appointed the new Cave Patron for Sullivan Cave. Paul has been a very active caver with grotto, scout, and youth groups, and is proficient in taking care of the access requests, scheduling, and the reporting necessary for our flag-ship cave. Paul's contact information can be found on page 2, or through SullivanCave@gmail.com. We wish to thank Anthony Owens for his many years of dedicated service as the previous Cave Patron, and he will still be involved with cave as his time permits between family and business obligations.
- ❑ In August, we discovered our first act of graffiti “tagging” in the twilight area of the entrance room of Buddha Cave. Fortunately, most of the white spray paint was on organics which made for quick removal with a wire brush. Thanks to member Glenn Kotnik for already resolving the problem.
- ❑ At the 2015 NSS Convention, the March 2014 *IKC Update* was honored with an Honorable Mention ribbon in the annual Cover Art Salon. The cover photo was of three clustered bats, one with white fur.
- ❑ The IKC has gained two new members in the last quarter. Welcome Geoff Lewis (560) and John King (561). The IKC membership currently stands at 184.

RECENT ACTIVITIES AT SHAWNEE KARST PRESERVE: TWO STEPS FORWARD, ONE BIG STEP BACK...

by Jerry & Salisa Lewis

Progress continues to be made at the Shawnee Karst Preserve, although there has been a significant problem develop with the IKC entrance to Upper Twin Cave. As a consequence of heavy rains this spring, mud from the sinkhole wall above the entrance had slumped into the entrance, effectively sealing it. In early May, a group of cavers from the Caving Club at Indiana University (CCIU) subsequently dug the entrance open again, but that effort was only temporary.

On May 24, Keith Dunlap and I scheduled a workday to do some maintenance work. While Keith was over at Buddha Karst Preserve mowing the trail I arrived early at Shawnee, where I walked the 1.6 mile trail with a chainsaw. I already knew from a winter visit that there was at least one sizable tree across the trail that had to be removed before it could be mowed. In walking the trail I found and removed that tree and a dozen or so other smaller ones that had fallen over the course of the winter. With loppers, I also removed dozens of brambles and spicewood trees that encroached upon the trail in places.

When Keith arrived, he commenced mowing the trail and I went down to the wildlife pond near the cave entrance to do some repair work. Salisa and I had installed a plastic liner in the floor of the pond the year before, but water was leaking around the PVC drain pipe. I had purchased a can of sealer from our local pond supply store and installed a layer of the spray-foam around the pipe where the plastic liner was leaking... the long-term results remain to be seen, but it appeared to make a solid collar around the pipe.

I met Keith back at the parking lot to have lunch at that point, and then took a turn finishing up the last leg of the trail mowing. The final task of the day was to make a quick trip into the cave to download the datalogger that we had installed in the stream last fall. Reaching the entrance, it was immediately obvious that the sinkhole wall had continued to slump and that the entrance was practically unenterable again. We could see air blowing some leaves in the entrance and there was a narrow passage downward where the entrance had previously been, but even if we had been able to squeeze down through the hole it looked extremely questionable in being able to sliver back out through the quagmire of mud and rock. We studied the situation for a few minutes and

decided that the next step would be to build a couple of retaining terraces to receive the mud and rock that would have to be dug out to re-open the entrance.

The following weekend Salisa and I were at Spring Mill State Park working on our biology project in the lower sections of the Shawnee Cave System. After finishing in the park we swung by Shawnee Karst Preserve to create a couple of logs with which to build the terraces at the IKC entrance. We picked out a twenty foot tall cedar tree next to the access lane, cut it down, de-limbed it, and cut it into two eight-foot long cedar posts. We left them by the lane for transport the following week.

On June 6 we had another workday at Shawnee Karst Preserve, attended by myself, Salisa, Geoff and Alex Lewis, Bob Vandeventer, and Keith Dunlap. The first task of the day was to apply weed treatment around the 400 hardwood trees that IKC volunteers had planted in the spring of 2013. Most of the SKP was already forested, but one area adjacent to highway 60 had been maintained as a fescue pasture by a neighbor. We had



sprayed around the trees to kill off the fescue the first year, but the treatment has to be repeated periodically. Keith and I sprayed around the seedlings after Salisa and Geoff went ahead to locate them in the deep grass and stomp down the grass so the herbicide could be sprayed.

