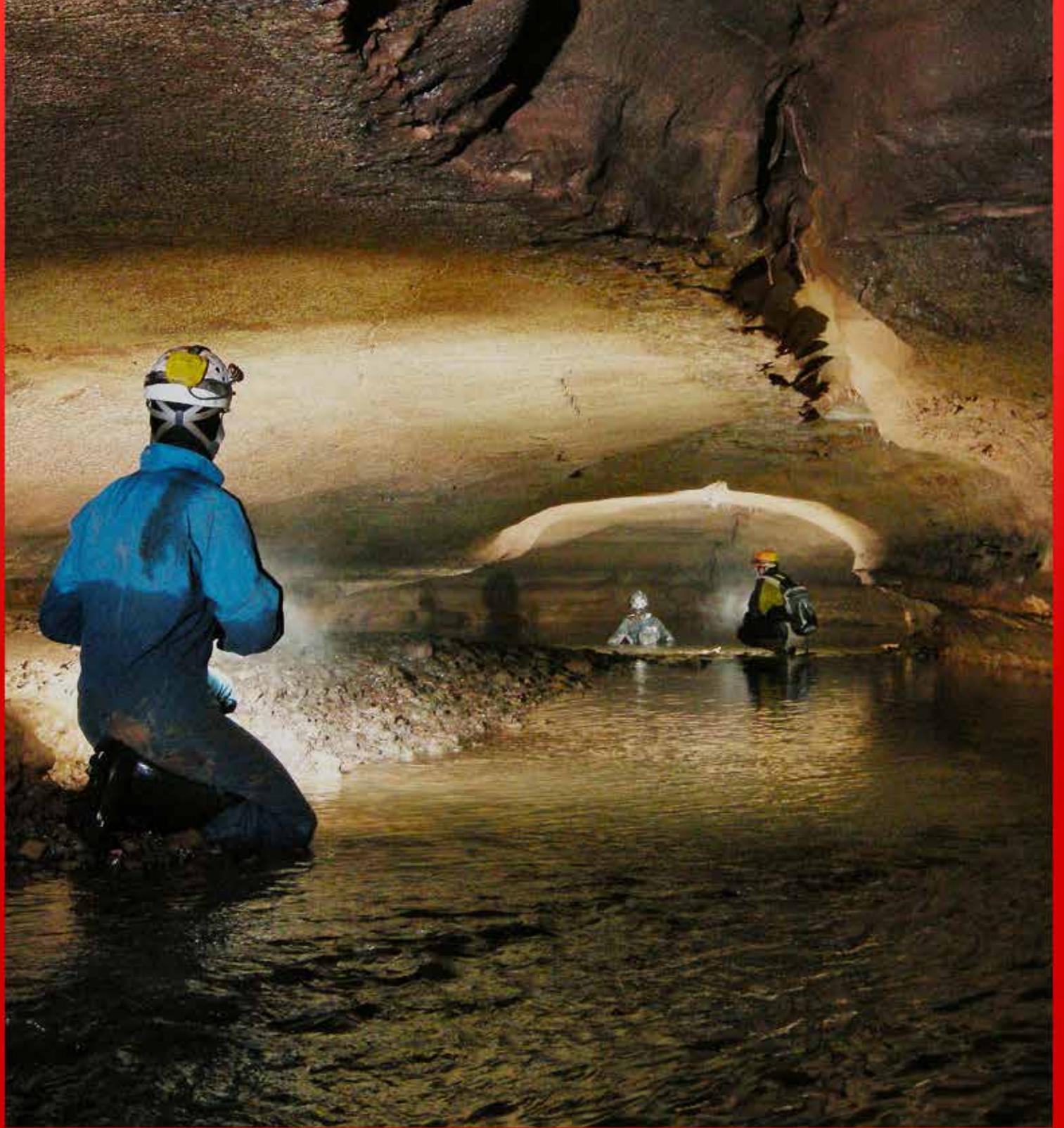


# IKC UPDATE

A Quarterly Publication of The Indiana Karst Conservancy  
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Number 111



# INDIANA KARST CONSERVANCY, INC

PO Box 2401, Indianapolis, IN 46206-2401

[ikc.caves.org](http://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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\*grottos with liaison agreements

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Cover: Typical (and beautiful) cave stream passage in Upper Twin Cave downstream from the IKC's entrance. Photo by Dave Everton (2012)



**IKC QUARTERLY MEETING REMINDER**  
**SATURDAY, DECEMBER 14th, 10:00 AM EST**  
**BLOOMINGTON, INDIANA**  
**IU GEOLOGY BUILDING, ROOM 463**

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: All things about our various preserves; Indiana DNR cave access update and interim agreement status; Financial reports; Land acquisition activities; and more....

Meeting directions: The Geology Building is located at 10th and Walnut Grove. Tenth Street runs east/west and is one of the major streets that run across the IU campus. Park behind the building, parking permits are generally not enforced on weekends. Enter the building from the rear at the west end. *Take the elevator to the fourth floor and the room is in the northwest corner of the building.*



## ACTIVITIES CALENDAR

**Dec 14 – IKC quarterly meeting (see above)**

**March ?? – IKC Annual Business meeting (date & location TBD)**

**April ?? – Indiana Cave Symposium (date & location to be determined)**

For more information on the Indiana Karst Conservancy, visit our website at [ikc.caves.org](http://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...

As I write this issue's column, I am both *rambling and rolling*, wandering through France and writing as I go along. My surroundings as I first jot down my thoughts for this Rambling are quite different from those of the past, as I find myself writing in the living room of friends in the village of Neuves Maisons, in Lorraine, France. Two years ago Salisa and I hosted a bright young exchange student from France, Sophie Dumas, in our home for a month during the summer. Her purpose in coming was to practice her language skills in a (supposedly, it is Indiana...) English-speaking country, and to experience how things work in the home of an American family. And as it turned out, to make new friends.

Our daughter, Alexandra, is basically doing the same thing this fall. Alex is attending the University of Evansville's campus in England, although she isn't there, ostensibly, to practice English. Her university extends the opportunity for the students to visit different places over the course of the semester, and I offered to meet them in Paris. I've spent a few weeks in Paris scattered over several visits during the last five years so I have a pretty good knowledge of the tourist highlights of the city.

So, in-as-much as being a French tourist isn't as similar to being a caver, as say, volunteering for the Red Cross (reportedly), I did have some reflections on the subject. Unlike past rambles where I usually attempt to make a point about a karst related topic, my thoughts this time is the way my life as caver has shaped me as person and influences my interests and interactions with others.

On the long flight from the USA to Paris, I sat with a young man who had been living in Colorado for the last three months as an exchange student. His father had come to the US to meet him for the voyage back to their home in Paris. We chatted for a couple of hours and of course the subject turned to caves eventually. Among other things I had the opportunity to practice the correct pronunciation of the word "*grotte*", the

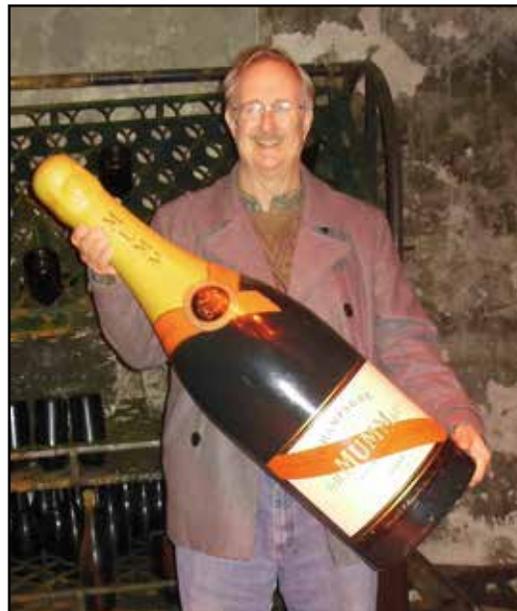
word for "cave" en français.

