



# IKC UPDATE

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**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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Cover: The upstream entrance to Upper Twin Cave on the new Shawnee Karst Preserve.  
Photo by Keith Dunlap (November 2011).



**ANNUAL BUSINESS MEETING REMINDER**  
**SATURDAY, MARCH 17th, 10:00 AM EDT**  
**GREENWOOD, INDIANA**  
**GREENWOOD PUBLIC LIBRARY**

The Annual Business meeting is for the purpose of Executive Board elections. Annual reports from the IKC Cave Patrons and Property Managers are also presented. And as always, the meeting is for members and other interested persons to have an open forum for talking about cave 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 meeting is informal, and everyone is encouraged to attend and participate. The IKC Board wants your input.

Preliminary Agenda Items: Elections; Cave Patrons/Property Managers annual reports; Shawnee Karst Preserve Management Plan, fund-raising status, projects funding, Property Manager selection, planned workdays, and other details; Upcoming workdays at our other preserves; Indiana Cave Symposium; White-nose Syndrome update/IKC cave access policy for 2012; Financial reports; Land acquisition activities; and more....

Meeting directions: See page 19 (inside back cover) for map. *Note this is at the Greenwood Public Library in Old Town Greenwood where the meeting was last year, not at the White River Public Library where the meeting has been in the past.*

**ACTIVITIES CALENDAR**

**Mar 17 – IKC Annual Business meeting (see above)**

**Apr 21 – Under-Earth Day/Open House (see page 6)**

**Apr 21 – Indiana Cave Symposium (see page 7)**

**May ?? – Weed Control Around Trees at Buddha Karst Preserve**

**Jun ?? – IKC Quarterly Board Meeting (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...

“*I do.*” And I did, with Keith Dunlap in attendance, but we’ll come back to that day in May, 2004 at Spring Mill State Park. Let’s jump forward to a time a couple months ago, where Keith and I are walking a 50-acre tract on the south side of highway 60 across from the park. The property we were walking had been “aggressively cut” in the recent past and it has taken us a little time to locate the upstream entrance to Upper Twin Cave. We made our way down a ravine that obviously becomes a wet-weather in-feeder into the cave entrance and Keith tells me “We aren’t supposed to go in the cave if we haven’t made an offer yet...”

“Oh, okay. I won’t go in the cave, I’ll just check the water conduit. We need to see if the water supply is unobstructed through this conduit since we want to assure our water rights.” Right. So I crawl in the entrance with Keith right behind me and we found ourselves in a standup breakdown room. Being a biologist I then immediately headed for the first pile of raccoon turds that I saw and started picking through it with a water color brush (if you haven’t been with me in a cave, yes... I’m serious). A slender white bug with three “tails” crawls out of the fresh droppings and slithers away. I immediately recognize this creature as a new species of dipluran, a group of primitive insects that look a little like silverfish that occur in people’s homes. It’s a *Litocampa*, an animal that I’ve known about for years that I’ve found in a couple dozen southern Indiana caves. It remains “undescribed” as no one has yet published a formal description of the species in a scientific journal. It’s a globally rare species... things are looking up for Upper Twin Cave.

My true goal however, is to have a look at the stream passage. I climb down the breakdown and see the stream. Along the way I continue to find more troglobitic life, a cave dung fly (*Spelobia tenebrarum*) and the cave sheet-web spider (*Phanetta subterranea*). My concern is to have a look at how the stream looks just to be sure nothing untoward is present, for example, sewage worms. Everything looks fine and after flipping over a chunk of breakdown a bunch of the usual cave isopods (*Caecidotea stygia*) are found crawling on the rock. This is exactly what should be there and so I judge that having seen both aquatic and terrestrial (land) troglobites the cave fauna seems intact. None of the things we’ve seen in the cave are earth-shaking finds and the water is too turbulent to see much

else without diving in, which we are pretty sure is beyond what we’re supposed to be doing on this inspection of the property... but my interest in this cave stems from what I know about it that *is* earth-shaking, at least biologically. That story takes us back to the early 20<sup>th</sup> century.

In August of 1928 the International Congress of Entomology was held in Ithaca, New York. After the meeting two French biologists, C. Bolivar and René Jeannel, made a car trip of about 1,500 miles in a loop that took them to many well-known caves in the eastern US. In Indiana they visited several caves including Donaldson Cave, the downstream end of the Shawnee Cave System. Our French friends barely went in the cave, apparently looking around only in the entrance stream passage and then going up into the upper level and sampling some pools. By their estimate they saw less than 100 meters of the cave, but found a “lake” 25 meters in length in the upper level that they noted was not present when Blatchley visited the cave in 1896. In this large pool they found cave crayfish (*Orconectes inermis*), and myriad other smaller crustaceans including isopods, copepods, and ostracods... and halacarid water mites. In the same group of papers in which Bolivar and Jeannel wrote about their trip to Donaldson Cave (“Campagne Spéologique dans L’Amérique du Nord”) another biologist described the Donaldson cave water mite *Homohalacarus subterraneus*. Halacarid water mites are unusual in freshwater (most are in saltwater), and very few are known from North America. The species from Donaldson Cave (and thus, the Shawnee Cave System) is endemic to the cave (known nowhere else in the world).

Bolivar and Jeannel also found cave beetles (both *Pseudanophthalmus youngi* and *P. stricticollis* are known from the cave), and a variety of other rarities have been found over the years, including the Indiana cave pseudoscorpion (*Apochthonius indianensis*) and the Weingartner’s cave flatworm (*Sphalloplana weingartneri*). By far the best known animal in the cave is the Northern cavefish (*Amblyopsis spelaea*), which has a large population in the system and has been studied there by several biologists over the last century. But in rarity, the karst invertebrates definitely trump the cavefish.

So... I guess I’ve explained *ad nauseatum* why the biologist in me was excited for the IKC to have



the opportunity to purchase this important tract of land.

From a personal standpoint, let's now jump forward from 1928 to 1988. Spring Mill has been a favorite spot for family trips for many years as evidenced by the adjacent photo of my twins on the Upper Twin Cave archway (Vic and Jim are now in graduate school in California, in, you guessed it...biology). The three of us remember well the night we spent camping in the Spring Mill campground... and a great horned owl spent the night "white-washing" our tent.



And then in 1998 there was the Twin Cave boat tour from Hell (for the park's cave tour guide). On that fateful day the young lady had her first boat tour into the cave, and for the occasion she had in the boat her parents, Salisa and I, and our daughter Alex (4 years old at the time) and Geoffrey. The poor tour guide was very nervous and wasn't helped out a lot by the audience. She made a comment that maybe she could find a cavefish for us to see. She didn't, but Alex (4, remember) piped up with "Look! An *Amblyopsis!*" The guide looked like she had seen a ghost...so our kid is smart, what can I say.