Near the end of the spraying project, Bob Vandeventer arrived with his trailer, having dropped off all the aluminum cans that had been donated to the IKC over the past year for recycling (\$105 worth). Bob noted that the Lewis



family's addiction to Diet Coke appeared to be a primary source of donations, an observation that I was hard-pressed to deny as I stood there drinking a Diet Coke.

The next task was to pick up the first load of scrap metal, consisting of some rusting cables left over by the logging operation that had owned the property before us, along with some fence posts and fencing that we had put in a pile by the road gate. Bob then drove up the access lane and we loaded the heavy cedar posts onto the trailer for transporting to the cave entrance. It was now after noon, so we all stopped for sandwiches at the parking area and gathered up another small pile of scrap metal and some bags of garbage (these had been waiting for over a year for disposal, from one of our first sinkhole cleanups on the property).

After lunch Bob managed to drive his truck and trailer all the way down to the pile of scrap metal and garbage that we had stockpiled near the cave entrance. The trash pile was the result of a prior work-day sinkhole cleanup and the six of us made fairly quick work of loading the trash and metal onto the trailer. Bob then departed for the scrap yard in Bedford.

The last task of the day was to carry the cedar logs down to the entrance, cut them to size and figure out a way to anchor them. The larger of the two was placed just upstream from the cave entrance across the ravine. It was secured by jamming one end under a large boulder and trenching it into the wall of the ravine on the other. We then drilled a hole through the log and hammered a 24-inch piece of rebar through it into the ground for good measure. The second post was placed a few feet further up the ravine and it, too, was anchored with rebar. In theory, we now had a place to retain the mud moved from the entrance area at whatever point we organized a "dig" workday.

The week after June 17 workday, a storm dropped four more inches of rain and over the next three weeks, considerably more mud slumped down from above, burying our entrance under a cone of soil twelve feet high, estimated to be at least 50 cubic yards of material. While the effort to reopen the entrance is not impossible, the bigger question is what to do with the mud. If we don't remove it from the sinkhole, each heavy rain will likely re-plug the entrance. We may end up having to install a vertical culvert to stabilize things.



2015 INDIANA BAT RANGE-WIDE POPULATION TREND

by Keith Dunlap

Since 1981, Indiana has been conducting systematic biennial winter bat counts of Indiana bats (*myotis sodalis*). In subsequent “odd” years, other states formalized their counts, and eventually (around 2005) the US Fish and Wildlife Service took the lead to standardize range-wide techniques and population reporting.

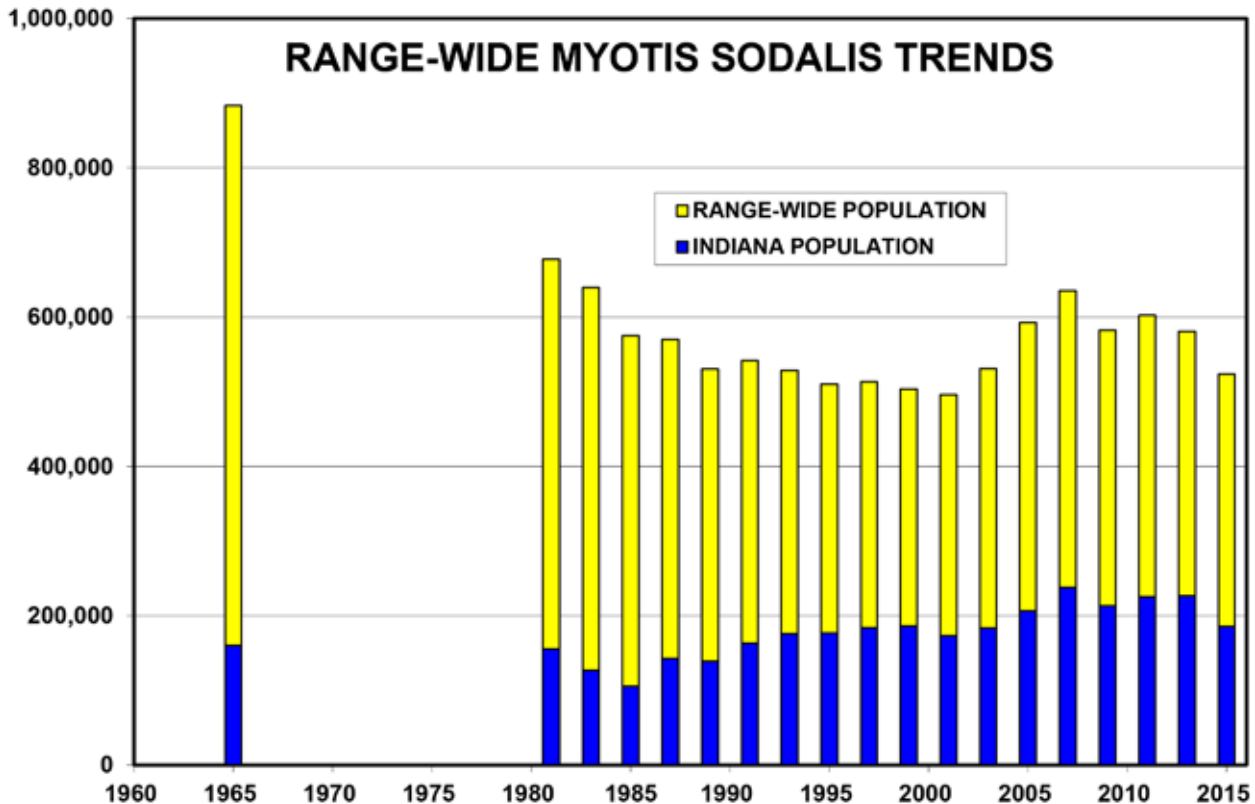
The chart below shows the population trend for the species. From 1981 to 2001, the total population was in a gradual decline, which subsequently made an interesting recovery from 2001 to 2007 to a maximum of 635,000 bats. Unfortunately, since the on-set of White-nose Syndrome in 2007, the range-wide trend has been declining again, dropping approximately 18%.