After arriving in Paris, I took the TGV to the city of Nancy, in Lorraine. That in itself was an experience worth mentioning. TGV stands for *Train à Grande Vitesse* ("high speed train" or as they are known colloquially "bullet train"). A screen in the train car showed its location as the train sped across eastern France as well as showing the current speed, which generally stayed between 300-320 kilometers per hour... about 185-200 miles per hour. That was the fastest I'd ever gone and still remained on the ground (for that matter I've flown at slower speeds). As we neared Nancy the train slowed and I was able to take note of the fact that the railroad cuts were showing exposures of limestone. Not surprisingly I noticed

many sinkholes along the road from Nancy to Sophie's home in the little town of Neuves Maisons. The area around Nancy was very similar to southern Indiana and like most people here, Sophie had never given much thought to the sinkholes along the road.

The war-torn history of eastern France presents an unusual issue with interpreting karst. We visited the World War I battlefield of Verdun in northern Lorraine and the terrain there is covered with what appear to be sinkholes. In actuality, they are bomb craters. Although I'm reasonably sure that the holes next to the road are really sinkholes (there are springs below that flow to the nearby Moselle River), a colleague in Germany told me that I wouldn't be the first person to mistake a bomb crater for a karst feature.

Similar to the situation with the sinkholes, Sophie told me that she had never given much thought to the significance of an open well in her backyard. Looking out the kitchen window into the backyard one day my groundwater antennae went up when I saw the old moss covered well-head. I've sampled many wells over the years and more often than not something interesting (bug-wise) comes out of them. When I wandered out to inspect the well close up I got an even big-





ger surprise... it was filled with ferns (above). My mind raced back to a presentation I'd seen many years before at a National Cave Management Symposium on the rare Hart's Tongue Fern. This fern is common in Europe, but in the United States the variety known as *Asplenium scolopendrium americanum* was listed as an endangered species in 1989. The talk at the NCMS was given with the goal of raising awareness of the fern in hopes that additional populations might be found by people who frequented cave entrances. I filed the information for future reference, but never saw the fern until this moment in Lorraine. It's of no significance finding it in Europe, but was never-the-less interesting to at long last see this entrance zone species after hearing about it all those years ago.

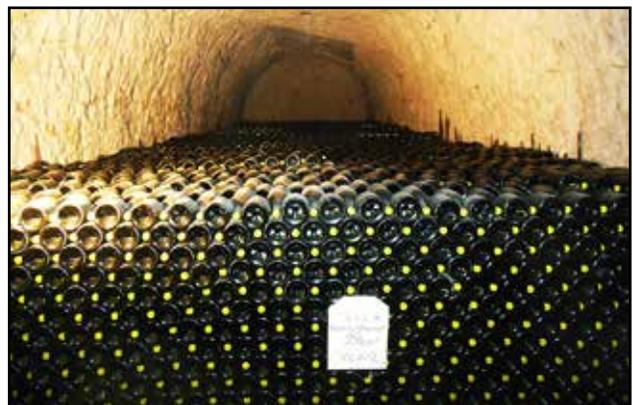
I did not get the opportunity to sample the groundwater fauna of the well on this trip, nor investigate the area of intense karstification in the upland above Sophie's home town. Both of these things are on the agenda for a future trip... However, one of the highlights of my visit to Lorraine was a request to give a presentation on caves, cave fauna, and endangered species at the *Université de Lorraine* (UdL). So, one afternoon I found myself speaking to the English class of the graduate law program at UdL. I had taken my laptop with me to Europe and was able to accommodate the professor's request by modifying one of the presentations I had done in the past. As bizarre as it may sound, the topic wasn't far off base from what the students were expected to know. In my past role in the USA as an expert witness in environmental lawsuits, one of my roles was to educate the lawyers about the science side of the case so that they could formulate how best to pursue it. So here I was in Lorraine doing the same thing with a class of French law students.

After spending eight days with Sophie and her family in Lorraine, I again boarded the TGV and traveled northwest from Lorraine to the city

of Reims (pronounced like "rance", rhymes with "france"), capital of the region of Champagne-Ardenne. I was going to Reims for the purpose of going caving! (well, sort of). During the next few days I knew I'd come to the right place, when I saw signs for "*Visite des caves*". But it's not exactly what you think... in French a *cave* is a wine cellar. And as the name of the region (roughly the size of Vermont) implies, Reims is famous for its wineries that produce champagne. I "went caving" and toured two of these wineries (Mumm and Taitinger), each of which store literally millions of bottles of champagne in tunnels (below) that extend for miles. Even the elevators there take you to caves!

The rock in which the caves were tunneled was a soft chalk... I tested it and found that it was easy to scratch with a thumbnail. The excavation of the Taitinger *caves* was started by the Romans and continued during the Middle Ages. Groundwater infiltration was apparently an issue... water was ponding on the floor in spots... and it made me wonder how much of the cave had started as a *grotte*. Another topic to look into in the future.

The final leg of my voyage was to return to Paris to meet our daughter Alex, who was visiting the City of Lights for five days with her group from the University of Evansville's campus in England. The first place we went was the Catacombs... finally, some real caving (sort of). The catacombs of Paris occupy what is reportedly 200 kilometers of passages that were originally mines (and caves) from which was taken the limestone used in some of the earliest buildings in Paris. The mines reportedly date to the twelfth century and had been abandoned by the time that their next use was envisioned, as an ossuary. Starting in the eighteenth century, as the city of Paris expanded across formerly outlying cemeteries, the decision was made to exhume the skeletons of six million people and move them into the catacombs. It took two years to conduct this massive project.



If one googles the catacombs, it becomes apparent that cavers make frequent illicit trips into various parts of the complex of mine tunnels and cave passages. There are photos of explorers going through crawlways that look very much like caves rather than mine tunnels. Apparently if one knows the right manhole to open or one of the hidden entrances, it's possible to gain entry to this labyrinth of passages. Alex and I were only able to wander through the extensive network of tunnels that were open to the public along a prescribed route. This is undoubtedly one of the most bizarre passages I'll ever travel, with human bones stacked floor to ceiling (right). In places soda straws are forming and starting to create stalagmites on the underlying bones!

Our final taste of things subterranean in France was *la grotte de Marie Antoinette*. This "cave" was built from 1784-1788 as part of the grounds of the royal Palace of Versailles, the home of French kings. The artificial cave was built into what is probably an artificial hillside, and features a short walking height passage. An artificial spring emerges from the hillside at the base of the cave.

No expense was too great, nor any detail spared, if you were part of the royalty at Versailles.

So to conclude this episode of rambling and rolling through France... I thought it would be fun to share a few of my adventures as a student of French, obviously shaped by a life of looking at life through cave-colored glasses.

*Jerry Lewis*




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## NEWS BRIEFS..