Finally, let's skip to May 15, 2004, when I stood in the Pioneer Garden at Spring Mill and said "I do" in the company of a few close friends.

Salisa for some reason absolutely forbade having the wedding in a cave, but she didn't mind having one *near* a cave.

So the IKC adds another property to the list of preserves and I think this one is a real gem. I particularly like the concept of building sizable preserves. With the caves and three karst nature preserves already dedicated within the bounds of Spring Mill State Park, the IKC adds another significant piece to an already impressive assemblage of conservation-focused lands. And as a win/win proposition, Upper Twin Cave is the only cave in the state in which the Indiana Department of Natural Resources sanctions entry despite their efforts to curb White Nose Syndrome in bats!

*Jerry Lewis*

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## NEWS BRIEFS..

- Last year four Indiana caves (Endless, Wyandotte, Batwing, and Grotto) were found with bats confirmed to have White-nose Syndrome. A fifth cave, Coon, tested positive for *Geomyces destructans*, the fungus that causes WNS. This winter, the DNR visited a number of additional caves looking for signs of WNS and the majority of those caves resulted in visual evidence of infected bats (specimen were collected in some of the caves to confirm the observations). Also, a number of reliable observations and/or photos from cavers have been reported. All four of the IKC's major caves (Sullivan, Wayne, Buddha, and Robinson Ladder) show evidence of being infected. Other caves suspected include: Binkley, Breathing Hole, Little Wildcat, Saltpeter (Crawford), Mesmore Spring, Gypsy Bill Allen, Panther/Neyman, Dillon, Buckner, Leonard Spring, Reeves, Salamander. When the testing is complete, there will likely be several additional Indiana counties added to the USFWS tracking map. The only hopeful news is that so far, WNS has not been observed on any Indiana bats, even in caves where many infected little browns and pips have been observed.

From the IKC's perspective, the decontamination procedures at our caves will switch to assuring that visitors are cleaning their gear *afterwards* to minimize the risks of spreading the fungus to uninfected regions.



- ❑ In a surprising turn of events on 11 February 2012, Binkley Cave and Blowing Hole Cave, in Harrison County, were determined to be one and the same. Reaching that discovery has only been made possible by the efforts of many cavers over the course of more than 50 years, not the least of which includes more recent participation by cavers from all over the state. The connection had been suspected for years; even as early as the late 1960s, when cavers of the loose-knit group Indiana Speleological Survey (ISS) started intense exploration and survey efforts in the two caves. More than seven miles had been surveyed in Binkley Cave by members of the Bloomington Indiana Grotto in the 1950s before the ISS took over. The ISS expanded Binkley to just over 20 miles before the project took a long hiatus. New interest in the system was spawned as a result of Gary Roberson publishing his book on the cave and the ISS. The combined cave length after the connect was 34.72 miles (11th longest in the US), with much more expected and hoped for (note, another huge room was found on February 23rd).

Those of you who may not already be aware: the ISS welcomes participation in their adventures. Please contact Dave Everton ([DEverton@indiana.edu](mailto:DEverton@indiana.edu)) directly and he will do his best to help you determine how you can help or at least get introduced to the cave. Also visit the following website for detailed information: <http://mypage.iu.edu/~deverton/Binkley/binkley.htm>.

- ❑ While the Record of Decision for Section 4 of I-69 has been issued, the lawsuits haven't ceased. In December, CARR filed for an injunction to halt construction on a number of grounds. A cornerstone of their lawsuit is that InDOT did not fully review and analyze the alternative alignment proposed during the comment period by the IKC (and another one proposed by Pat Munson). Failing to do so is a violation of NEPA. InDOT's counter-argument filed in a brief is that NEPA does not require them to select alternative alignments no matter how much better they might be environmentally or financially.
- ❑ We would like to remind members and donors that the IKC has the means to easily accept dues and donations by credit card or PayPal via our association with the NetworkForGood organization, accessed from our [ikc.caves.org](http://ikc.caves.org) home page. More importantly, recurring donations can be setup on a monthly or quarterly basis and your membership dues will be automatically renewed each year. Questions? Contact Keith Dunlap ([Keith.Dunlap@juno.com](mailto:Keith.Dunlap@juno.com)).
- ❑ The IKC has gained four new member in the last quarter. Welcome Christopher Dick (513), Miriam Ash (514), Paul Ash (515) and Jeremy Brisch (516). The IKC membership currently stands at 185.

## **UNDER-EARTH DAY / OPEN HOUSE AT THE SHAWNEE KARST PRESERVE**

**April 21, 2012**

We would like to invite the IKC membership (and anyone else who might be interested) to come visit the Shawnee Karst Preserve prior to the Indiana Cave Symposium (about 15 minutes away). We will likely be performing some stewardship activities during the day as there is much to be done. Likely projects (pending approval of our Management Plan) will be installing a road gate, tree removal from the glade area, timber stand improvements (TSI) in the wooded area, and preparation of two camp sites.

Not interested in volunteering, no problem, just come and hike around and check out our latest property and see what we bought. Work starts at 10 AM and the driveway gate (if we get it installed) will close around 4 PM. Note, parking may be an issue if we get rain the week before.

Directions: The access drive to the property is 4.0 miles east of SR 37 on SR 60, or approximately 0.7 miles east of the main entrance to Spring Mill State Park. The driveway is on the south side of SR 60.

## 2012 INDIANA CAVE SYMPOSIUM PREVIEW

by Keith Dunlap

The 20th annual Indiana Cave Symposium, co-sponsored by the Indiana Karst Conservancy and Indiana Cave Survey, will be held on Saturday, April 21, in the Community Building at the Lawrence County Fairgrounds (one mile west of SR 37 on US 50 south of Bedford). The customary free cookout (burgers, brats, and other assorted meats and non-meat offerings) and pitch-in side dishes (please bring a cover dish or dessert to share) will start at 5 PM EDT. Presentations will begin at 7 PM. The tentative presentation titles and presenters (not in any particular order) include:

- Indiana Saltpeter Operations in the War of 1812 - Bill Schulze
- Shawnee Karst Preserve – Jerry Lewis
- Dukes Cave and other small surveys – Chris Schotter
- Guy Stover Cleanup – Brenda Shultheis
- Bioinventory on the HNF / Bioinventory in the Binkley Cave System - Jerry Lewis
- The Indiana Cave Connection and Christmas Card projects– Dave Haun
- Binkley Cave Update – Dave Everton

For more information about the Symposium, contact Dave Everton ([deverton@indiana.edu](mailto:deverton@indiana.edu) or evening phone 812-824-4380) or visit the Indiana Cave Survey website ([www.caves.org/survey/ics](http://www.caves.org/survey/ics)).