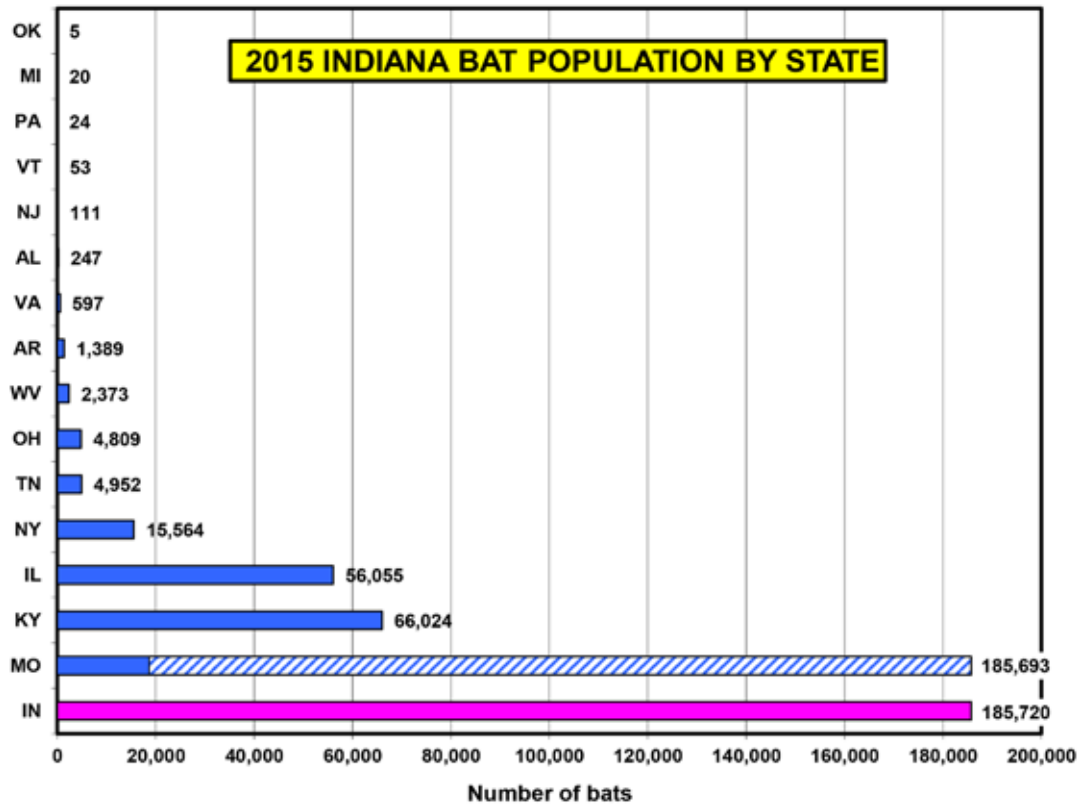
In Indiana, the long-term trend from 1981 to 2007 was gradually positive, peaking at 238,000 bats. Census results in 2009, 2011, and 2013 were mostly stable, but in 2015, the state-wide numbers had a significant decline to 186,000 bats (-22% from the peak). A breakdown of specific Indiana cave populations will be detailed in the December *IKC Update*.

