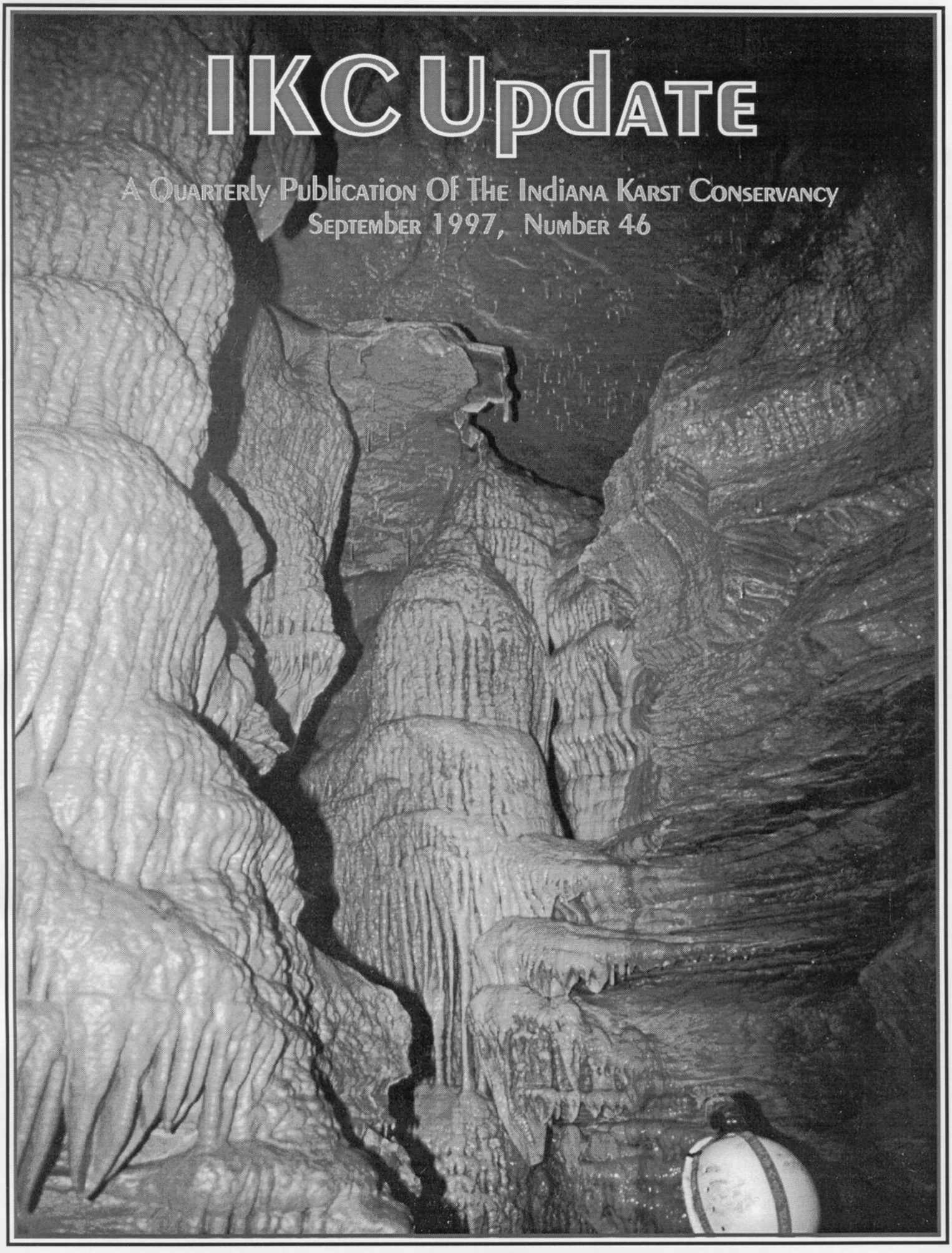


IKC Update

A Quarterly Publication Of The Indiana Karst Conservancy
September 1997, Number 46

INDIANA KARST CONSERVANCY, INC.

PO Box 2401, Indianapolis, IN 46206-2401

Affiliated with the National Speleological Society.

The Indiana Karst Conservancy, Inc. 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.

Cover - Black Damp Passage, Shiloh Cave, Lawrence County, Indiana.
Photo by James Adams © 1993. Layout by James Adams.
Publishing by ***Myotis Press***, Editor and Publisher Keith Dunlap.

QUARTERLY MEETING & COOKOUT REMINDER

SUNDAY, SEPTEMBER 14th, 4:00 PM

INDIANAPOLIS, INDIANA

HOME OF BAMBI ERWIN, 1220 E THOMPSON

The quarterly meetings are 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 meetings are informal, and everyone is encouraged to attend and participate. The IKC Board *wants* your input.

Preliminary Agenda Items: Brief recaps of last quarter's activities; Shiloh gate rap-up; Oil & Gas Division permit requirements update; Dry Cave (Ohio) protection project rap-up; Sullivan Cave ownership change; Land Acquisition Committee progress; IDNR activities; HNF inventorying project; HNF/IKC committee status; Wesley Chapel Gulf discussion; other HNF activities; Reprint #9 status; and more....

Following the business meeting (approximately 6 PM) will be the annual pitch-in cookout. The IKC will provide the grilled burgers, hot dogs, and brats; condiments, and soft drinks. Please bring a salad or cover dished to share. Finishing off the evening's activities will be the highly contested dessert competition. Bring an entry or enjoy sampling and selecting the winners. Contact Bambi Erwin (317-783-4687) for further details.

EVENTS CALENDAR

31 AUG	=	HANCOCK PROPERTY WORKDAY, Bloomington (see page 5)
14 SEP	=	IKC MEETING & COOK-OUT (see above)
20 SEP	=	LOST RIVER TOUR (see related article on page 12)
07-10 OCT	=	NATIONAL CAVE MANAGEMENT SYMPOSIUM, Bellingham, WA
18 OCT	=	LOST RIVER TOUR (see related article on page 12)
?? OCT	=	SINKS OF INDIAN CREEK CLEAN-UP PROJECT (see page 4)
08 DEC	=	INDIANA CAVE SURVEY MEETING (Columbus)
?? DEC	=	IKC MEETING (date and location TBD)

Membership to the Indiana Karst Conservancy is open to anyone interested in cave and karst conservation. Annual dues are $15. Please see inside back cover for the membership application form or to make a donation.