## CREATURE FEATURE

by Jerry Lewis

Periodically I get an email with a photo attached of some kind of bug or worm in a cave, and the question, “Do you know what this is?” In the autumn the photo is likely to be a large, handsome creature known as a Fishing Spider. I have found two species in Indiana caves, *Dolomedes vittatus* and *Dolomedes scriptus*. As the name implies these spiders like areas around streams where they are certainly predators, capable of catching prey larger than themselves, but probably not really good at catching fish. They do hunt on the surface of streams with the water’s surface functioning in the same way that the web of other spiders serves to catch prey insects. They are relatively large – a typical adult of one of the species usually seen in Indiana would take up much of a silver dollar.

I believe that these spiders probably are seen during the fall when it starts getting cold enough that they look for someplace warmer to over-winter. Here in Burns Hollow we usually see several of them in the house in the fall. Last year we had one that lived on our shower curtain for several weeks into the winter, until it had the bad luck to fall off at

the moment that a cat wandered by. Like most spiders, they are beneficial and generally feed on things we want don’t want in our house, so we’re happy to have them.



photo Bruce Bowman

# SHAWNEE KARST PRESERVE

by Keith Dunlap

SHAWNEE KARST PRESERVE DONATIONS	
<b>\$10,000 or more</b>	
The Nature Conservancy*	
<b>\$5,000 to \$9,999</b>	
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Keith Dunlap	
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<b>Project goal: \$102,600</b> <b>Raised/Pledged to date: \$79,188</b> <b>Percent of goal: 77.2%</b> <b>March 1, 2012</b>	

As was announced on January 13, the IKC closed on a 50.31-acre tract of property just south of Spring Mill State Park that contains the upstream entrance to Upper Twin Cave. This parcel is the IKC's sixth preserve and will help to protect the watershed of the world-class Shawnee Cave System, consisting of Donaldson/Bronson, Lower Twin, and Upper Twin caves. The system has a rich ecosystem and an impressive list of fauna (better described in Jerry Lewis's column on page 4) including the Northern cavefish (*Amblyopsis spelaea*). The system is famous for the cavefish studies conducted in the 1890s by the noted IU ichthyologist, Dr. Carl Eigenmann. A number of other research projects have been conducted here and published. Geologically, Mallot coined the term "Karst Windows" and his colleague, Van Osinski, concisely described this karst feature in 1935 using the exposed stream section between Upper Twin and Lower Twin caves as a classic example (he also included a sketch of that area in his paper).

This private Upper Twin Cave entrance has been on the IKC's priority list for acquisition since the mid-1990s. The 3.1 mile long cave is mostly a single stream passage. Much of the cave is walking, however, some areas contain deep water that requires swimming. There are some potholes and drop-offs and the cave is known to flood after heavy rains, so entry will be very dependent upon weather conditions. This, along with the presence of sensitive cave fauna, will present some unique management prescriptions. The draft Management Plan stresses visitation should be only attempted by experienced cavers and discourages novice/beginners.

The surface management will provide a lot of opportunities, but also a lot of challenges. The property was aggressively and improperly timbered two years ago and a lot of attention will





*This map of the Shawnee Cave System was created by Will Scott in 1909. For reference using modern names, #1 is the Donaldson entrance, #32/33 is the Bronson karst window, #37 is the Lower Twin/Upper Twin karst window, all within Spring Mill State Park. The IKC entrance is between #61/62, apparently undiscovered at the time. The cave continues approximately two more miles south of #64.*

EXPLANATION OF MAP.

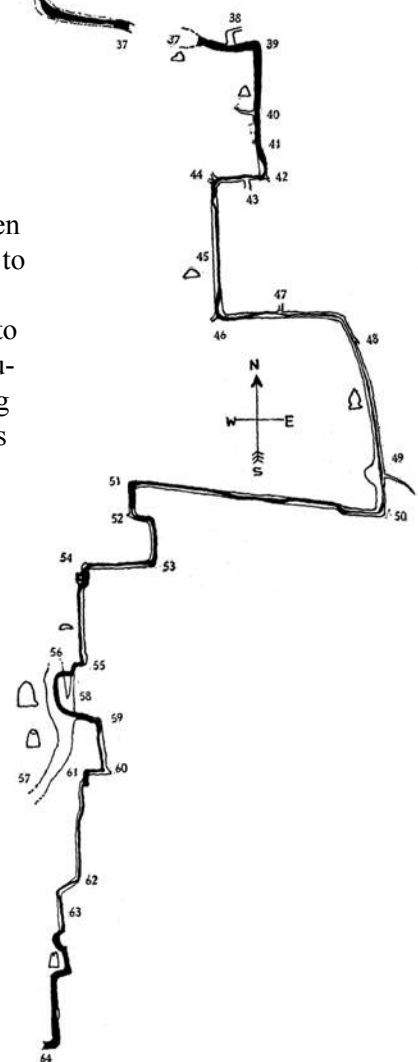
- Shawnee Cave (the outlet). Sec. I., No. 1.
- Closed chamber caused by collapse of roof at Sec. I., Nos. 2-3.
- Cascade. Sec. I., No. 6.
- Double passage. Sec. I., Nos. 7-8.
- Old cross cave. Sec. I.; Nos. 9-10.
- New passages. Sec. I., Nos. 1-8 and 11-13.
- Opening in roof leading to upper older levels of cave. Sec. I., No. 14.
- "Big Room." Sec. I., Nos. 15, 16, 17, 18, 19, 20, 21, 22.
- "Fallen Rock." Sec. I., No. 31.
- Lower Twin Cave. Sec. I., No. 32.
- Upper Twin Cave. Sec. I., No. 33.
- Roof too low for passage of boat. Sec. I., No. 34.
- Deepest water in cave, 10 feet 4 inches. Sec. I., No. 35.
- Lower Dalton Cave. Sec. I., No. 36.
- Upper Dalton Cave. Sec. I., No. 37.
- Upper Dalton Cave. Sec. II., No. 37.
- "Cross bedding" in limestone. Sec. II., Nos. 46-47.
- "Old passages." Sec. II., Nos. 56-57.
- Obstruction past which boat cannot be taken. Sec. II., No. 63.
- End of exploration. Sec. II., No. 64.

be needed to improve the current timber stand, including girdling many of the damaged trees. There is also a promising grassy glade area that needs the cedars and hardwoods removed, and a sinkhole pond that could use some restoration work. There are two "farmer dumps" on the property that will need to be cleaned up, and some invasive plants needing to be controlled. There are also some soil erosion areas needing stabilized. Finally, we need to harden the existing skidder trail that will allow all-weather vehicular access to the interior of the property for parking and primitive camping.