The graphic on page 9 illustrates the Indiana bat population by state. As can be seen, over 70% of the bats are found in just two states, Indiana



and Missouri. And prior to 2013, this concentration was even more lopsided, with over 50% of the bats found in Indiana. What changed in 2013 was the discovery of the largest hibernaculum in a Missouri mine. Initially estimated at 123,000 bats, the 2015 census of the mine found 167,000 bats, over 30% of the entire population, and two and one-half times greater than the next largest site (Jughole in Indiana). The magnitude of this one mine is better illustrated by the hashed section of the Missouri bar.





IKC EDUCATION AND OUTREACH

by Keith Dunlap

While the IKC currently does not have an Education and Outreach coordinator, we still engage occasionally in educational programs. On July 18th, Jerry Lewis volunteered to give an interpretive presentation on cave fauna at Spring Mill State Park at the nature center. The presentation was geared towards a general audience and open to the public and was well attended.

Also associated with Spring Mill, Jerry Lewis and Keith Dunlap volunteered to accompany Patrick Haulter, the new Naturalist at Spring Mill, to Cave River Valley. Patrick

previously worked at the Falls of the Ohio and has a great appreciation for geology, but has had very little exposure to caves and cave fauna. We visited the entrance to River Cave (see below), then “explored” Endless Cave discussing geology, biology, bats, history of the park, and the various research projects that have occurred in the CRV caves. Afterwards, we hiked downstream to the entrance of Dorsey Cave.

Jerry is currently doing a biology research project in Spring Mill State Park and invited Patrick along on one of those future cave trips.

photo courtesy Jerry Lewis



A LOOK BACK AT INDIANA KARST

by John M Benton

The Look Back in this issue is an interview with Sam Frushour, noted Indiana caver and geo-expert.

Sam, please start and tell us about your background, where were you born and raised? Education? I am from Logansport Indiana, and attended Purdue University in civil engineering. It took no time at all to find out that my poor eyesight would be a hinderance in that field, because at the time, to work for nearly any civil engineering company you had to drive. Because of the father of a caving friend (Leigh Lawton), I finally got a position with the Indiana Highway Department.

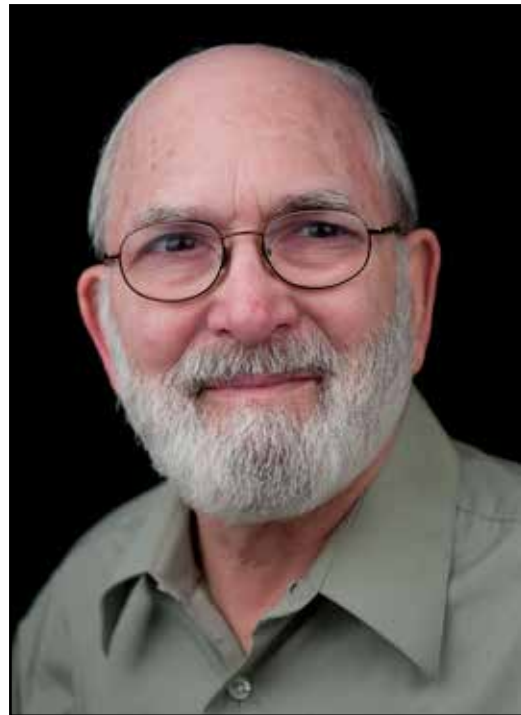
How and why did you get involved in geology and caves? Robert Carr a high school math teacher and former member of the Central Indiana Grotto got with Uldis Duselis, Therman Gladden, Craig Bradley, and myself suggesting we try caving. This was 1961 and along with my brother Tom, we all went to Coon Cave in Monroe County and I continued caving, but the others only did a few more trips.