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.

RAMBLINGS FROM THE PRESIDENT...

Every now and then, I'm asked for my position on this issue or that. Last June, the "sacrificial cave" concept came up again; in the context of Buckner Cave.

The following is a (highly-edited) response that I gave to this question via email. Like most of the debris that appears in the "Ramblings" column, it doesn't necessarily represent the viewpoint of the majority of cavers or even of the IKC. Still, I'd like to think I'm in touch with the feelings of most of our membership on this matter. Maybe it will prove useful the next time you're asked the same question.

My main objection is that visiting a "sacrificial cave" gives novice cavers the wrong impression on what is acceptable behavior. They go into this cave, see that everyone has trashed it, and no one seems to care. Eventually, they find another cave, and assume that it's "all right" to do the same thing there.

The cavers that went before them, people who should know what they're doing, trashed Buckner -- why can't they trash this one? The result is cycle of abuse that is very difficult to turn around.

Secondary to that, but perhaps nearly as important, is the damage to the sacrificial cave. I just can't buy into the notion that *any* cave is expendable. Buckner was once a very nice cave. Before we fling it open for everyone, those who think that's a good idea need to make a better case for themselves. They must demonstrate that sacrificing this cave is going to make things better for other caves. The sacrificial cave advocates have the burden of proof, not the opposition.

Finally, I don't agree with the premise behind sacrificial caves -- that undesirables will go to there and not go anywhere else. Like many of us, I started my caving in the Garrison Chapel area. I enjoyed it, and soon wanted to visit other caves. I wasn't content visiting one or two caves, over and over again. And I find it very unlikely that anyone else would be. I believe that sacrificial caves actually entice non-cavers into going caving and eventually visiting other caves (if you feed a dog off your plate, you can't expect him not to beg at the table). Our energies are better spent making it difficult to find caves, or at least not freely distribute the information. Unfortunately, there are those who have no qualms about that; for economic or other reasons.

Buckner used to contain a significant population of federally-endangered Indiana bats. Even with all the traffic, a few bats would collect near the entrance crawlway every year and hibernate there. It's amazing, but the census invariably discovered a small cluster of 25-50 up in a crevice, year after year. Last winter, someone stuffed an item of clothing up into the crevice and set it on fire. The bats are no more.

There are good people who visit sacrificial caves, too. I'd like to think I am one those neophyte spelunkers who "turned out to be okay after all." Many people, perhaps most people, are like that. But on the whole, it really isn't that difficult for interested folks to join a group, show up at an event, talk to a landowner, and gain access. Such things *are* an inconvenience, no doubt about it. It *would* be nice if we could just open up these resources to everyone, secure in the knowledge that the privilege won't be abused. It's very unfortunate that a few inconsiderate visitors force the rest of us to take on an attitude of protectionism and mistrust. But it appears to be a necessary evil.

- Bruce Bowman

NEWS BRIEFS...

❑ The IKC is planning a joint workday with The Nature Conservancy this fall to clean up a dump along the bluffs of Indian Creek just above the Sinks of Indian Creek (Harrison County). TNC currently holds a conservation easement for the property where the dump is located and the clean up is consistent with the covenants of the easement. The exact date has not been set due to difficulties in contacting the landowner. Once all the details have been worked out, the membership will be notified of the details.

❑ The Hoosier National Forest completed the acquisition of the Wesley Chapel Gulf property from US Gypsum in June. This 188-acre property contains a number of karat features,

most prominently the 1,000 foot long by 350 foot wide gulf itself, a National Natural Landmark. Caves in this area are known to harbor rare biota, including a beetle (*Pseudanophthalmus jeanneli*) known from nowhere else in the world. Ellen Jacquart, Natural Resource Specialist, is leading an inter-disciplinary team on the forest to develop an interim management plan for the area, which will address protection of sensitive features, dispersed recreation, and safety issues over the next few years. A more thorough management plan will be developed in time.

- Volunteer work continues on the Hoosier National Forest in locating, inventorying, and documenting caves. This work will eventually lead to each significant cave on the forest having it's own management plan which will better protect the cave from impact, especially those associated with conflicting land uses. The volunteers are working one weekend a month (the next weekend is September 27/28), systematically working their way through the list of approximately ninety known caves on the Hoosier. Kriste Lindberg is coordinating the volunteers. Related to the field work, the IKC Forests Committee, made up of representatives from most Indiana grottos, has been meeting bi-monthly with Ellen Jacquart of the HNF. The Committee serves an advisory role on issues dealing with caves on the forest, handles the administrative aspects of the inventorying work, and will be assisting in drafting the cave management plans. Steve Lockwood is the leader of this committee. The next committee meeting will be September 27.

- The last two Lost River tours for the year are September 20th and October 18th. If you haven't taken one of these tours, don't miss out. Best of all, it's *free!* See the related article on page 12. For more information, contact Keith Dunlap.

- The IKC continues to work towards improved gas drilling permit requirements in karst regions. We have raise our concerns and the Indiana DNR's Division of Oil & Gas has been cooperative in investigating the issues. After several meeting, we had some agreement that part of the procedure for issuing permits would be for the Division to check for cave location using the Indiana Cave Survey's database. However, after discussing the procedure with the DNR's attorney, it was unsure if the database's confidentiality could be maintained. Another meeting on special requirements was originally planned for July, but did not get scheduled. In the mean time, the Division has implemented an interim requirement that all fluid pits in karst areas to be lined. The IKC will continue to push for other protective regulations.

- After many years of speculating whether the entrance of Jug Hole Cave (Harrison Co) was on State or private property, the Indiana DNR had the property lines resurveyed. As it turns out, the entrance is completely on private land by about five feet. Thus cavers wanting to visit Jug Hole will need to gain permission from the owner. As a reminder, the cave is a significant Indiana bat hibernacula and should be avoided from September 1 through April 30.

- Work on planning and designing the SR56/60 by-pass around Salem (Washington County) continues. The by-pass circles Salem on the east, south, and west sides and passes through several miles of well developed karst southwest of Salem. In 1993, as part of the pre-coordination activities required by InDOT, representatives from IDNR and USFWS met with InDOT consultants. Knowing the area, Keith Dunlap was invited to participate in this meeting and raised concerns over several of the proposed alternative routes. There was clearly one alternative on the west side (Orchard Road) which impacted the karst less, both directly and from subsequent secondary development. This alternative was selected as the preferred route from an environmental standpoint.