With all that said, the above-ground property has the potential to be a real jewel in the future, with diverse habitat, hiking trails, and numerous impressive sinkholes on par with those found in neighboring Spring Mill. All we need is a lot of sweat equity from IKC volunteers and time for mother nature to do her part.

As Treasurer, I would be remiss to not discuss the financial aspect of this acquisition and a little background information. The property had been in the Williams family for years, but was sold in 2007 for \$143,400. That owner sold it to a timber business in 2009 for \$150,000. The timber company marked the trees for harvest and bid the cut. After the harvest, they re-listed the property for \$150,000 and it sat on the market for over a year. IKC member Bruce Trotter came across the listing that mentioned a cave on the property and contacted me. I investigated the lead and determined the "cave" was actually the upstream entrance to Upper Twin. I contacted the listing broker and he indicated the owner would accept an offer of \$119,900. We investigated further and on November 26, 2011 the Board approved making an offer of their new asking price, contingent on an appraisal.

The independent appraisal came back with a value of \$100,620 (\$2,000/acre). We indicated to the broker that as a non-profit, the appraised value was the most we could pay, although some of the other terms of the agreement could be made more favorable (e.g.,



we pay for all closing costs). The seller accepted the new offer. In the end, our initial investment was \$102,579. In the short term, we will likely have another \$5,000-10,000 in restoration/infrastructure improvements, the biggest expense associated with hardening the lane into the property. We also will need to make a significant contribution to our long-term stewardship endowment fund (likely \$10,000). So the full cost of this preserve will be in the \$120,000 to \$125,000 range. This is a pretty daunting figure!

But with that said, the short-term improvement expenses and long-term endowment funding will be covered out of the IKC's general fund. More importantly, we have enlisted The Nature Conservancy to be our partner on this project since the cave system is on their fauna Portfolio List. They have committed to contribute \$50,310 (without their support we would not have attempted this project). The IKC had also accumulated \$16,313 from our members in our Acquisition Fund ear-

marked for our "next" project. So out of the gate, we were technically down to needing to raise just under \$36,000. Not a trivial amount for a small organization, but doable.

In the six weeks since we have closed on the property, we have received \$7,875 in direct donations with another \$5,000 matched by Dick Blenz. We have also submitted a \$5,000 grant request to the NSS, which has supported us in the past. So potentially, we are down to needing to raise another \$18,000. This will not be easy, but hopefully our membership and the caving community will continue to embrace the general concept of "cavers buying caves for cavers" and specifically see the value in this particular cave preserve.

So if you do not see your name on the Donor's List, consider making a donation. And if you are on the list, but would like to elevate your "status", you can contact me ([Keith.Dunlap@juno.com](mailto:Keith.Dunlap@juno.com)) to determine your current contribution total. Thanks!



Various passage in Upper Twin Cave, Lawrence County, Indiana.

*Photos by Dave Everton*

# POPULATION TRENDS OF INDIANA BATS IN INDIANA

by Keith Dunlap

[Editor's note: This article covers the abbreviated bat census conducted in February of 2011. Ten additional bats caves were visited in February 2012 and those population findings will be reported in the future.]

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 sixteen censuses (1981-2011), 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.

The 2011 census departed considerably in scope and methods from the previous efforts due to the realization that White-nose Syndrome was likely now present in Indiana. Rather than 25-30 caves being visited to attempt to quantify 100% of the population in Indiana, only the largest nine caves were targeted, but that still represents over 98% of the known population. The rationale was to minimize the chance of the researchers spreading WNS to the lesser populated caves where a visit had diminishing returns on the overall results.

The methodology of conducting the in-cave work also differed in that high resolution photography was the primary means of collecting data (rather than measuring cluster sizes), which minimized disturbance times. Likewise, some areas of the visited caves were skipped this time, which were previously visited to collect population information on other bat species (primarily little browns and pips). Finally, extraordinary care was taken to assure everything was properly decontaminated between each visit.

The table on the following page represents the summary of over 308 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 nine caves visited during the 2011 census, Clyfty Cave was subsequently visited by USFWS to look for WNS, and River Cave was visited due to it historically having a large little brown population.

The Indiana bat was one of the first species to

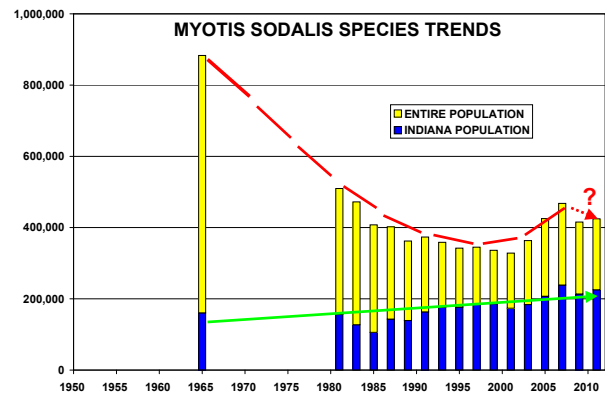


Figure 1

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 observations 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.

Looking at population trends in individual Indiana caves is interesting in that several caves have been showing consistently decreasing trends while others have been generally increasing.

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 2011 population was the first time in nine census that there was not a decrease