I took some geology classes at Purdue, but my real training and interest was engineering soils (geo-technical soils) and spent nearly ten years doing soil mechanics studies with InDOT. Later, while developing and running Bluespring Caverns, Dr Ned Bleuser of the Indiana Geological Survey (IGS) offered me a job working with glacial soils and various rock related testing. I spent 34 years in that capacity.

Tell us about your career with the IGS? I was able to interact with a variety of professional geologists in a multitude of soil and rock testing, and pursue karst and cave endeavors because Richard Powell was no longer with the IGS, and no one else there had the background or interest in doing cave investigations. I got to travel quite a bit checking out sinkholes and caves at the request of landowners and agencies.

What are some of your most memorable cave trips? For being the most scary, it was the 1985 Spring Mill State Park rescue in which four of us came inches from being swept into a sump by strong current trying to enter the cave from the Bronson entrance.

Any favorite caves? I really loved being able to run around at will in the Mammoth Cave System taking photos for Dr James Quinlan, National Park Service hydrologist. Later I did photos for Terry Leitheuser in the lowest grungy streams in Mammoth for his fauna population and habitat studies. I also did a photo project for the NPS of major and historic features of Mammoth Cave. I also had the pleasure of participating in two RADON studies in Mammoth Cave and another in Wyandotte Cave. Those are certainly my favorites, but Sullivan Cave ranks very high as well.



Tell us about your book published in 2012, A Guide to Caves and Karst of Indiana. Is there anything you would change if doing it over? I was asked by the IGS to write a replacement for Powell's 1961 *Caves of Indiana*. The Geological Survey believed that there was a need for it. I put it together in about two years and then it sat for another two years while they tried to figure out funding for it. Finally it was given to IU

Press to publish. If done again I would add more material on karst features in Harrison and Crawford Counties and expand the glossary.

I know you have done a fair amount of cave diving; could you elaborate on that subject? Has most of it been in Indiana? Age takes its toll on our bodies and so cave diving is less strenuous on old bones. A former girl friend got me into diving and later wanted to take cave diving training. I am still involved in it, but she is not. I have been lucky enough to check out caves in Florida, the Bahamas, Mexico, and of course Indiana. I



still go to the Yucatan about once a year for the world class great caves there, but I do like to get into Indiana holes under water because it is easy to get where no one has ever gone before. There are some long underwater systems that only us “odd” people would even think of going into; let alone mapping. The most productive dives were in Bluespring Caverns where I mapped from the spring through 2800 feet of sump to known air filled passage. Chris Parks was with me on some of that. Right now we have a 2100 foot long cave with several sumps in Owen County to finish mapping. It still goes.

You go ‘way back’ with Richard Powell; any stories or incidents with Dick over the years to relate? I really have not caved much with Dick, but have been out in the field quite a bit with him. He is very perceptive on what is going on down in the ground related to caves and sinkholes. We still collaborate quite often. The first time I met him in 1961, he rescued us young cavers who had a broken U-joint on a 1951 Desoto. He loaned us 20 dollars to get it fixed.

Tell us about your caving involvement at Blue Spring Caverns (commercial development) near Bedford IN, and at Wyandotte Cave (survey and level tube) in Crawford County? Any others you’d like also? In early 1973,



Sam Frushour level-tubing the Langsdale Passage in Wyandotte Cave, circa 1996. Photo by John Bassett.

Jim Richards asked me if I would like to be part of developing Blue Spring Cave, and I bit the bullet and said okay. Jim and I were long time cave buddies and we pooled our resources along with Robert Hosley, and with only about ten thousand dollars we quit our jobs at InDOT and moved to Bedford. Much of that year was building trail, bridges, and getting a gift shop in order. Some of it was a bit crude, but we opened in October of that year with our youth group program. By spring, we had enough refinements to be open to the general public.

As for the level-tube survey in Wyandotte, that was partly to see just how much the cave wandered up and down and to see if passages correlated to terraces on the Blue River. We still need to determine elevation of terraces. We did find a gentle syncline running through the cave.

How is it living with a caver, that your spouse, Patti Cummings is also a caver? According to several people, Patti has had a positive impact on my personality. She certainly has a caver personality and is very intelligent. She is a great cook and very creative in the kitchen or over a campfire. A great organizer and currently a deputy prosecutor in Monroe County. Don’t get afoul of the law where she is involved.