  Earlier this year, InDOT down-selected the various alternatives to *their* preferred route, which on the west side was the alternative with the most environmental concerns. InDOT had contracted with EarthTech to do an extensive and thorough study of the karst that would be impacted. The report concluded that there would be significantly more impact with the InDOT preferred route compared to the Orchard Road route, but other factors obviously

outweighed the environmental effects. With the proper precautions, InDOT should be able to construct a karst-friendly road. However, the new highway will encourage new development which is not typically required to build with proper environmental considerations.

❑ Members by now should have received copies of the new "sinkhole" flyer. The flyers, aimed at discouraging sinkhole dumping, where designed and funded by a coalition of private organizations and public agencies in southcentral Indiana. The IKC provided $250 towards the project. In return we received approximately 2200 flyers to distribute. Thus far, we have provided large quantities to the Monroe County Soil Conservation Service, the Monroe County Ag Extension Office, and the Indiana Geological Survey. The copies sent to our membership will hopefully be handed out to landowners in karst areas, the intended audience for the flyer. Members needing more flyers or know of other effective ways to distribute the flyers should contact Keith Dunlap or Bruce Bowman.

❑ Central Indiana Grotto member Kevin Bruno led Girl Scout Troop 1543 on a clean-up trip into Langdons Cave in the Harrison-Crawford State Forest. Kevin reports the girls had a good time as well as being productive in removing trash from this often visited cave.

❑ During the 1997 NSS Convention in Sullivan, MO, the annual NSS Conservation Award was given to the Sloan Valley Conservation Task Force, headed up by Hillary Hopper. The SVCTF has been leading the fight against the expansion of the Pulaski County Landfill in Kentucky. While the original landfill was ordered closed due to numerous environment violations over the years, the expansion was finally given an operating permit to open and continue taking trash. This was a major setback for the SVCTF, but all is not lost and the attention brought about from all the political maneuvering certainly enlightened many voters. Our congratulations to Hillary and the other members of the SVCTF on there much deserved Conservation Award.

❑ Speaking of NSS awards, two of the 1996 *IKC Update* covers won recognition in the NSS Graphic Arts salon. Issue #43 featuring a photo by Jerry Litaker received an Honorable Mention ribbon. Meanwhile, issue #40 featuring a photo by Jim Adams (also layout by Jim Adams) won the top Medal in the Photographic Category. Congratulations to both contributors. If you have a slide or print (preferable in an Indiana cave or of an Indiana karst feature) which you think would make a good cover, contact Keith Dunlap.

❑ The next IKC Special Reprint will be Banta's *Fauna or Mayfield's Cave*, the classic 1907 report which is still considered to be one of the most detailed studies on cave biology. All of the text has been scanned and formatting is proceeding. It is hoped the reprint will be completed in time to mail with the December *IKC Update*. The total cost of this reprint will be about $300 and donations to offset the production costs would be greatly appreciated. Contact Keith Dunlap if you would like to contribute.

❑ The IKC has only three embroidered hats left out of the original forty-eight ordered. Don't miss out on this opportunity to show your support. The hats are only $7 for members or $10 for non-members, plus $1 for shipping. Contact Keith Dunlap to order.

❑ Bruce Bowman continues to enhance the IKC's web site with new topics and photos. If you have Internet access, check out http://www.caves.org/~joshua/ikc/.

❑ Donations to the IKC are very important to cover expenses beyond our basic activities and communication materials. Our special thanks to Lynn Miller, Mitchell Norris, and Gary Roberson for giving a little extra this quarter.

❑ There have three new members joining the IKC in the last quarter including Tim Johnson (320), James Adler (321), and Mitchell Norris (165). Welcome to all and the IKC appreciates your support. The membership now stands at 149.

BUYING CAVES FOR CAVERS (AN EDITORIAL)

by Bruce Bowman

There has been a great deal of attention paid to cave acquisition in the last year or so. Although the concept of "buying caves for cavers" is not new, the number of caves actually being purchased is snowballing. I've frequently been asked why the IKC isn't taking a more active role in cave acquisition, like one of the other conservancies is doing. This is a legitimate question, and begs an answer from the IKC leadership.

Like most organizations, the IKC's resources (both financial and manpower) are limited. Risk control and effective use of resources is the key to success in meeting our organization's goals. Assuming we want to buy caves (and we do), let's talk a little bit about what stands in our way.

Philosophy. Our goal is not to ensure that cavers get a chance to go caving, but to ensure the protection of cave resources. When the two are compatible, caving is an appropriate use of the resource. However, I'm not sure I like the sound of "buying caves for cavers." Of the caves we currently manage, only one (Suicide Cave) was pursued for the expressed purpose of maintaining access. As a matter of fact, our first property holdings will probably not be caves at all, although they will be significant karst features. This may not excite the caving community very much. Still, we are the Indiana *Karst* Conservancy (and it is karst that we should strive to protect.

Finances. Land costs a lot of money, and the IKC has limited financial resources. The money we have on-hand is sufficient to purchase only a small tract of land; probably not enough to acquire the cave recharge area. Therefore, we'd probably have to go into debt to protect even one cave. While I don't have much of a problem with putting the IKC into debt, there's a limit to how far we can safely go. Under existing law, the directorship may have to bail out the organization from our own pockets if we can't meet our fiscal responsibilities. It's therefore no surprise that we've been a little conservative.

One conservancy is currently over $220,000 in debt for caves they have purchased. This is fine, as long as the funds to pay it off can eventually be raised. Despite some interesting and innovative plans, the jury is still out on whether they'll be successful. The caving community is supportive, but may eventually grow weary of having conservancies approach them asking for a handout. Worse, a conservancy could end up selling a property or two if they can't make the payments. How would you feel if you donated money to buy a specific cave, only to have the cave sold anyway? I suspect that if this happens even once, that will spell the end of the caver support.

Owning a cave costs more than just the purchase. Ignoring property tax for the moment, the IKC would also owe a measure of protection for people we license to visit the cave. This means we will have to carry insurance on the cave to protect ourselves from suits. This expense will continue, year after year, even after the cave is paid off. Then there's the question of long-term property maintenance. The Nature Conservancy, for example, escrows approximately 25% of the property's value to address this. We would be well-advised to do the same.