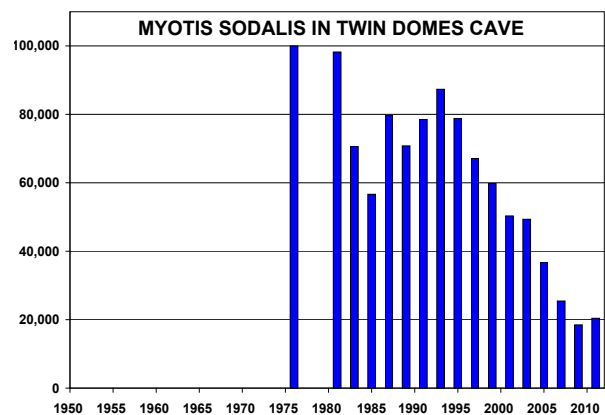


Figure 2



**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
Wyandotte (Crawford)	2152	4550	4627	6681	10344	12994	17304	23878	25424	26854	28584	31217	54913	49936	52597	61618
Ray's Cave (Greene)	12500	13475	16200	22990	28581	41854	38386	41157	51365	62464	48219	50941	54325	77687	59250	48403
Jug Hole (Harrison)				5535	6424	7640	13924	12463	20741	11900	20151	19240	29430	46664	36067	35641
Grotto Cave (Monroe)	3190	2692	4198	3778	2985	1996	1568	2018	2435	4361	5419	10338	9875	12807	17256	25356
Coon Cave (Monroe)	1190	550	777	2950	2103	3696	4451	4455	4786	6341	6395	10675	9270	14099	18640	21829
Twin Domes (Harrison)	98250	70750	56650	79650	70800	78500	87350	78875	67100	59775	50325	49350	36800	25459	18484	20403
Batwing Cave (Crawford)	29960	26650	14750	17450	14500	13150	9350	9300	7400	10125	9350	6900	6850	4388	4222	3058
Endless Cave (Washington)		2		1		134	335	450	404	403	800	863	958	1689	2059	2047
Wallier Cave (Harrison)						36	72	465	409	381	310	541	917	1339	1059	1100
Parker's Pit (Harrison)		500		1803	1104	926	1045	1276	1139	987	989	447	298	767	927	
Clyfy Cave (Greene)		66		198	412	357	307	299	369	379	469	457	575	611	828	506
Saltpeper (Crawford)		352		427	295	508	375	647	577	800	849	681	907	830	586	
Swinney Cave (Harrison)									11	29	39	184	200	383	244	
Panter/Neyman (Washington)								86	156	167	220	337	349	350	244	
King Blair/Brinegar (Monroe)				12			442	514	663	453	263	190	193	218	218	
Leonard Springs (Monroe)					135	112	92	82	92	81	25	138	109	82	188	
Gypsy Bill Allen											134	250	177	134	95	
Robinson Ladder (Crawford)					95	388	376	219	326	223	366	204	192	333	73	
Sexton Spring Cave (Greene)						0	67	117	98	75	100	113	95	90	61	
Saltpeper (Monroe)	83			19		221	245	175	136	40	24	96	88	83	48	
Buckner Cave (Monroe)	488		301	336	24	51	25	41	15	6	1	40	12	49	10	
Storm Pit (Lawrence)													28	48		
Sullivan (Lawrence)													25	9		
Nichols Cave (Orange)									200			39				
Reeves (Monroe)												34	17			
Mitchell Quarry (Lawrence)						9			84	31	9	38	3		0	
Binkley Cave (Harrison)							20	28		3			0		27	
Achcraft Cave (Greene)							61	34	48	19	35	17	0		0	
Wildcat Cave (Crawford)	29			0		31	61	34	48	19	35	17	0		0	
Salamander Cave (Monroe)	74			0		0			1			0	0			
River Cave (Washington)	104			5		1				2		2			3	90
Bentz Cave (Crawford)		0			3						0					
<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>

and that was likely due to photographic counting (the previous methodology of estimating cluster areas is known to under-estimate populations in caves such as Twin Domes where there are large, densely-packed clusters). Regardless, the 2011 population in Twin Domes is only about 20% of what it was when the cave was first counted in 1977 and its ranking has dropped from the largest to the sixth largest hibernacula in Indiana. However, it is likely most of the Twin Domes population up to this point has not perished, rather they have just been re-locating to other nearby caves such as Wyandotte and Jug Hole.

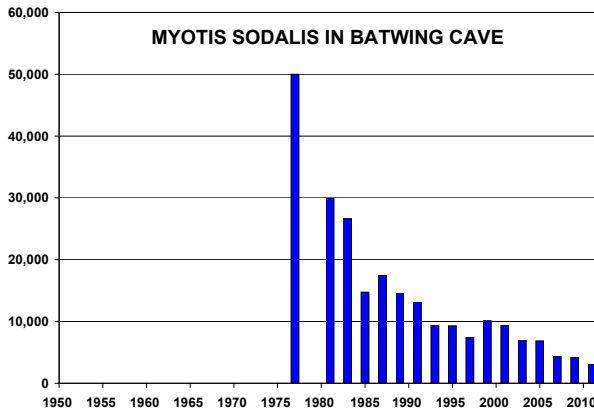


Figure 3

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 2011 census was no exception with just over three thousand bats, the lowest number to date (only 5% of the 1977 estimate). Again, it is likely 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. The current 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”. Likewise winter disturbance at Jug Hole has been significantly reduced in the past few decades.

Wyandotte Cave has always 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” designa-

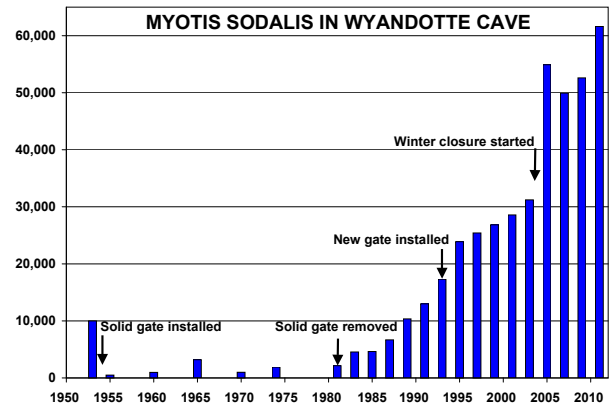


Figure 4

tion). 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 2011 count estimated the cave contained over 61,000 Indiana bats, re-establishing it as the largest known *sodalis* hibernacula anywhere.

The final significant hibernacula in the Harrison/Crawford area is Jug Hole that has retained it’s third place status for a number of years. 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 is still an impressive number. As was indicated previously, reducing the winter visitation at this cave by cooperative cavers likely contributed to much of the increase over the years.