- ❑ The IKC's three Lawrence County karst preserves now have 911 emergency street addresses. This will help in finding the properties for visitors who have not been to them before, as well as first responders should there ever be an emergency at one of the properties. The Sullivan preserve is located at 2100 State Road 54, Springville. The Buddha preserves has an address of 855 Buddha Rd, Bedford. The Shawnee preserve is located at 4000 State Road 60 East, Mitchell. We hope to have the green emergency address signs up by spring.
- ❑ Each year, the IKC enters its newsletter covers in the NSS Cover Art salon. At the 2013 NSS Convention, our June 2012 *IKC Update* cover with a photo by Dave Everton received an Honorable Mention ribbon in the photographic category.
- ❑ Most of the IKC's basic operating expenses and obligations (newsletter, liability insurance, property taxes, routine stewardship activities) are covered by membership dues. However, we are greatly appreciative of additional donations to supplement and support the many other projects the IKC initiate. Since September 2012, 34 individuals/families have made general donations totaling more than \$1,500. Donors include Ray Beach, John Benton, Ted Bice, Don Bohling, Jeremy Brisch, Carl Brown, Larry Bundy, Terry Clark, Keith Dunlap, Rick Gikas, Gary Daniel, Dave Haun, Martin Heinlein, Jason Kern, Glenn Kotnik, Jerry Lewis, George Mattson, Nick Noe, Ernie & Jacqueline Payne, Gene & Jennifer Pelter, Kevin Rasmus, Tom Rea, Kelle Reynolds, Kevin Romanak, Molly & Kyle Schnepp, Kevin Smith, Aaron Valandra, Dick & Sue Vernier, Scott Worpell, and Laura Young. This list does not include the many supporters who made contributions to the Shawnee Karst Preserve acquisition over the past year (those donors were acknowledged previously). ***Now would be a good time to make your tax-deductible year-end donations.***
- ❑ The IKC has gained two new members in the last quarter. Welcome Greg Shearer (544) and Guillaume Vailhe (545). The IKC membership currently stands at 186.

## IN MEMORIAM - TERRY CLARK NSS 36369LFE

*by Dick Vernier*

“You be sure and get a photo of me here Richard. You always get pictures of them welding the gates, but never the guy doing the cutting. Cutting’s just as important as welding you know.” We were building the new bat gate for Wyandotte Cave and I had just come up from taking photos of a big bar of steel being hoisted up onto the growing gate when I heard that comment and looked over at Terry Clark with his usual big grin and an acetylene torch in his hand. I got the photo of him, not knowing that it would be my last chance.

On Wednesday, October 9th, the IKC lost a longtime friend and supporter when Terry Clark was killed in a tragic accident. Terry was driving a grain truck to earn a little extra retirement income when the truck he was in was struck by a train.

Terry was a member of the Evansville Metropolitan Grotto and has served as its President or Vice-President more than once. He was a Fellow of the National Speleological Society and a life member. He was involved in exploration in Roppel Cave and helped to build the Downey Entrance. He was a fixture at the annual NSS Conventions where he ran vertical training, helped with the vertical contests, and served on the Executive Committee for the Vertical Section and was often seen in the company of people like Bill Cuddington and Dick Mitchell. He was a regular attendee at the Indiana Cave Symposium and often served as the Grill Master. He was also a regular volunteer on many of the IKC’s conservation work projects, cleaning up sinkholes and planting trees.

My wife and I have been to many NSS Con-

ventions with Terry and his wife Jenny, and will always remember the adventures we’ve had, whether it was watching the bat flight at Old Tunnel in Texas, or helping them pick up their destroyed camp after the wind storm in West Virginia, or just all of us jammed into a little Honda in search of Mount Baker near Bellingham, Washington. Conventions will never be the same.

At the funeral, it was standing room only in the little church. The pews were filled with family and friends – many friends, his fellow church members, a whole row of Amish – for years Terry had helped the Amish, driving them as far as Oregon for one thing or another, and lots of cavers. At the gravesite, a squad of Veterans – Terry was an Air Force veteran of the Vietnam era – fired volleys in salute and played Taps.

Terry is survived by his wife Jenny, son (and caver) Matthew, daughter Kim, and two grandchildren. We offer them our sincere condolences.

If you happen to see the Wyandotte gate, or the Endless Cave gate, or for that matter almost any of the bat gates the IKC has installed

on various caves and abandoned mines over the last two decades, nearly all of the steel you will see has been carefully measured and cut by Terry. Besides cutting, Terry also transported a lot of the steel, sometimes driving from Corydon, Kentucky in his big red Dodge pickup towing a heavy trailer to Indianapolis to pick up the materials and then on to whichever cave, or mine was to be the project site.

Terry will be missed, I don’t know how we’ll replace him... well, actually we won’t.



# POPULATION TRENDS OF INDIANA BATS IN INDIANA

by Keith Dunlap

[Editor's note: This article covers the abbreviated bat census conducted in February of 2013. The results reported here should be considered preliminary until the formal report has been released.]

As part of the USFWS Recovery Plan for the federally endangered Indiana bat (*Myotis sodalis*), biennial population counts are conducted to assess the status of the species. In this article, as I have done in the past, I will present the cumulative data systematically collected over the past seventeen primary censuses (1981-2013), along with some historic data dating as far back as 1950. The majority of the contemporary data has been collected for the Indiana Department of Natural Resources under contract and the direction of Dr Virgil Brack of Environmental Services Inc.

As was done in 2011, the 2013 census departed in scope and methods from the previous efforts due to the presence of White-nose Syndrome, which increases the costs and complexity of performing the study. Rather than sample all of the known caves hosting Indiana bats, the focus was directed towards the ten most populous caves. This change still account for almost 99% of the Indiana population. Further, the "second tier" caves were visited in February 2012 and are scheduled to be counted again in 2014, so the final 1% of bats are being monitored on the "off" years.

Similar to 2011, the census methodology of conducting the in-cave work relied primarily on high resolution photography for collecting data (rather than measuring cluster sizes), which minimized disturbance times and improved accuracy. As before, extraordinary care was taken to assure all gear and clothing was properly decontaminated between each hibernacula visit.

The table on the following page represents the summary of over 328 cave visits to the 32 different caves documented to have had Indiana bats in recent years. The table lists the caves in descending order of colony size based upon the most recent census. In addition to the top ten caves visited during the 2013 census, River Cave was visited due to its proximity to Endless Cave and historically having a large little brown population.

The Indiana bat was one of the first species to be protected under the Endangered Species Act (it was added to the list in 1967). The reason for the bat's listing was the well-documented observa-

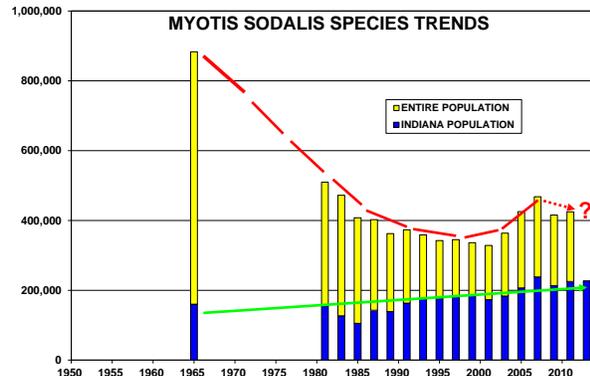


Figure 1

tions of population declines in the seven major hibernacula known at the time in Indiana, Kentucky, and Missouri. From 1965 to 1995, the population declined by over 60% (883,300 to 342,300, see figure 1) and appeared to be on its way to extinction despite modest and consistent positive gains in Indiana (green arrow) and a few other states. The total population appeared to then stabilize in the late 1990s and was actually showing optimistic signs of recovery through 2007. Unfortunately, the 2009 and 2011 numbers have shown range-wide decreases and the real impacts of WNS on the species has not yet really begun to be realized.

With that said, the estimated 2013 population of Indiana bats within Indiana increased slightly compared to the last two censuses and is for the most part still demonstrating a very gradual long-term growth trend, although it is still likely that White-nose Syndrome will eventually result in a decrease. On a national level, the 2013 numbers are not finalized, but a newly-discovered hibernacula in a Missouri mine is likely to offset the significant losses in the northeast, so the total population of Indiana bats may show a positive bump.