To get the other perspective I will pose the same question to Patti – how is it living with Sam? I live with a caver, but Sam lives with a speleo-groupie. I have caved, I enjoy it immensely, and I love the caver community, but compared to Sam, I am just a dabbler in caving. I do mostly surface support work at caving events and workdays, freeing up stronger cavers for the real lifting. I think the real advantage to being married to a caver is the relaxed attitude about everything that is not essential to survival. There is less stress about the day to day obstacles because we have seen people overcome *real* obstacles and survive, so we worry less about the little stuff. I think I am more understanding about ‘caver time’ and scheduling conflicts because I know how “that one little lead that looks like it goes nowhere” can turn into a five hour exploration adventure. When Sam comes homes later from a trip than estimated, I wonder “What did they find?”, instead of fuming over a missed appointment.

Living with another caver, especially one ac-



tive in a variety of caving projects, I get to meet some of the most fascinating people and learn from them. I have observed that lifelong cavers tend to be very intelligent creatures, with an independent streak a mile wide, and a high toler-

ance for discomfort if there is a discernible goal to be reached. With Sam, I have traveled to exotic places and observed strange cultures, often while camping with other cavers.

INDIANA KARST CONSERVANCY TREASURY REPORT

Income/Expense Statement From April 1, 2015 to June 30, 2015

INCOME:

Dues Apportionment and Residuals	678.75	
Donations - General	777.58	
Donations - Land Acquisition Fund	174.00	
Interest	<u>265.73</u>	
		\$1,896.06

EXPENSES:

IKC Update (printing, production, mailing)	284.52	
Education / Outreach	174.10	
Stewardship/Conservation	178.06	
Property taxes	35.00	
Business (renewal letters, annual meeting, etc)	110.56	
Ind Acad Science grant	0.00	
Transfers to/from restricted funds/other adjustments	<u>379.92</u>	
		(\$1,162.16)

NET OPERATING EXCESS (DEFICIT) THIS PERIOD: \$733.90

Balance Sheet June 30, 2015

ASSETS:

Cash in Checking / Saving Accounts / CDs	142,756.14	
Robinson Ladder Cave Preserve (73.48 acres)	162,000.00	
Shawnee Karst Preserve (50.31 acres)	105,000.00	
Wayne Cave Preserve (31.85 acres)	85,000.00	
Sullivan Cave Preserve (28.00 acres)	72,000.00	
Buddha Karst Nature Preserve (36.84 acres)	29,000.00	
Orangeville Rise Nature Preserve (3.01 acres)	7,000.00	
Indian Creek Conservation Easement (valued at \$1/acre)	<u>13.16</u>	
		<u><u>\$602,769.30</u></u>

FUNDS & OPERATING EXCESS:

Land Acquisition Restricted Fund	33,728.95	
Deferred Dues Restricted Fund (181 members)	4,031.25	
Indiana Acad of Science	696.12	
Stewardship Endowment Restricted Fund	55,486.85	
Previous General Fund (total)	48,092.23	
Net Excess (Deficit) This Period	<u>733.90</u>	
Current General Fund (unrestricted)	48,826.13	
Current General Fund (committed)	600.00	
Real estate liquidity (basis value)	<u>460,000.00</u>	

Total Liabilities & Operating Excess \$602,769.30

IKC EXECUTIVE BOARD MEETING MINUTES

Saturday, June 27, 2015 11:00 AM EDT – Bloomington, Indiana

Board Members Present:

- Jerry Lewis, President
- Sue Vernier, Secretary (proxied by Salisa Lewis)
- Keith Dunlap, Treasurer
- Joy Baiz (proxied by Christopher Dick)
- Bruce Bowman (proxied by Tom Rea)
- Dave Haun (proxied by Geoff Lewis)
- Everett Pulliam
- Bob Sergesketter
- Bruce Silvers
- Kevin Smith (proxied by Robert Sollman)
- Tom Sollman
- Carla Striegel-Winner
- Bob Vandeventer
- Richard Vernier (proxied by Phyllis Sergesketter)
- Jamie Winner



Board Members Absent:

none

The meeting was called to order by President Jerry Lewis at 11:00 AM at the IKC’s Wayne Cave Preserve, located near Bloomington Indiana.

The minutes from the March Annual Business meeting were approved as published in the June *IKC Update*. There were no E-mail motions since last meeting.