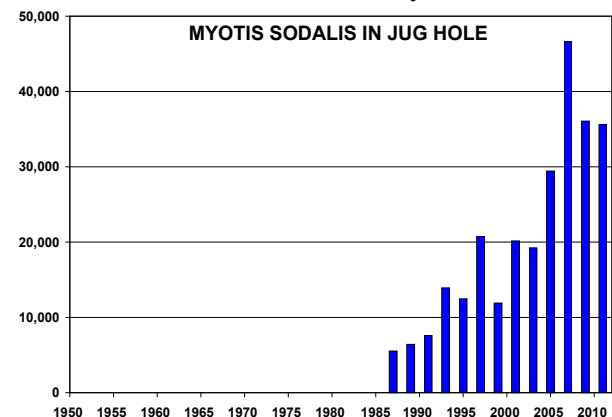


Figure 5



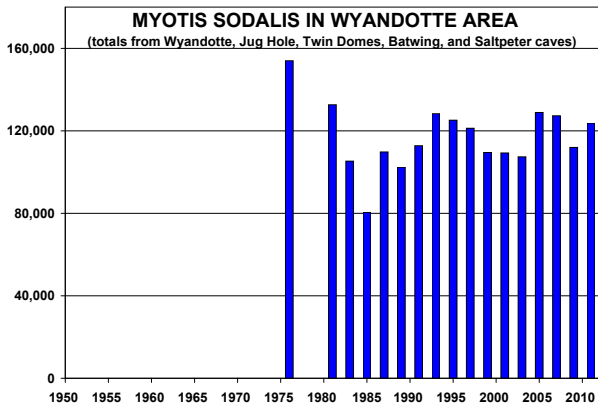


Figure 6

Previous research supported the observation that Indiana bats are very habitual in 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 50% of Indiana’s population. It can be observed that the population appears to be much more stable and indicates that the total number of bats within the southern Indiana region hasn’t really changed that much over the past sixteen 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). The 1995 through 2007 counts were 465, 409, 381, 310, 541, 916, and 1,339 bats, the latter being the largest population to date. In 2009, the population dropped to 1,059 and recovered slightly to 1,100 bats in 2011. It is unclear what is driving the overall positive trend.

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

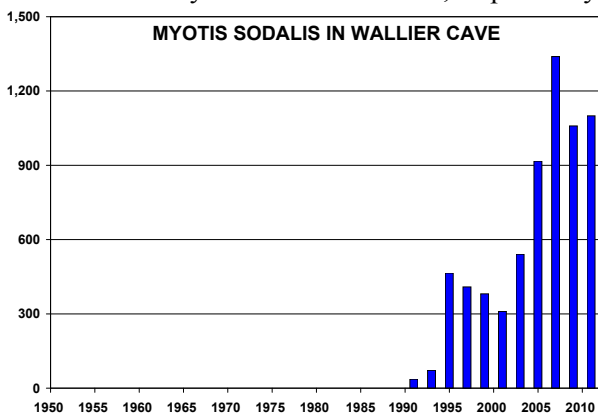


Figure 7

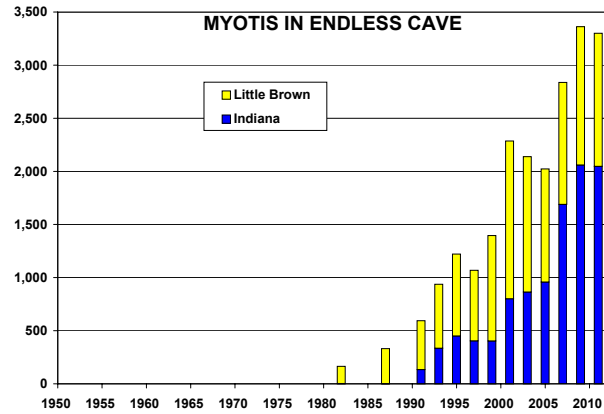


Figure 8

(see figure 8). However, the last eleven counts have shown an encouraging population increase of both Indiana and little brown bats. In 2011, 2,047 *sodalis* were counted. Likewise, the number of little brown bats this census were relatively high at 1,253. The combined total was just slightly less than in 2009. The new gate is likely making a positive difference, although with WNS confirmed at this location, the future is obviously uncertain.

Jim Ray’s Cave in Greene County has had remarkable 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 1987, 1989, and 1991, the population exploded, topping out at almost 42,000 Indiana bats (making it the second largest hibernacula in Indiana). In 1993, the population decreased slightly, but rebounded slightly in 1995 and made large jumps in 1997 and 1999 to over 62,000 bats. The 2001 and 2003 censuses showed a retreat, recovering slightly to 54,000 bats in 2005, but still enough to be on par with Wyandotte Cave. In 2007, the number of bats took another huge jump to 77,687, making it the largest

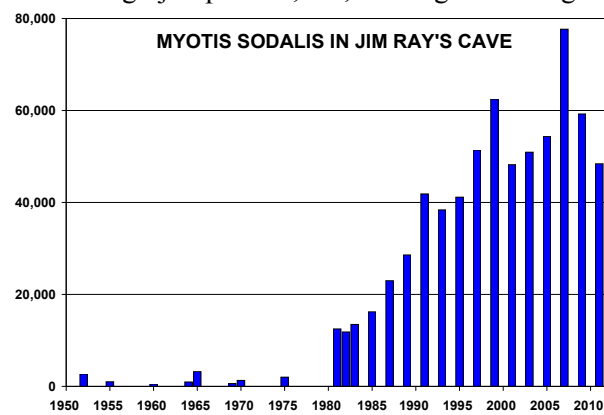


Figure 9



known hibernaculum anywhere since 1993. The 2009 census showed a significant drop to 59,250 bats, and the 2011 population dropped to 48,403. The dramatic increase from 1975 to 2005 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 temperatures are relatively unstable and occasionally dip below freezing which is thought to be undesirable. The bats in Ray’s may now be relocating to Coon and Grotto for some reason.

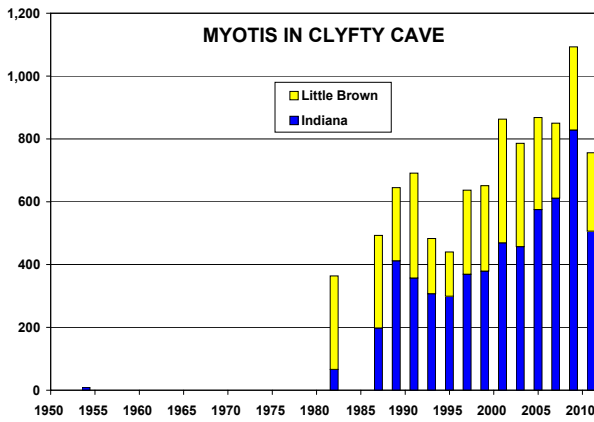


Figure 10

Approximately five miles to the north of Ray’s is Clyfty Cave. Figure 10 shows an Indiana bat population that appeared to be gradually increasing from 1995 to 2009, while the population of little browns over that same time period appear to be relatively constant. The 2011 count had 506 Indiana bats, a considerable drop with no real explanation.

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

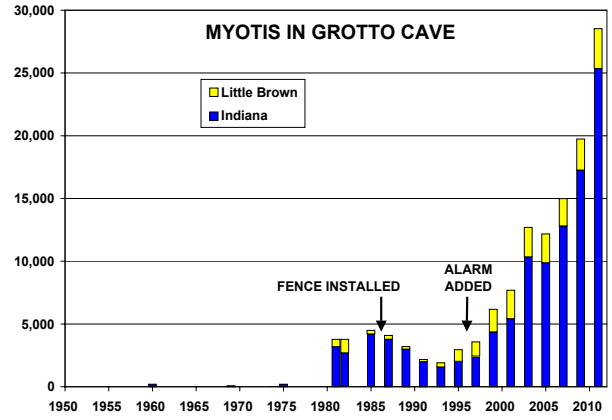


Figure 11

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 2011, the population of little brown bats also reached a record high of 3,175, making it the largest known Indiana hibernaculum for this species.