That said, cave acquisition could generate its own momentum. Owning a cave may bring in grant money, or energize people enough that they don't mind giving and continuing to give. I personally hope this will prove true, but it's an experiment I'd rather let someone else pursue at this time. When the IKC starts buying caves, don't expect us to go heavily into debt to do it.

Effective Protection. Buying a cave is, by far, the best way to protect that cave. The question remains whether it's the best way to protect caves as a whole. Latest estimates indicate there are more than 2500 caves in Indiana. The IKC could buy a dozen of them and spend all of our resources on fund-raising, while doing little for 99.5% of the caves in our state. Clearly, this isn't the most effective use of IKC resources.

Acquisition is best pursued when the feature is unique, sensitive, or seriously threatened. Given the choice between fundraising to buy one cave, or working on an issue that protects 2500 of them, I believe we should pursue the latter. That's why our energies in recent months have focused on

...Continued on page 25

SHILOH CAVE'S GATE REPLACEMENT

by Keith Dunlap

BACKGROUND

The IKC has been involved with protecting Shiloh cave for the past ten years, but didn't really become active in managing the cave until 1992. Due to someone breaching the barricade on the quarry (downstream) entrance, the IKC set out to replace the old masonry and water pipe "gate" with a less restrictive, operational gate. After more than a year of waiting for dry conditions, the quarry entrance gate was finally completed in August of 1994. At that time, limited legal access was re-established.

Concurrent with all this, Tom Sollman took an interest in studying the biota in the cave. Starting in October of 1993, he made numerous trips into the cave, documenting the various cave animals observed. The goal was to compare these observation with those made by Jegla (1960-63) and Weingartner (1968-75) who both did extensive biological investigations in the cave as part of their graduate studies.

In order to minimize the disturbance of Weingartner's planned experiments, in August of 1968, a masonry wall was erected across the church (upstream) entrance (see photo below). Prior to the gate, the entrance was approximately fourteen foot wide and reportedly four to five foot tall, allowing significant airflow and outside organics to enter. After the wall was installed, most of the airflow was blocked and the two-foot by two-foot fine-grate door effectively prevented leaves and animals from entering. To Weingartner's credit, he wrote "Certain steps were taken to prevent interference with natural occurring exchanges between the epigean and hypogean environments; open ports were placed in the wall to permit movement of aerial and terrestrial fauna, and a concrete gutter with a drain passing through the base was constructed to allow water-borne vegetative matter to pass into the cave...". However, over time the "ports" became completely plugged and no evidence of the gutter/drain was found.

Shortly after Weingartner finished his field work, the original door on masonry gate was vandalized and removed. A new door with vertical bars and wider spacing was installed in 1975 and except for a few years of neglect, protected the cave until 1996. Also at some point in the late 70's or early 80's, additional rocks and logs were piled against the masonry wall. This along with natural silting and debris slumping down from above the entrance basically filled the area outside to the top of the wall.

A NEW GATE?

Tom Sollman's 1993-96 biological inventorying found something interesting: Jegla and Weingartner's observed that the majority of the crayfish were located in the section of the stream nearest the church entrance, but Tom's research found very few crayfish there. He suspected the nutrient restriction caused by the gate might be the culprit. It's

The old masonry gate as it appeared in 1972. Subsequent silting and build-up brought the outside level up to the top of the blocks. The door grate shown was replaced by a different door in 1975. Photo by Tom Rea.

ironic that the gate placed on the entrance to assist in the study of crayfish was probably causing their demise.

In December of 1996, Tom found that someone had once again vandalized the church entrance gate, this time knocking out part of the wall adjacent to the door. He made temporary repairs, but realized it would only be a matter of time before others found the gate was vulnerable. He approached the landowner to discuss the various problems with the old gate and started the wheels in motion for replacing it with a modern, "bat-friendly" one. The landowner gave his blessing, but with the understanding that no access (other than emergencies) would be allowed. Tom then approached the IKC E-Board at the March meeting to explain the situation and funding for the project was approved. Keith Dunlap volunteered to do the design work and coordinate the construction. The installation date was set for the July 4th weekend. We anticipated it would take one complete day (Friday) to remove the old gate and another full day (Saturday) to build the new gate. This would leave Sunday for painting and site cleanup.

DOING IT!

On Thursday, July 3rd, Tom Sollman and his son Robert got a jump on things by working the afternoon removing debris on the back side of the gate. However, Tom wasn't making much progress when Keith Dunlap arrived about 4 PM. It seems the mud really liked his shovel, so much it wouldn't let go. After he and Dunlap did some last minute planning, and they unloaded the new gate door, Dunlap returned to Indy to load up equipment and Tom worked for another hour or two.

Friday morning volunteers started rolling in about 8 AM. The first order of business was to flag and clear a new trail to the bottom of the sinkhole to minimize the erosion potential on the old trail down the steepest side of the sinkhole. This new trail added a few hundred feet to the hike, but wasn't too bad unless you happened to be one of the sherpas hauling the steel to the entrance.

The main task for the day was to prepare the site for the new gate. This meant removing the old gate and digging a trench for the new gate's sill plate. With four or five cavers working inside to remove a major mud bank, and a like number of volunteers outside attacking the cement block wall things progressed slowly but surely. However, with the first swing of the sledge against the wall, it became apparent that Sollman's graphic description at the March E-Board meeting of the gate's "crumbling" and vulnerable wall was completely false. As a matter of fact, the wall was hell-for-stout, with the cores of the cinder blocks filled with concrete and rebar. The focus on the outside crew was to remove the gate's iron door. Again this was tougher than anticipated because supports for the door extended downward about three feet. Pry bars, sledges, chains, come-a-longs, cussing, and a lot of grunting and growning finally got the door out. On the inside, the "mud" crew moved approximately five cubic yards of mud/rock, undermining the foundation of the masonry wall. Careful attention during the digging had to be given to the many salamander babies and eggs uncovered, even six feet below the original surface! Nurseries were set up away from the entrance to transplant all the critters/eggs we came across.

Kenney Carrigan welding while Bruce Trotter looks at the partially complete door. Photo by Ray Sheldon.