Treasurer’s Report

Treasurer Keith Dunlap gave the financial report, which were essentially the same as the quarterly report given on page 12. The membership stands at 181, excluding 13 members who have not yet renewed their dues.

Education and Outreach

Bob Vandeventer reported that Don Ingle currently has the display and inflatable cave. Bob plans to pick them up from Don after today’s meeting. The Indiana Outdoor Experience on September 19-20th has been delegated to Central Indiana Grotto.

Hoosier National Forest

Paul Uglum, with assistance from Keith Dunlap, requested and received permission to access Gory Hole and Fuzzy Hole for Cave Capers. Other cooperative avenues appear defunct.

Shawnee Karst Preserve

The important news is that the IKC entrance has collapsed (or more precisely, has filled with mud from above). During the last three months, SKP had a work day where trash was removed and taken to a landfill or recycled, with many thanks to Bob Vandeventer for hauling with his truck and trailer. One of the wildlife

pond’s was sealed and is now holding water, and prior to the most recent collapse, the entrance was terraced to mitigate the sinkhole slope eroding. The stream depth monitoring is on hold. We assume the data logger is still there and functioning, however with the entrance collapse, reaching the data logger to download the information is a problem (it should run for five years).

Indian Creek CE

The Indian Creek Conservation Easement had its annual inspection, completed on 12 June 2015 by Jaime Winner, Keith Dunlap, and Jerry Lewis. The report was mailed to land owners. The only issue was one owner excessively mowing in the creek area.

Buddha Karst Nature Preserve

Keith Dunlap reported on Buddha Cave Preserve. Stewardship activities were conducted, including mowing the trail and spraying around the trees.

Sullivan Cave Preserve

Keith Dunlap reported he has mowed the camping area at Sullivan Cave twice this year. The port-a-john is in need of pumping (the service has been ordered). Keith’s adjacent property has new boundary markers on the south boundary thanks to Jamie Winner and his Total Station. Also some removal of invasive plants has occurred. Keith made a motion to appoint Cave Patron duties to Paul Uglum who should be able to perform the paperwork necessary for the position. The motion was seconded by Bob Sergesketter. Motion passed. Dunlap reported he had an accepted short-sale offer on the adjacent property to the south and west. But after three months, the bank reneged on the deal. It is unclear what will happen next.

Wayne Cave Preserve

The kiosk is completed, excepting for the displays. The two informational panels are in progress, with much discussion about the size and position of the map for the kiosk, history of the cave, a list of donors as well as rules for the property. Also a possible whiteboard to allow visitors to leave comments. There was discussion



about repairing the wildlife pond (worked on earlier in the day). Keith had partially mowed the clearing and camping area earlier in the week. Work planned for after the meeting included working on clearing the trail, cutting down some dead/dying trees in the camping areas, and autumn olive removal.

Robinson Ladder

Carla Striegel-Winner reported on Robinson Ladder Cave Preserve. Jaime bush-hogged part of the open area, creating a savannah-like space. The plan is to mow half the open areas every other year, except where the trees have already taken over. The access lane has been mowed and the tree of heaven grove sprayed. The survey markers on the north boundary have been completed. The gate hinges have been replaced to allow better operation, although more work is needed to fix it completely. A group recently visited the cave and went down the in-cave pit. They explored perhaps 200-300 feet of probably virgin pas-

sage. During the mowing, a mother possum was accidentally killed. A humane rescue of a juvenile possum happened. The possum (Lucky) was sent to a rescue and will be released soon.

Land Acquisition Projects

No new activities to report.

Items from the Floor

There were no items from the floor.

Next Meeting

The next meeting will be September 26, 2015, at Jaime and Carla's home in Ferdinand State Forest at 4 PM EST with the pitch-in dinner beginning around 6 PM.

Adjourn

The meeting was adjourned at 11:56 am

Respectively submitted, Salisa Lewis, acting Secretary.

Grow corn in a cave? Sure!

Purdue researchers say technique may aid in creating medicines

by *Stephanie Wang*

Put tall, summery corn in a cool, dark cave – and Purdue researchers can still make it grow.

In a study that they said was “ahead of its time,” researchers cultivated short stalks of corn by mixing the carbon dioxide-rich environment with a dwarf growing technique often used on grocery-store Christmas poinsettias and Easter lilies.

But ... why do that?