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, the population has increased significantly to almost 6,400 Indiana bats in 2001. In 2003, like Grotto Cave, the population jumped substantially to over 10,000. In 2005, the count was down slightly, but then took a huge jump in 2007 with 14,099 bats counted. In 2009, the population increased to 18,640 and in 2011 it topped out at 21,829.

It is unlikely that all of these “new” bats wintering in Coon and Grotto are an expansion of the population. It’s more likely they are simply relocating, probably from Ray’s Cave that has seen a comparable drop. Still, these two caves combined now host more than 11% of the entire *sodalis* world population

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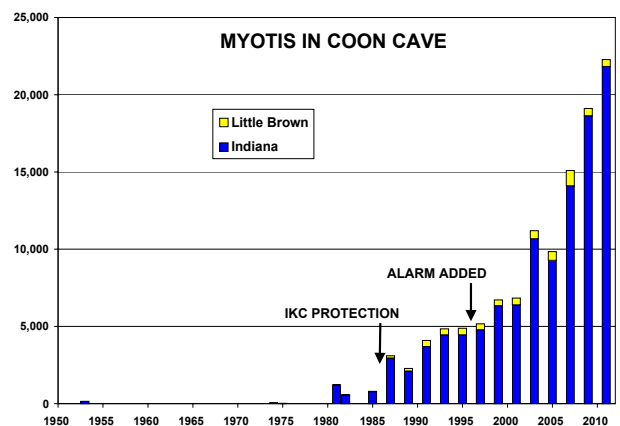


Figure 12

**INDIANA KARST CONSERVANCY TREASURY REPORT**

**Income/Expense Statement  
From July 1, 2011 to September 30, 2011**

**INCOME:**

Dues Apportionment and Residuals	681.25	
Donations - General	116.25	
Donations - Land Acquisition Fund	435.12	
EQIP grant (Buddha stewardship)	765.00	
IKC SpeLoggers	480.00	
Interest	<u>486.35</u>	
		\$2,963.97

**EXPENSES:**

IKC Update (printing, production, mailing)	238.57	
Education / Outreach	28.99	
Stewardship	109.06	
Conservation donation (Guy Stover Pit cleanup)	100.00	
Hats (25th Anniversary)	231.12	
Transfers to/from restricted funds/other adjustments	<u>520.14</u>	
		(\$1,227.88)

**NET OPERATING EXCESS (DEFICIT) THIS PERIOD:** \$1,736.09

**Balance Sheet  
September 30, 2011**

**ASSETS:**

Cash in Checking / Saving Accounts / CDs	122547.50	
Robinson Ladder Cave Preserve (73.48 acres)	162000.00	
Wayne Cave Preserve (20.00 acres)	75000.00	
Sullivan Cave Preserve (28.00 acres)	72000.00	
Buddha Karst Nature Preserve (36.84 acres)	29000.00	
Orangeville Rise Nature Preserve (3.01 acres)	7000.00	
Indian Creek Conservation Easement (valued at \$1/acre)	<u>13.16</u>	
		<u><u>\$467,560.66</u></u>

**LIABILITIES & OPERATING EXCESS:**

Land Acquisition Restricted Fund	39622.59	
Deferred Dues Restricted Fund (180 members)	2925.00	
Stewardship Endowment Restricted Fund	41108.40	
Previous General Fund (total)	37168.58	
Net Excess (Deficit) This Period	<u>1736.09</u>	
Current General Fund (unrestricted)	38904.67	
Current General Fund (committed)	3000.00	
Real estate liquidity (basis value)	<u>345000.00</u>	
Total Liabilities & Operating Excess		<u><u>\$467,560.66</u></u>



## IKC QUARTERLY MEETING MINUTES

Saturday, December 10, 2011 – Bloomington, IN

### BOARD MEMBERS PRESENT:

Jerry Lewis, President  
 Keith Dunlap, Treasurer  
 James Adams, Secretary  
 Bruce Bowman  
 Dave Haun  
 Don Ingle  
 Everett Pulliam  
 Bob Sergesketter  
 Bruce Silvers  
 Karen Silvers  
 Tom Sollman  
 Bob Vandeventer  
 Richard Vernier  
 Carla Winner  
 Jamie Winner

### BOARD MEMBERS ABSENT:

None

The Quarterly Meeting was called to order at 2:05 PM at the Monroe County Public Library, Bloomington, Indiana, IKC President Lewis presiding. The meeting was then temporarily recessed to allow several more Board members to arrive.

Minutes of the September 2011 meeting were accepted as published in the December 2011 *IKC Update*.

Lewis noted one e-mail motion since the last meeting: Acquisition of the property containing the most upstream entrance to Upper Twin Cave

The pre-motion discussion started on 11/23/2011. On 11/24/2011, Ingle moved, "That we contact the Upper Twin Cave landowner and make an offer for the property for an amount not to exceed \$119,900", seconded by Keith Dunlap (11/24/2011). Formal discussion proceeded and the vote was called on 11/26/2011. Motion passed 15-0-0 on 11/28/2011.

### Treasurer's Report

Treasurer Dunlap reported cash assets of \$119,138.13 plus land of \$345,000.00 for total assets of \$464,138.13. Funds included Land Acquisition, \$39,817.59; Stewardship, \$41,108.40; Deferred Dues, \$2,925; General unrestricted funds, \$35,287.14.

The IKC has 182 members.

### Indiana Cave Symposium

Dunlap moved to support the annual Indiana Cave Symposium in cooperation with the Indiana Cave Survey by paying for half of the expenses, not to exceed \$150. Ingle seconded. Motion Passed, 11-0-0 (at that point, there were still 4 Board members absent).

### Education Outreach

Ingle noted that it's a slow time of the year for events at which we might participate. He has received a telephone inquiry regarding a cave in Ohio. Concerned neighbors are looking for ways to acquire a commercial cave being sold to a developer and increase karst education in Western Ohio. Also, the DNR publication *Outdoor Indiana* is seeking information regarding our portable cave.

### Robinson Ladder Cave Preserve

Carla Winner reported that a prairie restoration burn on the property was attempted; however, the vegetation appeared to be too green for a successful burn. Jamie Winner noted that the contractor believes that there is not enough native grass and everything should be killed and then re-seeded with native species. There was discussion on alternatives.