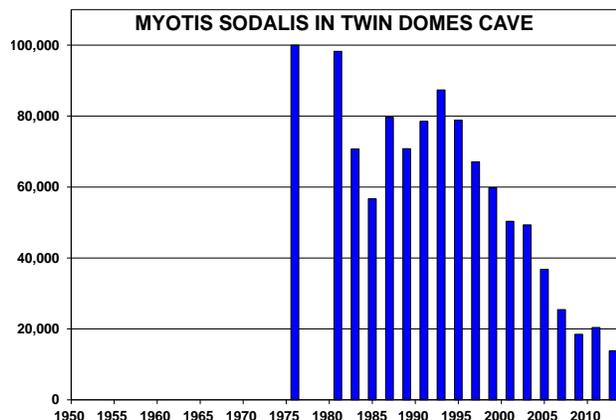


Figure 2



Looking at population trends in individual Indiana caves is interesting in there is significant volatility going on with several caves showing significant increases while several others dropped considerably without any obvious explanations.

Indiana bat populations in Twin Domes cave (figure 2) have fluctuated up and down through the early-nineties, but has shown a clearly decreasing trend since 1993. The 2013 population was no exception with a 33% drop compared to 2011 and a 84% drop since 1993. However, it is likely most of the Twin Domes population loss has not perished, but rather the bats have just been re-locating to other nearby caves such as Wyandotte and Jug Hole (and now Wallier).

Likewise, Batwing Cave (figure 3), Indiana's other original Priority I hibernacula, has shown continuous population decreases since it was first documented in the mid-70s. The 2013 census was the most dramatic drop to date with only 102 Indiana bats found there, a 99.7% drop since 1981. Again, it is likely most of these bats are not really disappearing, rather they are ending up in other nearby caves. There has been much speculation why Twin Domes and Batwing are not attracting bats like they once did. One hypothesis is that both have been sub-optimum caves temperature-wise, but served as refuges when Wyandotte Cave's disturbance became too great and the solid gate was installed. Now that Wyandotte is again "bat-friendly" with winter closure, the bats are "coming home to roost". However, the sudden drop at Batwing this year may indicate something else is a cause, requiring a new management strategy for this cave.

Wyandotte Cave has always

**RECENT POPULATIONS OF MYOTIS SODALIS IN INDIANA CAVES**

CAVE NAME	1981	1982/83	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003	2005	2007	2009	2011	2012	2013
Jug Hole (Harrison)				5535	6424	7640	13924	12463	20741	11900	20151	19240	29430	46664	36067	35641		58886
Wyandotte (Crawford)	2152	4550	4627	6681	10344	12994	17304	23878	25424	26854	28684	31217	54913	49936	52597	61618		56803
Ray's Cave (Greene)	12500	13475	16200	22990	28581	41854	38386	41157	51365	62864	48219	50941	54325	77687	59250	48403		49617
Coon Cave (Monroe)	1190	550	777	2950	2103	3696	4451	4455	4786	6341	6395	10675	9270	14099	18640	21829		30496
Twin Domes (Harrison)	98250	70750	56650	79650	70800	78500	87350	78875	67100	59775	50325	49350	36800	25459	18484	20403		13813
Grotto Cave (Monroe)	3190	2692	4198	3778	2985	1996	1568	2018	2435	4361	5419	10338	9875	12807	17256	25356		7849
Wallier Cave (Harrison)						36	72	465	409	381	310	541	917	1339	1059	1100		3370
Endless Cave (Washington)		2		1		134	335	450	404	403	800	863	958	1689	2059	2047		2243
Clyff Cave (Greene)		66		198		357	307	299	369	379	469	457	575	611	828	506		1241
Bathing Cave (Crawford)	29960	26650	14750	17450	14500	13150	9350	9300	7400	10125	9350	6900	6850	4388	4222	3058		102
Parker's Pit (Harrison)		500		1803		926	1045	1276	1139	987	989	447	298	767	927			
Saltwater (Crawford)		352		427		295	375	647	577	800	849	681	907	830	586			340
Swimney Cave (Harrison)						508					39	184	200	383	244			335
Parter/Neyman (Washington)								86	156	167	220	337	349	350	244			297
King Blair/Brimegar (Monroe)				12			442	514	663	453	263	190	193	218	218			31
Leonard Springs (Monroe)					135	112	92	82	92	81	25	138	109	82	188			73
Gypsy Bill Allen											134	250	177	134	95			86
Sexton Spring Cave (Greene)						0	67	117	98	75	100	113	95	90	61			49
Robinson Ladder (Crawford)					95	388	376	219	326	223	366	204	192	333	73			
Saltwater (Monroe)	83			19		221	245	175	136	40	24	96	88	83	48			
Storm Pit (Lawrence)													28		48			
Nichols Cave (Orange)									200			39						
Binkley Cave (Harrison)					24	51	25	41	15	6	9	40	12	49	10			25
Buckner Cave (Monroe)											1	34	17					58
Reeves (Monroe)													25	9				
Sullivan (Lawrence)						9						38	3		0			
Mitchell Quarry (Lawrence)										31								
Achcraft Cave (Greene)		29		0		20	28			3			0					
Wildcat Cave (Crawford)		74		0		61	34	48	19	19	35	17	0					
Sallamander Cave (Monroe)		104		0		0		1				0	0					
River Cave (Washington)		0		5		1				2		2			3			90
Bentz Cave (Crawford)		0			3					0								60
<b>TOTAL (adjusted)</b>	<b>155800</b>	<b>127000</b>	<b>105500</b>	<b>143000</b>	<b>138900</b>	<b>163100</b>	<b>176000</b>	<b>176800</b>	<b>184000</b>	<b>186200</b>	<b>173300</b>	<b>183600</b>	<b>206900</b>	<b>238400</b>	<b>213300</b>	<b>225300</b>		<b>227000</b>



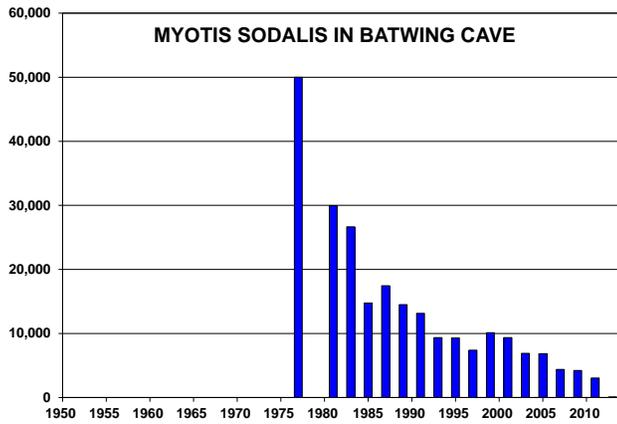


Figure 3

been an interesting contradiction in resource management. While it serves as an ever increasingly significant hibernacula, it was also a commercial tourist cave run by the Department of Natural Resources. Large populations of bats have been documented in this cave for over one hundred years (in fact, the *sodalis* was first classified as a separate Myotis species from this cave and thus the “Indiana” designation). Numerous gates have been placed on the cave with different degrees of airflow restrictions. A 1953 report by Mumford estimated the population at 10,000 bats (see figure 4). However, just a few years later and after a solid stonewall gate was installed, the population was only one-tenth that size. The population fluctuated around 2,000 bats until the late 1970s when the original gate was replaced with a more open grate-type. It is presumed that this partially restored the pre-gate airflow into the cave, providing a better winter habitat. Since 1981, the population has been steadily increasing, and the winter closure initiated in 2003 showed another significant step improvement. The 2013 count estimated the cave contained over 56,800 Indiana bats, down from the 2011 estimate, but still an overall increasing trend. It will be in-