By noon, we were ready to bring down the wall, basically toppling it in three large sections. A lot of unstable backfill came in with the blocks to the point that there was concern that we had opened up a wider hole than we had steel to re-plug it. At that point, most of everyone took a lunch break so Dunlap could ponder what to do and formulate a contingent plan. After lunch and some measurements, it was decided that the original plan was still good, so we spent the afternoon breaking up the wall debris so it could be piled off to the side for possible removal sometime in the future. With the wall gone, we also had to remove a bunch more mud/rock to stabilize the unsupported entrance slope and prepare the trench for the new gate. Since only three or four people could dig at any one time, the remainder of the crew worked on hauling the steel (ten 20' long 4"x4" angles and one 20' long 6"x6" angle -- 2300 lbs total) to the entrance. By about 5 PM, we were all tired and decided we were pretty well set for the placement of the sill (base) plate in the morning.

Saturday morning started with the transporting of equipment to the entrance. Tubs of tools, torch and tanks, a 4000w generator, and 200' of welding cables strung from the welder up on top. Because our entrance was slightly wider than originally planned, the "short" side of the L-shaped gate was decreased to four feet to give the long section of the gate a full sixteen feet in length (both cut from the 20' lengths of steel). We spent several hours getting the 6" sill plate positioned and leveled correctly. A rock in the trench provided some delays, but for the most part, once we knew what we wanted, there were no major problems. With the ceiling flat and level, vertically locating the sill plate correctly would eliminate any problems when we reached the top. By 11 AM, the sill plate and vertical supports were in place and pinned to the ceiling and several large slabs on the floor. We then backfilled the trench with flat pieces of the cinder blocks left over from the wall. This not only kept our feet out of the sloppy mud, but would be a major deterrent if someone in the future tried to trench under the gate.

At this point, the rest of the gate became very routine. Using spacer (gage) blocks to position the "hangers" onto the vertical posts, then placing the horizontal bars on these hangers. After the third bar, we dropped the prefabricated door in place and continued working our way to the ceiling. After the sixth bar, we reached the first ledge which topped off the short side of the gate. Coincidentally, we were able to extend the long section of the gate almost 19 feet to some large breakdown slabs. By 5 PM the gate was complete! It took another hour to carry out all the equipment and scrap steel. The old gate door was carried up and placed next to the old water tank, just in case someone, someday might want it for historical reasons. The final tasks for the day were to wash off all the mud from the new gate and to spread out the rock pile left outside the entrance from the previous day.

Sunday afternoon (after the Shiloh Church services were over) several people returned to clean the gate with mineral spirits, then paint the gate with metal primer.

Two weeks later, Tom Sollman and Keith Dunlap returned to apply the final coat of

The Church Entrance of Shiloh Cave with the completed gate. The old masonry gate completely blocked the entrance except for the two-foot by two-foot door Photo by Jim Adams.

paint. The following day, Jim Adams, Bambi Erwin, and Dunlap returned to photograph the completed gate.

SUMMARY

It would be impossible to complete such a large undertaking without so many dedicated volunteers, especially those with special skills and those who learn quickly and keep things moving. All total, there were thirty-one different volunteers, many for all three days. Some showed up and found little to do; others did more than their share. The IKC would especially like to thank Kenney Carrigan for doing the majority of the welding, supplying much of heavy equipment, and hauling the steel from Indy. Also Steve Collins provided all the machining on the door hinges. Other notable workers were Keith Dunlap, Bruce Trotter, Ray Sheldon, Jerry Walker, Dick Vernier, Stan Weinzapfel, Bill Svhila, Barry Welling, and the SJVG gang (Renee VanVeld, Steve Lockwood, Mark Deeble, and Ted Bice). Other participants included Bambi Erwin, Bruce Bowman, Kathy Welling, Tom Rea, Lynn Miller, Jane Miller, Trae Spires, Lori Spires, Bill Baus, Bruce White, Joshua Abdulla, Tonya Sommers, Bill Tozer, Eric Schmidt, and Kristie Lindberg.

The cost of materials for the new gate was around $675 which was pretty much covered by donations from the Evansville Metropolitan Grotto, the Central Indiana Grotto, and three individuals (Tom Sollman, Bruce Bowman, and Keith Dunlap).

....Continued on page 21

Close-up of the new gate from the outside. Bambi Erwin stands next to the door open. The rock ledge above the door is the same ledge shown above the masonry wall in the photo on page 8. The entrance opening is thought to be about the same size as it was prior to the 1968 gating.

View of the new gate from the inside looking out. Airflow and nutrient wash-in should be significantly improved, hopefully matching the cave's pre-1968 characteristics.

Photos by Jim Adams.

LOST RIVER TRIP UNIQUE TO INDIANA

by Judy Chatham

It is really strange to go on a tour of the area around your home place. Hearing all of your favorite places described by someone who lives five counties away is like visiting for the first time and seeing with new vision. Last weekend I took a tour of the karst valley of Lost River in Orange county where I grew up. At first I didn't tell anyone I had been there before. It was fun to keep that secret and listen to the guide describe the familiar terrain. Déjà vu...

The Lost River Conservation Association arranged the field trip. Along with 12 others, I set out to track this elusive river that meanders for 85 miles.

While such twisting and turning is typical of all streams, this one has a feature that would make anyone sit up and take notice. For 22 miles of the 85, this river disappears or flows through subterranean caverns only to nonchalantly emerge again as though it had done nothing unusual.

Of course, I have known about this sinking river all of my life, but I really had taken its uniqueness for granted. At one point during the tour, I was amused to learn that I once lived on the Crawford Upland while my husband's home was in the Norman Upland. This, no doubt, explains all of those differences of opinion we have encountered in our married life!

Indiana's Lost River system is typical of karst regions located all over the world, but the Lost River is a short version which compacts all of the karst features into an area that can be observed in a day's expedition. Thus the trail-follower attends the open-air class room addressing sinking rivers. In only a few hours I could visit the rise of the Lost River, the various sinks of that river, and dry bed regions where the river's flow is completely submerged.

Though the river runs underground for 22 miles during dry times, there is a dry trough that is quite visible where the river runs during flood stages. In this dry trough farmers gamble against the river's mischievous quirks by sowing their crops and pasturing their livestock in its bed.

Where does the water go when the area is not in flood stage? Deep in geological time, Lost River wasn't lost at all-it flowed entirely above ground like any other river. But shifts in the earth and limestone beds allowed acidic surface water to seep underground, opening up channels and caverns into which Lost River began to flow.