The research could eventually help make medicines less expensive, says Purdue horticulture Professor Cary Mitchell.

It paves the way for using plant-based compounds in pharmaceuticals such as insulin – but instead of creating those costly compounds in labs, this could be a scalable way to grow genetically modified crops in controlled and isolated environments.

“What we did was a study that I think effectively did a proof of the concept that you can do this,”

Mitchell said. “(It showed) that you can leverage natural environments like that, you can do it out of the way – isolated and contained – and you can do it year-round.”

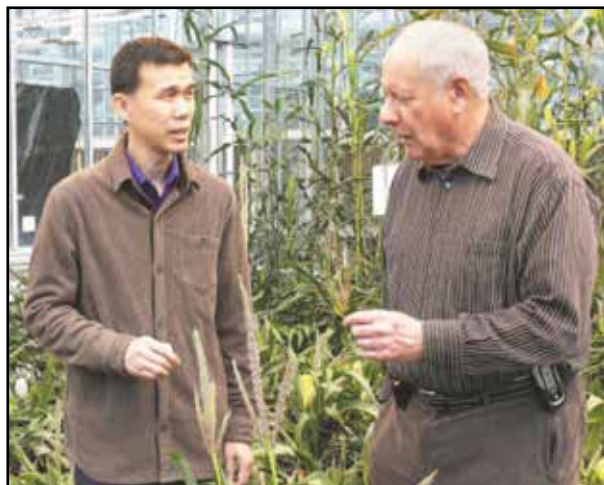
Mitchell and Purdue postdoctoral students ordered a special growth chamber to mimic the conditions in a cave and added lamps for light.

They tested the research in a former limestone mine in Marenco, just east of the Hoosier National Forest, and were still able to produce a normal amount of corn.

The scientists published their research this year in the publication *Industrial Crops and Products*. The five-year

project, led by Doug Ausenbaugh of Controlled Pharming Ventures, was funded by the Indiana 21st Century Research and Technology Fund.

Reprinted from the 5/18/2014 Indianapolis Star.



Purdue researcher Yang Yang (left) and horticulture Professor Cary Mitchell discovered a way to grow corn in a former limestone mine by using a special growth chamber and adding lamps for light. The technique could be used some day to help make less-expensive pharmaceutical products.

Directions to Ferdinand State Forest (FSF) and Jamie and Carla’s Home:

From State Road 64, just east of St Anthony: Turn south at County Road 600 East (there is a brown FSF sign) and go exactly 3 miles to the entrance gate.

From State Road 162, just north of Ferdinand: Turn east onto State Road 264 (there is a brown FSF sign), which ends at the entrance gate after six miles.

At the entrance gate: Stay on the main road about a mile and a half until it ends at the Sycamore Shelters. Park in the gravel lot there. The house is on the left just across the lot. Normally the gate house is closed at this time, but if it would happen to be open, just tell the attendant you are here for the meeting and they will let you through.

You can mapquest with success: **7985 S 600 E, Ferdinand, IN**. This will get you to the entrance; follow our directions to the house from there.

Overnighters: Folks are welcome to stay over, we have futon and floor space and a small yard for a tent. Also, a primitive campground is available at FSF for \$13 per night and you are welcome to use our shower!

Ferdinand State Forest also has hiking and mountain biking trails, a 38 acre lake, which is a fun canoe/kayak and has great fishing, so come early or stay over!

If you get lost, call (812) 367-1602.



INDIANA KARST CONSERVANCY, PO BOX 2401, INDIANAPOLIS, IN 46206-2401

I would like to help the IKC protect Indiana’s unique caves and other karst features. Enclosed is:

\$ _____ for IKC membership dues at \$15 per year (dues expire March 31st of each year, please pro-rate @ \$1.25/month).

\$ _____ donation to the general IKC fund.

\$ _____ donation restricted to a specific IKC project. Please specify: _____

_____ I know of an area worthy of protection. Please contact me.

_____ I would like to volunteer to help. Please contact me.

NAME _____

ADDRESS _____

CITY/STATE/ZIP _____

PHONE # _____

Make checks payable to the Indiana Karst Conservancy, Inc. and mail to the IKC Treasurer, c/o Indiana Karst Conservancy, PO Box 2401, Indianapolis, IN 46206-2401. The IKC is an IRS recognized 501(c)(3) non-profit organization with membership dues and donations fully tax deductible.