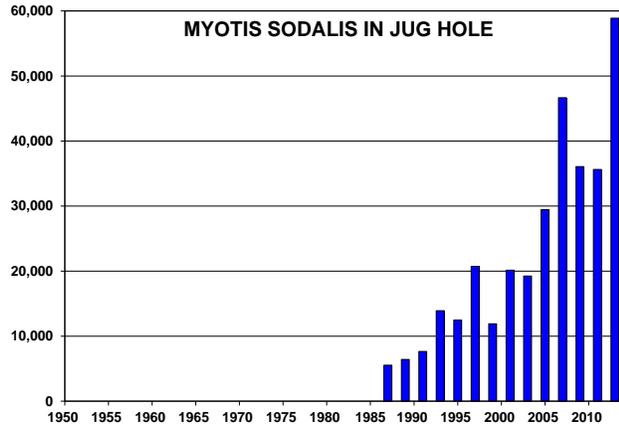


Figure 5

teresting to see if the newest gate installed last summer will have any perceivable impact on the population.

The final significant hibernacula in the Harrison/Crawford area is Jug Hole. First censused in 1987 with 5,500 bats (see figure 5), the population has been on an impressive increase and in 2007 jumped to over 46,000 bats. In 2009 and 2011, the counts dropped to around 36,000, but in 2013 jumped to a new record for the cave of almost 59,000 bat. Reducing the winter visitation at this cave by cooperative cavers has likely contributed to much of the increase over the years.

Previous research supported the observation that Indiana bats were very habitual to using the same hibernacula year after year. But as suggested earlier, with the population increasing at Wyandotte and Jug Hole while similar decreases are being experienced at nearby Batwing and Twin Domes, one can only speculate that at least some redistribution is occurring. To better quantify this, figure 6 shows the combined numbers from Wyandotte, Jug Hole, Twin Domes, Batwing, and Saltpeter caves which accounts for approximately 57% of Indiana’s population. It can be observed that the population appears to be much more stable

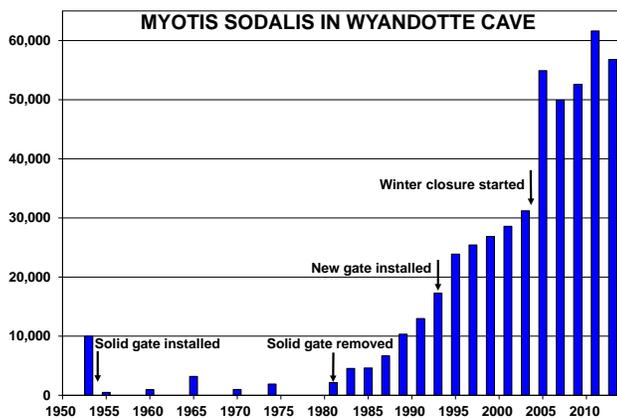


Figure 4

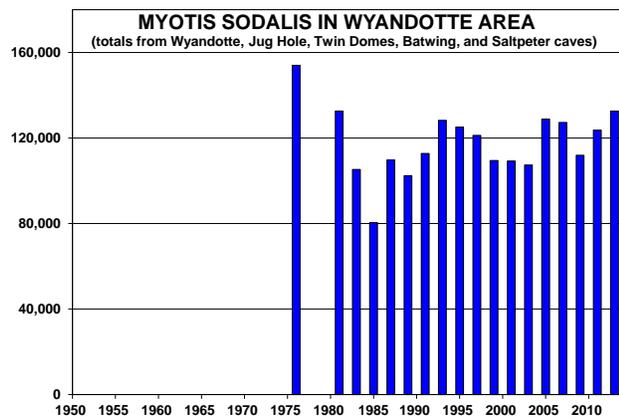


Figure 6



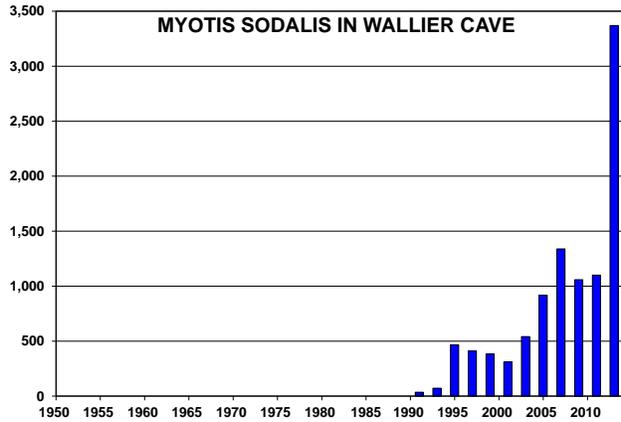


Figure 7

and indicates that the total number of bats within the southern Indiana region hasn't really changed that much over the past seventeen censuses.

The final cave in the Harrison/Crawford area to discuss is Wallier Cave, southeast of Laconia. The 1991 and 1993 census included 36 and 72 Indiana bats respectively (see figure 7). From 1995 to 2011, the population has shown an erratic, but upward trend. In 2013, the population there jump significantly to over 3300 bats, obviously showing an influx from other caves. It is unclear what precipitated this unexpected population jump.

Moving north to Washington County is Endless Cave in Cave River Valley. Visits in 1982 and 1987 found only 2 and 1 Indiana bats, respectively (see figure 8). However, the last twelve counts have shown an encouraging population increase of Indiana bats. In 2013, 2,243 *sodalis* were counted, the greatest to date. Endless also hosts a large number of little brown bats which were gradually increasing in numbers too, until this year. In 2013, the number of little browns drop by almost half of the 2009 high, likely the result of White-nose Syndrome which appears to impact little browns much more than other species.

Jim Ray's Cave in Greene County has had re-

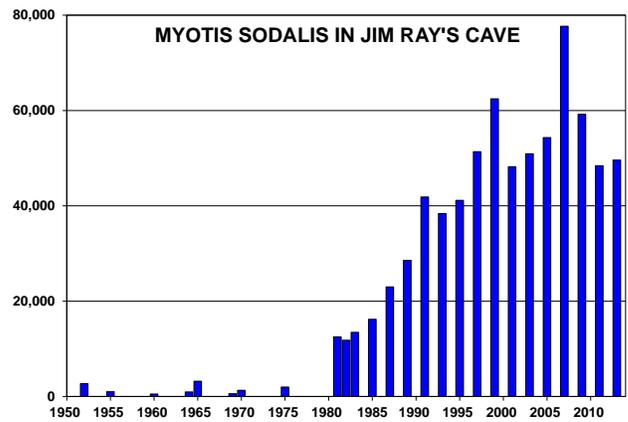


Figure 9

markable population growth over the past 30 years (see figure 9). Historic records by Mumford and others showed the cave's population never exceeded 3,200 bats in nine visits between 1952 and 1975. Brack's visits in the early 1980s showed the population had already jumped to approximately 12,000 Indiana bats with several thousand little brown bats. In subsequent years, the population grew at double-digit increases between biennial counts, maxing out with 77,687 in 2007. The past three counts have been more modest with just under 50,000 Indiana and 900 little browns found there in 2013. The dramatic increase from 1975 to 2007 has had no clear explanation, but two contributing factors may have played important roles. First it is known that a medical researcher from IU was illegally collecting perhaps thousands of bats each winter during the 1970s. This may have kept the population below some critical level to grow. Second, the "rear" entrance to the cave may have naturally enlarged itself, allowing more airflow to cool the cave, and thus making it a better hibernaculum. The DNR and IKC have been continually monitoring temperatures in this cave since 1993 to see if there is anything to make this a preferable cave for Indiana bats. Surprisingly, the tempera-