A feature of a karst area is the sinkholes. In one section of farmland surrounding the Lost River, geologists have found up to 1,022 sinkholes per square mile, most of which feed into the Lost River system.

A real treat is Wesley Chapel Gulf, an eight-acre canyon in which the entire roof of the underground river has collapsed, revealing a section of the otherwise submerged stream. Boiling out of a 50 foot deep pit in the canyon floor, the stream appears briefly on the surface, then it flows into the limestone cliff on the opposite side of the gulf and disappears. An opening in the cliff leads into a maze of passages that can be followed for nearly a mile past a display of stalactites, underground pools, rapids and waterfalls. Recently my tour guide had come upon a William and Mary College geological tour group which had traveled from Virginia to Indiana just to tour Wesley Chapel Gulf.

Two miles west of this gulf, Lost River ends its capricious underground journey by bursting to the surface as a huge spring in Orangeville, which is said by Richard Simons in "The Rivers of Indiana" to pump six million gallons of water daily. From this spring, Lost River behaves itself by journeying the next 48 miles above ground before joining the White River in Martin County.

My tour guide, one Mr. Armstrong, led a caravan of cars to several stops along the river where he jumps out and tells his band of followers just about everything they would want to know about karst formations, swallow holes and underground caves and water passages.

Though trained as an engineer, Armstrong has become and expert geologist who proudly announces, "As of today, the river has not been modified by industry or farmers in the area. It lies in the same channel where the earliest settlers found it." Presently he is involved in a battle to save the Lost River from proposed unrestricted road improvements and various flood control schemes that threaten the underground channels and sources of water to the river.

He chairs the Lost River Conservation Association, an informal group with more than 300 names on its mailing list. Every year he leads several day-long tours along Lost River.

Reprinted from the June 5, 1997 *Greenwood News*.

I-69 CAN BE STOPPED (AN EDITORIAL)

MOMEMTUM SHIFTS AWAY FROM HIGHWAY BOONDOGGLE

by Alexander Ewing and Thomas Tokarski

A recent [Terre Haute] Tribune-Star editorial (May 21) apathetically laments that the proposed new Interstate 69 highway between Bloomington and Evansville cannot be stopped. In truth, prospects for stopping this absurdly expensive and environmentally destructive pork barrel project are looking up. Public opposition is growing, both in Indiana and nationally. A new study demonstrates that the highway's costs would exceed its benefits. It looks increasingly unlikely that the federal government will lay out hundreds of millions of dollars to fund its share of the project.

The new highway could have a devastating impact on the economy of Terre Haute, by diverting travelers and businesses from the US 41 corridor to a new Bloomington-to-Evansville corridor. It would bisect up to 200 farms and cause the loss or destruction of over 3,000 acres of farmland. Designed to bring "economic development" to four rural counties in southwest Indiana, it would bring each of those counties fewer than four jobs per year.

All this cost to taxpayers of over $1 billion -- far more than it would cost to upgrade US 41, build a bypass around the south side of Terre Haute and use the existing I-70/US 41 route between Indianapolis and Evansville. In addition to being less expensive, the US 41 alternative would avoid harm to farmers and to communities like Terre Haute.

In short, the I-69 boondoggle has practically nothing to recommend it. Its proponents, in a cynical effort to discourage public opposition, claim that it is "inevitable" and cannot be stopped. In fact, the proposed highway is reeling from a remarkable series of setbacks over the past year:

- More than 1,000 citizens have written to the state, opposing the highway by nearly a 4-to-1 margin. More than 70,000 Hoosiers have signed petitions against the highway, over four times more than have signed petitions supporting it.
- For the third consecutive year, national taxpayer and environmental groups included the highway on their Green Scissors" list of the most wasteful and environmentally destructive pork barrel projects in the United States.
- The US Environmental Protection Agency sharply criticized the highway, saying that the state has failed to establish any need for it and failed to investigate alternatives.
- The state backed away from its effort to award millions of dollars worth of design contracts for the highway after receiving sharp criticism from, among others, the Indiana Farm Bureau and Terre Haute Mayor Jim Jenkins. The contracts have still not been issued, and the design work remains on hold.
- A new study by an Indiana University economist demonstrates that the costs of the new highway would exceed its benefits by $115 million. Every $1 spent on the highway would result in only 81 cents in benefits, the study shows.
- Both the US House of Representatives and the US Senate defeated attempts to add $12 billion for highway projects to the five-year balanced budget agreement reached by the president and congressional leaders. The votes make it even less likely that federal funding will be available to pay for the highway.

These developments have swung the momentum against the new I-69 highway. It is by no means certain that the highway, with its threat to the economic vitality of Terre Haute, will be stopped. But the fight is starting to look winable. If Terre Haute residents and their elected officials join with farm groups and environmentalists in sounding their opposition loud and clear in Indianapolis, the highway can be defeated.

Alexander Ewing is a staff attorney at the Environmental Law and Policy Center of the Midwest, a non-profit public interest organization that promotes environmental quality and economic development. Thomas Tokarski is President of Citizens for Appropriate Rural Roads, a grassroots organization of Southwest Indiana families that oppose the I-69 highway.

Reprinted from the June 29, 1997 edition of the *Terre Haute Tribune-Star*.

POPULATION TRENDS OF INDIANA BATS IN INDIANA

by Keith Dunlap

As part of the recovery plan for the federally endangered Indiana bat (*Myotis sodalis*), population counts are made to assess the status of the bat. In this article, I will present the full cumulative data systematically collected over the past nine biennial censuses (1981-1997), along with some historic data dating as far back as 1950. The majority of the recent data has been amassed by Dr. Virgil Brack, originally as part of his PhD work in the early 1980's, and more recently under contract with the Indiana Department of Natural Resources. The exception are the population figures for Batwing and Twin Domes caves which were censused under the direction of Richard Clawson of the Missouri Department of Conversation. Clawson is the USFWS Indiana Bat Recovery Team leader and since 1981 has been responsible for censusing the original seven Priority I caves in Indiana, Kentucky, and Missouri.

The table on the following page represents the summary of over 140 cave visits to twenty-eight different caves documented to have had Indiana bats in recent years. In addition, another thirty caves have been visited one of more times over the past sixteen years to look for Indiana bats without success (although four caves have historic records).

It is interesting to note that more than half of the active hibernacula have been "discovered" in the last dozen years, many originally reported by cavers. Most of these new caves have small colonies that do not contribute much to the overall population; nevertheless, these caves could be significant in the long term recovery of the species.