Dunlap noted that we've tried to move on the prairie restoration and would prefer to devote resources and attention to the two new wooded-tracts that have been recently received and added to the preserve.

Carla and Jamie Winner agreed to continue to look at burn options.

Dunlap noted that a bat survey will likely be conducted in the spring to look for signs of White Nose Syndrome (WNS) in the cave.

### Wayne Cave Preserve

Nothing new to report.

### Indian Creek Conservation Easement

Lewis has sent reports to the landowners and The Nature Conservancy. TNC is happy that the picnic shelter has been removed.

Dunlap noted that the easement correction needs to be re-recorded and is pending.

### Buddha Cave Preserve

Bowman reported that the Indiana Cave Survey has gathered accurate GPS locations on or near the property. Fourteen caves/features were noted and turned in to the ICS database.

Regarding stewardship, honeysuckle and other invasives are being eliminated by the Property Manager and volunteers.

### Sullivan Cave Preserve

Dunlap indicated that the second fifth-year Classified Forest inspection by the District Forester is scheduled for the morning of December 20th. Anyone who would



like to tag along on the inspection is invited to hear what forest management suggestions might be made. Afterwards (weather permitting), Dunlap and Jamie Winner will be finishing up the fire wood splitting that was started in September.

The portable toilet has been scheduled for pumping.

### **Shiloh Cave**

Lewis reported that two bioinventory trips have been made and a report is in the works. Adams noted that it has been an active caving summer on the property. Relations are good with the owners.

### **Hoosier National Forest**

Lewis hopes to re-energize our relationship with HNF.

### **Land Acquisition Activities**

Sinking Creek Cave: Dunlap had multiple communications with the listing broker, but the property owner has decided that sub-dividing the property is not in his best interest, so this project has been dropped.

Property South of Spring Mill State Park: Our offer was accepted and we are proceeding with the purchase process. An appraisal has been ordered. TNC is partnering with us on this acquisition. We may need to hire a surveyor to locate a couple of property monuments. Two sinkhole dumps have been found that we may have to deal with and cleanup. Also, a water tank used as a "hunting hotel" has been found and will need to be removed, plus some deer hunting tree stands.

After talking with an adjacent landowner, we might have an opportunity to split and sell off the "panhandle" portion of the property; the consensus was to not pursue the split.

There appears to be no existing boundary issues.

A formal announcement to the membership and public will be made after closing.

A Management Plan Committee will need to be formed to direct management of the property. Sollman noted that a greater emphasis should be made in the plan regarding the local weather conditions due to the cave's ability to flood. Lewis questioned if we want to plan for a road gate to be installed soon after closing.

A name for the preserve will have to be decided upon. Dunlap moved "Shawnee Karst Preserve" as a working title because of previous survey work done within Spring Mill State Park referred to the caves making up the drainage area as the "Shawnee Cave System". Bowman seconded. Motion Passed, 15-0-0.

Acquisition fund raising for this property was discussed.

### **Items From the Floor**

Twenty-fifth Anniversary hats are available for \$15 to Dunlap. All proceeds goes to the Land Acquisition Fund.

### **Next Meeting**

The Annual Meeting was scheduled for Saturday, March 17, 2012 in Greenwood at 10:00 AM. An Executive Board Meeting was scheduled for Saturday, February 4, 2012 at a location to be determined (if the meeting is required).

Thanks to all who brought in cookies. Meeting adjourned at 3:46 PM

Respectfully submitted, James Adams, Secretary




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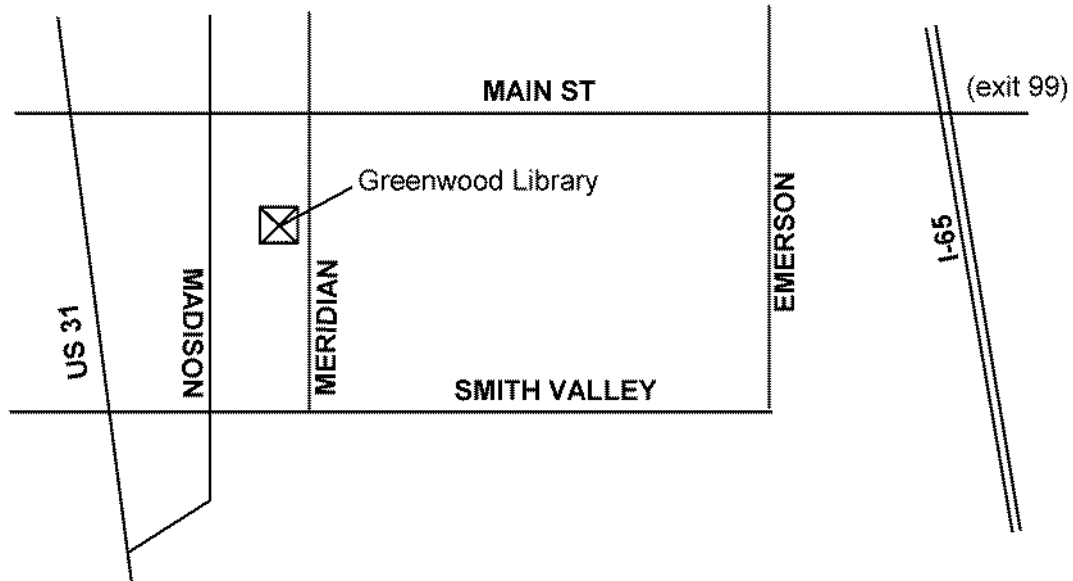
*Continued from page 15...*

and the observed increases can be at least partially attributed to the past efforts of the IKC in minimizing winter disturbances to these caves since 1985 (note, our management agreement with the owner was terminated in 2010 at the request of InDOT).

During the 2011 census, four of the nine hibernacula visited were confirmed to have bats infected with White-nose Syndrome and a fifth was

suspected (observed evidence but not confirmed by lab tests). Knowing it takes several years for WNS to progress to the point of significant mortality, we will likely not know the full impact for several more census cycles, but it is likely that the 2011 population of 225,000 *sodalis* in Indiana may be the plateau before the cliff.

**IKC ANNUAL BUSINESS MEETING  
SATURDAY, MARCH 17th, 10 AM  
GREENWOOD PUBLIC LIBRARY, GREENWOOD, INDIANA**



The address of the library is **310 South Meridian, Greenwood, IN 46143.**

Their website is [www.greenwoodlibrary.us](http://www.greenwoodlibrary.us) and their phone number is 317-881-1953.

**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.