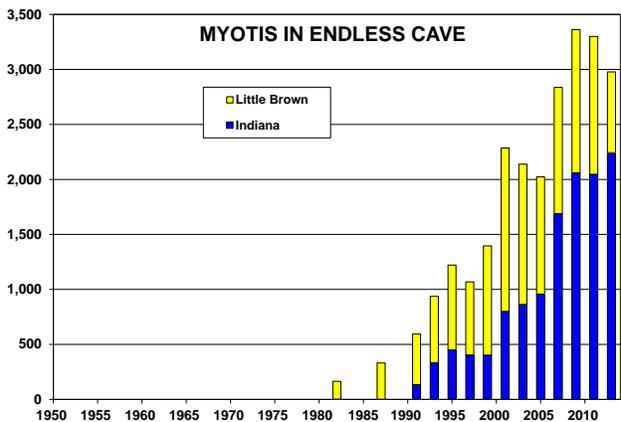


Figure 8

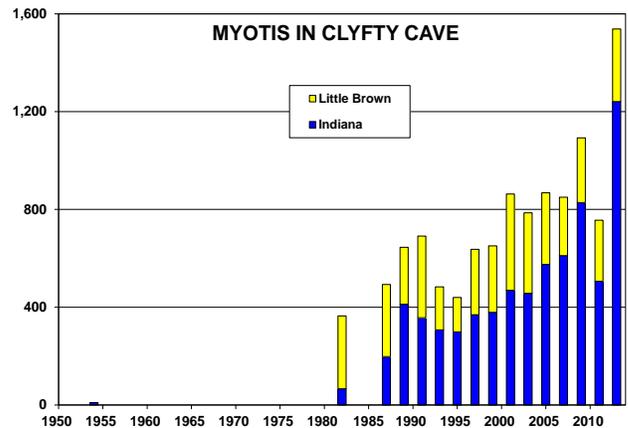


Figure 10



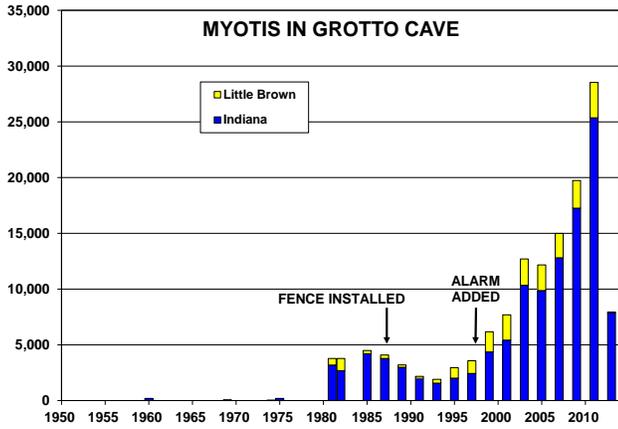


Figure 11

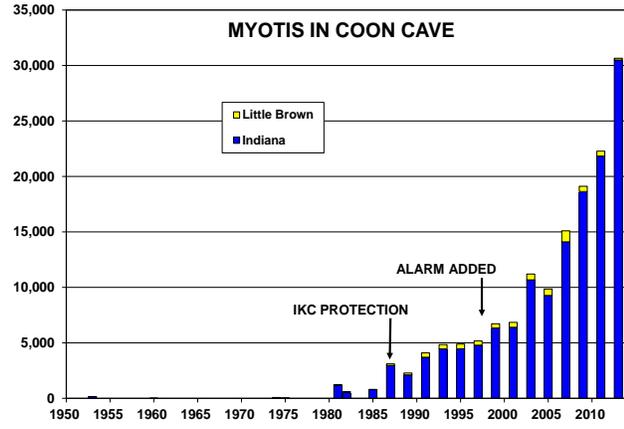


Figure 12

tures are relatively unstable and occasionally dip below freezing which is thought to be undesirable.

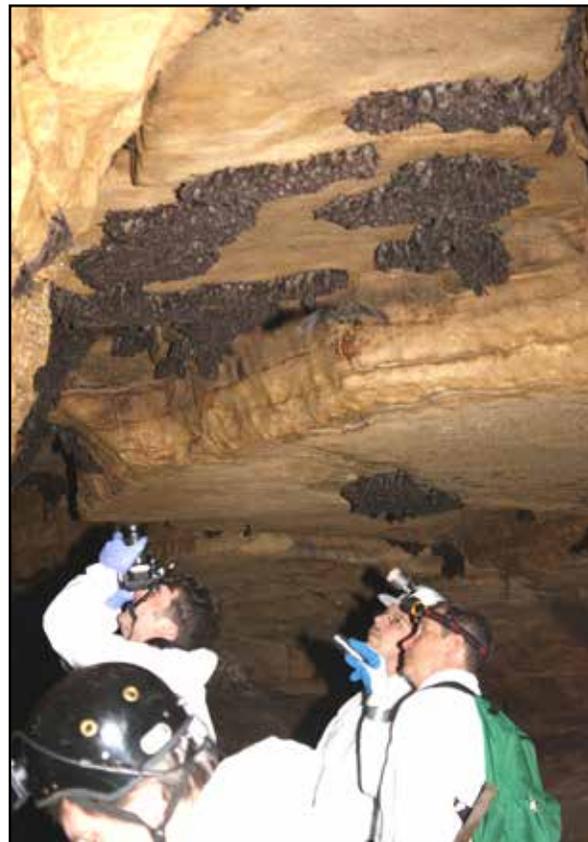
Approximately five miles to the northeast of Ray’s is Clyfty Cave. Figure 10 shows an Indiana bat population that appeared to be gradually increasing from 1995 to 2009, but dropped noticeable in 2011. However, the number of Indiana bats doubled in 2013. For the most part, the number of little brown bats in the cave has remained relatively constant over the years.

Moving to Monroe County, Grotto Cave has been another interesting hibernaculum. Historic records showed very small populations in the 1960s and 1970s (see figure 11). However, in the early 1980s, Brack reported significant numbers of Indiana and little brown bats. The cave peaked in 1985 with 4,200 Indiana bats and then decreased the next four census to a low of less than 1,600. However, in 1995 and 1997, the population rebounded slightly, and in 1999 and 2001, the numbers jump substantially. In 2003, the population nearly doubled compared to 2001. The 2005 count was down slightly, but it again took a sizable jump in 2007 to 12,807 *sodalis*, followed by a jump to 17,256 in 2009 and in 2011 an astonishing jump to 25,356 Indiana bats. In 2013, the population of Indiana plummeted to 7,849. Even more disheartening, population of little brown bats crashed from 3,175 in 2011 (what was the largest *luci* population in Indiana) to just 103 little browns in 2013.

The “sister” cave to Grotto is Coon Cave located less than one-half mile away on the same property. It too had historic records in the 1950s through 1970s of only a few hundred bats (see figure 12). Brack’s observations in the early 1980s were around 1,000 bats. Since 1985 when only 777 bats were found, with just two exceptions, the population has increased between each census. In 2013, 30,496 Indiana bats were counted there.

Obviously the large jump in 2013 was the result of bats moving over from Grotto, but there is not an obvious explanation for this sudden shift, and the total of the two caves was down 20% from 2011.