The table lists the caves in descending order of colony size based upon the most recent census. As you can see from the accompanying pie chart (figure 1), almost two-thirds of the state's population is in just two caves, while 94% of the population hibernate in just five caves.

The Indiana bat (*Myotis sodalis*) was one of the first species to be protected under the 1973 Endangered Species Act. 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 1960 to 1987, the population declined by over 50 percent. This downward population trend continues today in Missouri and to a lesser degree in Kentucky. Indiana appears to be

MYOTIS SODALIS IN INDIANA
1997 WINTER POPULATION

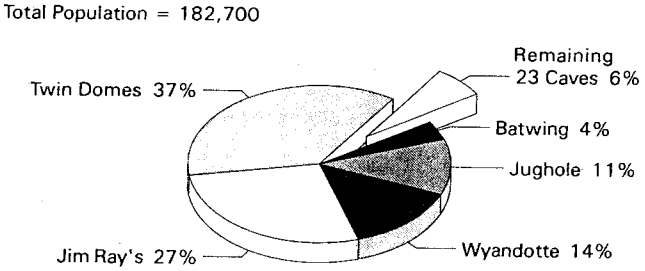


Figure 1

the only bright spot for the species with the 1997 population probably the highest since the mid-1970s.

Figure 2 shows the estimated "adjusted" Indiana bat population in Indiana hibernacula for the period from 1981 to 1997. As can be seen, since 1985 the population has been gradually increasing. It should be noted that this increase is *real*, not just the result of more caves being included in the census. The adjustments made to the totals consisted of adding approximated populations in

WINTER POPULATION OF MYOTIS SODALIS IN INDIANA

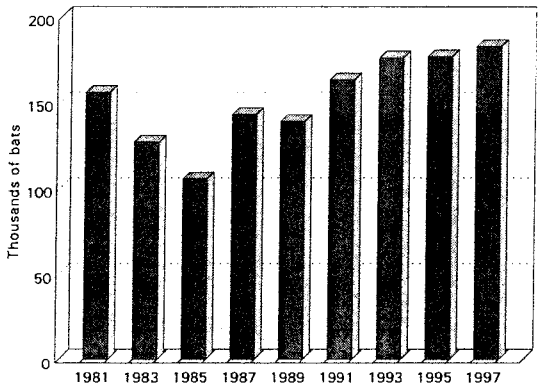


Figure 2

then unknown hibernacula to the earlier totals. This minimizes the biasing of the trend due to more caves being included in the latter counts.

Looking at population trends in individual caves is interesting in that several caves have been showing consistently increasing trends, others caves have been generally decreasing, while the remainder have undeterminable trends or there has not been enough data collected to make a determination. (*I should state a disclaimer here that all the trend predictions made in this article are completely unscientific and represent a relatively short sampling period which may or may not reflect anything significant.*)

Recent Indiana bat populations in Twin Domes cave (figure 3) have fluctuated but otherwise does not show much of a trend. However, the 1997 population was the second lowest recorded and is cause for concern since this cave's population is such a large component of the total population. The cave is difficult to census because of the high ceiling where many of the bats cluster, so the fluctuation may just be a remnant of the counting method.

The biggest disappointment among Indiana hibernacula has been in Batwing Cave (figure 4) where the population has decreased every census except one since the cave was originally found to be a hibernacula in the mid-70's. While it is conceivable that the gates installed in June of 1988 could be part of the problem, the design has proven successful in other situations (including Wyandotte). It is also speculated that increased entrance debris may have restricted airflow causing the cave to warm sufficiently to be a marginal habitat (temperature monitoring equipment was installed last winter to test this hypothesis). The latest explanation for the decreasing population is the observation that the bottom of the cave floods occasionally. In the spring of 1996, heavy rains caused water to back up into the cave to an estimated depth of 36 feet which as sufficient to drown at least several hundred bats (this observation was made in August of 1996).

Wyandotte Cave is an interesting contradiction in resource management. While it serves as an ever increasingly significant hibernacula, it is also a commercial tourist cave run by the Department of Natural Resources. Large populations of bats have

RECENT POPULATIONS OF MYOTIS SODALIS IN INDIANA CAVES

CAVE NAME	1981	1982/83	1985	1987	1989	1991	1993	1995	1997
Twin Domes (Harrison)[1]	98250	70750	56650	79650	70800	78500	87350	78875	67100
Ray's Cave (Greene)	12500	13475	16200	22990	28581	41854	38386	41157	50097
Wyandotte (Crawford)	2152	4550	4627	6681	10344	12994	17304	23878	25421
Jug Hole (Harrison)				5535	6424	7640	13924	12463	20799
Batwing Cave (Crawford)[1]	29950	26650	14750	17450	14500	13150	9350	9300	7400
Coon Cave (Monroe)	1190	550	777	2950	2103	3696	4451	4455	4786
Grotto Cave (Monroe)	3190	2692	4198	3778	2985	1996	1568	2018	2369
Parker's Pit (Harrison)		(500)		1803	1104	926	1045	1276	1139
King Blair/Brinegar (Monroe)				(12)			442	514	663
Saltpeter (Crawford)		352		427	295	508	375	647	557
Wallier Cave (Harrison)						36	72	465	409
Endless Cave (Washington)		2		1		134	335	450	372
Clyfty Cave (Greene)		66		198	412	357	307	299	369
Robinson Ladder (Crawford)					(95)	388	376	219	336
Nichols Cave (Orange)[2]							(200)		
Panter/Neyman (Washington)								86	156
Saltpeter (Monroe)		(83)		(19)		221	245	175	136
Sexton Spring Cave (Greene)							67	117	103
Leonard Springs (Monroe)					135	112	92	82	92
Binkley Cave (Harrison)									84
Wildcat Cave (Crawford)		29		0		31	61	34	44
Achcraft Cave (Greene)							20	28	
Buckner Cave (Monroe)		480	301	336	24	51	25	41	15
Swinney Cave (Harrison)									11
Mitchell Quarry (Lawrence)						9			
Bentz Cave (Crawford)		0			3				
River Cave (Washington)		104		5		1			
Salamander Cave (Monroe)		74		0		0			1
TOTAL (adjusted)[3]	155800	127000	105500	143000	138900	163100	176000	176800	182700

1 Censused by Richard Clawson for the USFWS.

2 Censused by Scott Johnson & Keith Dunlap in 1992; permission denied on subsequent attempts to visit cave.

3 For the purpose of comparisons, populations for non-censused (or unknown) caves were estimated to give an adjusted total.