It is now likely that most caves serving as hibernacula for Indiana bats are fully infected with the fungus that causes WNS. The little browns are showing a clear and devastating reaction to the disease. While it is too soon to know how the Indiana bat will fair in the long run, the 2013 count was not nearly as discouraging as anticipated. Behaviorally, both species are showing classic symptoms (easy arousal, roosting in colder locations, etc), but for whatever reason, the Indiana bat seems to be coping better.



## FALL PRESERVE PROJECTS

by Keith Dunlap

While the original list of needed stewardship projects at the Shawnee Karst Preserve was pretty extensive, over the last eighteen months many have been checked off, and several more got attention the past few months.

First Property Manager Jerry Lewis put his wood-working skills to the test and constructed a short bridge (left) across the dam breach on the wildlife pond north of the cave entrance. The bridge will allow easier mowing of the trail since previously the mower could not cross the gap.

Then on October 15, Jamie Winner brought his tractor to the property for several projects. Other volunteers included Bruce Trotter, Jerry Walker, Jerry Lewis, and Keith Dunlap. The first project for the day was to use the tractor bucket to transport rock and concrete debris removed from the previous sinkhole cleanup over to the wildlife pond, where the debris was used to partially repair the dam breach. Jerry, Jerry, and Bruce then used shovels and a tamper to pack dirt around the debris. An overflow drain pipe was also installed to control the pond water level, hopefully preventing another dam "blowout".

The next project for the day was to regrade a section of the driveway ditch that was starting to wash out the crushed stone. The ditch was cut deeper and a third water "turnout" created to better manage the roadway runoff.

The final project for the day was to remove log "butts" from the sinkhole pond near the property entrance. When the property was timbered (before we bought the property), the log yard was right next to the sink hole pond. Butt ends of the logs were cut off and those ends were then bulldozed into the pond to get rid of them. Since the sinkhole



pond has some rare species, we wanted to remove the logs. Using Jamie's tractor with bucket forks, we removed approximately 100 logs from the sinkhole. There is another area with a like number of logs we will need to work on next year.

On November 7th, Property Manager George Cesnik and Keith Dunlap worked at the Buddha Karst Nature Preserve. The first project was to rehang the parking lot gate that was dragging. Next they each sprayed two backpack tanks of herbicide to tackle the invasive Japanese Honeysuckle on the property (the spraying is done after a killing frost so the herbicide does not impact the native vegetation). Finally, they spend a few hours severing grapevines that incumber the trees.



## Revitalized Chamber of Commerce Discusses Progress, Caving

by Leslie Radcliff

There was more than good food on the menu for the October business luncheon meeting for the Crawford County Chamber of Commerce held at Schwartz' Family Restaurant at Eckerty. There was also business, specifically the business of, well, business. Chamber members have one common goal in mind for the future of Crawford County and that is revitalization.

Morton Dale, president, along with vice president Steve Bartels and guest speaker, District 74 State Rep. Lloyd Arnold, who is from Leavenworth, served up a healthy dose of optimism during their presentations.

Arnold said he is often told during his travels that, of all of Indiana, Crawford County is the most scenic county in the state, with the best views and the prettiest scenery.

"We have so much here and so many opportunities here," he said.

Arnold has been traveling to learn more about tourism and economic development in other parts of the state as well as the country in order to bring new ideas to Indiana and invigorate the process of development. He recently met with Spencer County's economic development coordinator and has traveled to Los Angeles to see how things are done there.

"I've learned a lot from their (Spencer County) economic development guy," Arnold said. "That guy knows what he's doing, so I've reached out to him to say 'What are you doing, how do you do this?'"

Seeking out ideas and help is high on Arnold's list, and he said he believes that by working together (government leaders) can make things happen. It is the same approach he used when speaking to members of his home county.

"You guys tell me what I can do, or if you have any ideas, because we're all leaders here in this room, business leaders, community leaders. Things that you see that we can do to

make things better, when businesses do decide to come to Southern Indiana, what do they want to see."

Big on the agenda was the question of how to use existing resources to further economic growth inside the county, and everyone had the same thought: how to reopen Wyandotte Cave.

"I'm not going to play the bureaucracy and the game here," Arnold said of his frustration with the situation at Wyandotte Cave. "It's frustrating for me as a state representative to go to Indianapolis and to see that type of bureaucracy or government that doesn't work the way that it should, and a lot of our state agencies need to get better because the left hand doesn't talk to the right hand and, if you want to get something done, you actually have to go to each one of these offices to get these things done."

Arnold has met with Bob Sawtelle, property manager of O'Bannon Woods State Park, as well as the director of the Indiana Department of Natural Resources and many others.

"Their concern is really the bats," he said. "I do see light at the end of the tunnel, just from the aspect that there has been a lot of push. There are other local businesses that have inquired about that also."

"We're losing generations of cavers," he said. "In general, cavers begin between the ages of 10 to 14, when they actually get excited about it and think it's really neat."

The cave has been closed six years now and Arnold said it's not just the state that's interfering with the re-opening process. It's also on a federal level.

The business owners present, however, don't accept that the bats are the only reason why the cave remains closed.

"I'm the last guy to run Wyandotte Cave and more familiar with it that I need to be," Gordon Smith, owner of Marengo Cave, said. "The bats have nothing to do with it; the bats are a smokescreen."

"The bats are nothing more than a

convenient excuse, which they love, to keep Wyandotte Cave closed," he said. "It's a battle of reason, but Wyandotte Cave was closed to the public — from my operating it — before the bats were an issue, and, if the bats went away, Wyandotte Cave would still be closed. The problem is apathy at the DNR at the upper levels for caves in general."

Smith went on to detail how a new entrance to the facility could be fashioned in order to protect the animals if it were necessary.

Wyandotte Cave is a limestone cave located on the Ohio River in Harrison-Crawford State Forest in Crawford County approximately five northeast of Leavenworth. It is the fifth largest cave system in Indiana. Formed during the Pliocene Era and designated as a National Natural Landmark in 1972, the cave was a popular tourist attraction before it was closed indefinitely in 2010 due to White Nose Syndrome contracted by bats within the area.

Arnold encouraged business owners and individuals throughout the county to continue to raise awareness for the re-opening of the cave by writing the relevant state agencies.

It isn't just the economy and business owners who are looking for a face-lift.

The chamber itself is hoping for a revitalization of sorts, too, after being inactive for the last two years.

[...]

Bartels invited members to spread the word about the chamber website, [www.crawfordcountychamber.com](http://www.crawfordcountychamber.com). Members will receive a free listing, and the site will feature a profile of a new or existing businesses each quarter.

Annual membership dues are \$60 for businesses and \$36 for non-profits. Individual/associate memberships are available for \$24. For more information, visit the chamber's website or call 739-2246.

*Published in the Clarion News on October 9, 2013*

**INDIANA KARST CONSERVANCY TREASURY REPORT**

**Income/Expense Statement  
From July 1, 2013 to September 30, 2013**

**INCOME:**

Dues Apportionment and Residuals	698.75	
Donations - General	139.02	
Donations - Land Acquisition Fund	0.00	
Wyandotte Gate Final Payment (BCI)	9,700.00	
Interest	194.79	
	<u>194.79</u>	\$10,732.56

**EXPENSES:**

IKC Update (printing, production, mailing)	291.24	
Education / Outreach	0.00	
Stewardship/Conservation	208.37	
Business (website, postage, misc fees)	27.07	
SpeLoggers	7.80	
Wyandotte Gate	1,786.73	
Transfers to/from restricted funds/other adjustments	8,045.90	
	<u>8,045.90</u>	(\$10,367.11)

**NET OPERATING EXCESS (DEFICIT) THIS PERIOD:** \$365.45

**Balance Sheet  
September 30, 2013**

**ASSETS:**

Cash in Checking / Saving Accounts / CDs	130,615.29	
Robinson Ladder Cave Preserve (73.48 acres)	162,000.00	
Shawnee Karst Preserve (50.31 acres)	105,000.00	
Wayne Cave Preserve (20.00 acres)	75,000.00	
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)	13.16	
	<u>13.16</u>	<u>\$580,628.45</u>

**FUNDS & OPERATING EXCESS:**

Land Acquisition Restricted Fund	27,765.95	
Deferred Dues Restricted Fund (185 members)	2,992.50	
Indiana Acad of Science	2,052.20	
Wyandotte Gate Project	20,448.40	
Stewardship Endowment Restricted Fund	53,185.56	
Previous General Fund (total)	23,818.39	
Net Excess (Deficit) This Period	<u>365.45</u>	
Current General Fund (unrestricted)	24,183.84	
Current General Fund (committed)	500.00	
Real estate liquidity (basis value)	<u>450,000.00</u>	

**Total Liabilities & Operating Excess** \$580,628.45

# IKC EXECUTIVE BOARD MEETING MINUTES

Saturday, September 21st, 2013 – Borden, Indiana

## Board Members Present:

Jerry Lewis, President  
 Kevin Smith, Secretary  
 Keith Dunlap, Treasurer  
 Bruce Bowman  
 Dave Haun (proxy by Salisa Lewis)  
 Everett Pulliam  
 Bob Sergesketter  
 Tom Sollman  
 Carla Striegel-Winner  
 Bob Vandeventer (proxy by Sue Vernier)  
 Richard Vernier  
 Jamie Winner

## Board Members Absent:

Christopher Dick  
 Bruce Silvers  
 Karen Silvers

The quarterly meeting was called to order at 4:00 PM at the home of Salisa and Jerry Lewis. IKC President Lewis presiding.

Minutes of the June quarterly meeting were accepted as published in the September 2013 *IKC Update*.

## E-Mail Motions

None.

## Treasurer's Report

Treasurer Dunlap reported cash assets totaling \$130,515.30 and land assets totaling \$450,000, for total assets of \$580,515.30. Funds include Stewardship: \$53,052.93; Deferred Dues: \$3,622.50; Land Acquisition: \$27,765.95; and General Fund: \$23,573.32. Ad Hoc funds also include proceeds from the Wyandotte Cave Gating Project of \$20,448.40 and an administrative grant of \$2,052.20 from the Indiana Academy of Science.

IKC membership currently stands at 185. Fourteen members did not renew their 2013 membership and have been dropped.

## Education and Outreach Report

Susan Wilkerson and Don Ingle are participating in the Hoosier Outdoor Experience at Fort Harrison State Park. They are representing the IKC and had the inflatable cave simulator with them.

## DNR Limited Cave Access Program

Dunlap reports some progress has been made, however additional "interested" parties within the DNR are getting involved which is delaying progress. The number of caves originally slated for inclusion in the program has been significantly reduced. The six caves originally pro-

posed for the program within Harrison Crawford State Forest have been dropped (for now). The three remaining (significant) caves include Upper Twin Cave (winter visitation only), River Cave (summer visitation only), and Donaldson Cave (year around). Dunlap will continue to work with John Davis (IDNR) and Mark Young (Spring Mill State Park) to get this program off the ground.

The details of the program administration have yet to be finalized, however the IKC, at this point, would be slated to administer the program including management/coordination of cave trip requests. Keith Dunlap moved to select Dave Everton as provisional access coordinator for the caves within Spring Mill State Park. Everett Pulliam seconded the motion and the motion passed with a unanimous vote (12-0). The program would require all cave visitation participants to watch a web-based educational slideshow highlighting the various rules and expectations associated with the cave trip (especially related to White-nose Syndrome). Other program requirements include a maximum of 15 participants on any given cave trip, and a minimum participant age of 16 years old. There would be no limit on the number of cave trips allowed in a given year.

## Wyandotte Cave Gate Relocation Project

Dunlap and Lewis report the project was successfully completed and went well. The IKC's compensation will be around \$20k for labor, equipment, design work, and project management. The date to remove the old gate will be sometime next spring. Dunlap also mentioned that IDNR may be installing infrared cameras in the cave to monitor bat use.

## Shawnee Karst Preserve

Lewis reports that he intends on building a small bridge across the dam of one of the wildlife ponds to allow mower access in that area. Another project involves removal of logs and other logging debris from the sink-hole pond near the entrance of the property. Jamie Winner agreed to provide a tractor to help pull logs from the pond and move them elsewhere. Other projects include repairing the breach in the wildlife pond dam and road maintenance. A future workday is to be determined based on personnel availability and weather conditions.

## Indian Creek Conservation Easement

Jamie Winner reports the annual inspection went well. One minor issue noted was excessive mowing of easement property adjacent to certain private landowners. Letters describing rules around mowing in areas near the easement have been sent as a reminder to select property owners. Will see if improvements are made with mowing infringements at next years' inspection. The response from The Nature Conservancy regarding



the inspection was very positive. It was also noted that some PVC post covers on easement boundary marker posts were missing.

**Buddha Cave Preserve**

Dunlap reports that he and George Cesnik will be working on the property gate to the parking area. The gate is sagging and may need new hinges and also needs to be painted. Dunlap also reports that he plans on spraying herbicide on the Japanese Honeysuckle on the property after the first frost.

**Sullivan Cave Preserve**

The porta-john on the property was serviced in August. The grassy areas near the parking area are in need of some grass seed, however this activity may have to wait until next spring.

**Wayne Cave Preserve**

Robert and Tom Sollman are working on a design for a new kiosk on the property. They will present their plan and approximate cost for the project at the next IKC meeting.

**Robinson Ladder Cave Preserve**

Jamie Winner reports that the trees are coming in nicely in the lower fields and that he will remove the fallen tree in the road leading up to the barn. Jamie also reports that some tree work is needed in some areas to help the oak trees grow. This may include selective removal of smaller beech and maple trees crowding the oaks and invasive species removal such as autumn olive. The plants growing along the side of the entrance road are starting to encroach into the access lane and will need to be pruned again (last done in 2005). A plan to work on these maintenance projects will be developed and a possible work day will be set.

**Land Acquisition Activities**

Keith Dunlap reports that he has sent a letter to the

property owner who owns the land just to the north of the Shawnee Karst Preserve to inform him that the IKC would be interested in purchasing his property (or a portion thereof) in the event he ever decides to sell.

**Items From the Floor**

Lewis reports that graduate student, Hilary Edgington, had contacted him requesting two additional salamander tails for her genetics research.

Lewis also provided an update on the status of several on-going projects in southern Harrison County involving surveying/mapping several biologically significant caves. Klintstiver Spring Cave has already been surveyed, however, there may be as many as three other caves that are in need of surveying including Earl William (aka Earl Williams) Cave for which a survey has been started but needs to be finished. Additionally, there are two caves on a nature preserve in Washington County that need to be surveyed.

Lewis reports he will be out of the country for approximately three weeks in November. In addition to various recreational/tourist activities, Jerry is planning on spending five days in Germany to assist with the study of a new snail species discovered in a cave in that area.

Dunlap reports that the DNR Division of Oil and Gas are revising the general rules relating to drilling, including language related to drilling in karst environments. IKC member Kevin Strunk (professional geologist) is participating in the revision of the rules.

**Next Meeting**

The next quarterly meeting was scheduled for December 14th, 10:00 AM, at the Geology Building on the IU campus in Bloomington, IN.

Meeting adjourned at 5:20 PM.

Respectfully submitted, Kevin Smith, IKC Secretary.

**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.