MYOTIS SODALIS IN TWIN DOMES CAVE

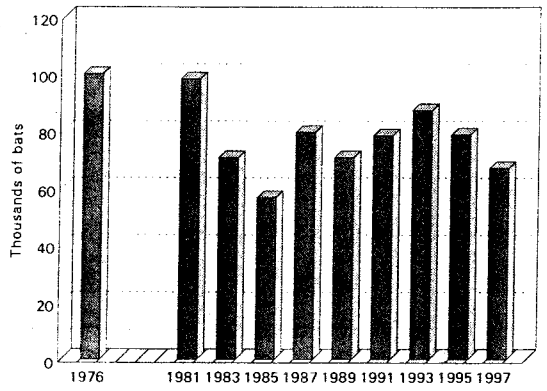


Figure 3

MYOTIS IN SALTPETER CAVE (CRAWFORD)

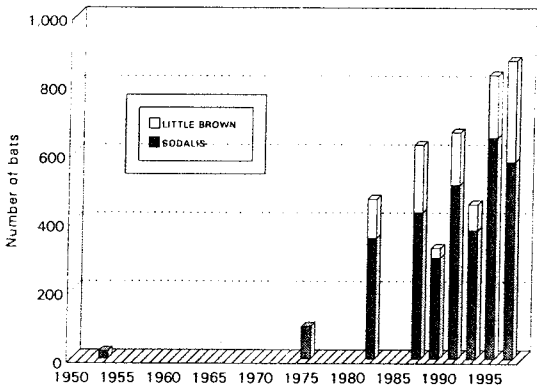


Figure 6

MYOTIS SODALIS IN BATWING CAVE

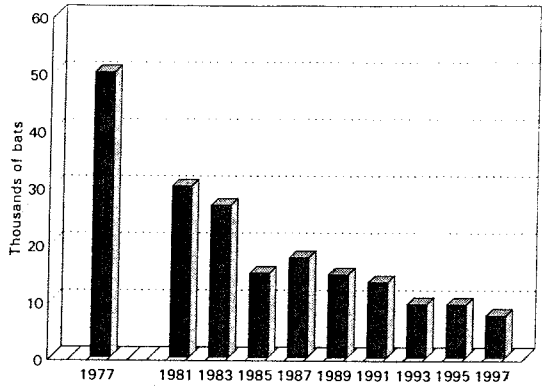


Figure 4

MYOTIS SODALIS IN "WYANDOTTE AREA" CAVES
(Twin Domes, Batwing, Wyandotte, Saltpeter caves)

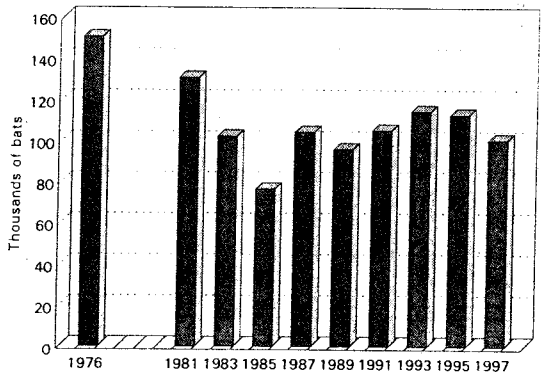


Figure 7

MYOTIS SODALIS IN WYANDOTTE CAVE

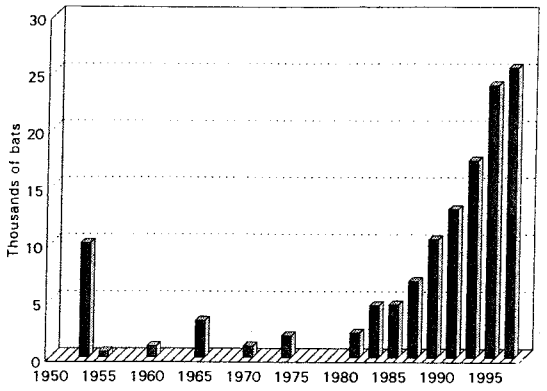


Figure 5

MYOTIS SODALIS IN JUGHOLE

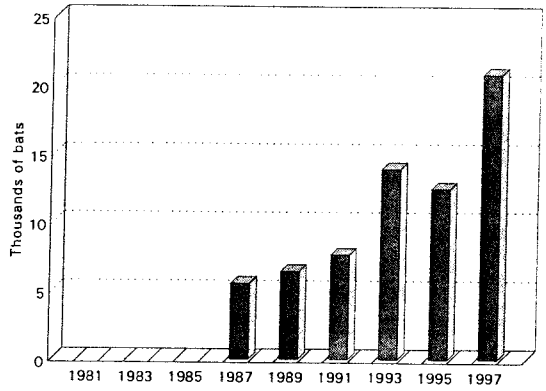


Figure 8

been documented in this cave for over one hundred years (in fact, the *sodalis* was first classified as a separate *Myotis* species in this cave and thus the "Indiana" designation). Numerous gates have been placed on the cave with different degrees of air flow restrictions. A 1953 report by Mumford estimated the population at 10,000 bats (see figure 5). However, just a few years later and after a solid stone wall gate was installed, the population was only one-tenth that size. The population fluctuated around 2000 bats until the late 1970's when the original gate was replaced with a more open grate-type gate. It is presumed that this restored the pre-gate airflow into the cave, providing a better winter habitat. Since 1981, the population has increased to over 25,000 (number 3 in Indiana). The gate replacement in July of 1991 apparently has been acceptable to the bats and may have further improved airflow into the cave, witnessed by a significant increase the past three counts.

Just a short distance north of Wyandotte Cave is Saltpeter Cave. While the number of bats hibernating there is small compared to its neighboring caves just discussed, it is nevertheless an important cave for Indiana bats and was probably a very significant hibernacula historically. Figure 6 shows a general seesaw, but increasing trend that hopefully will continue.

Previous research supports the observation that Indiana bats are very habitual in using the same hibernacula year after year. But with the population increasing so fast at Wyandotte while similar decreases are being experienced at Batwing and Twin Domes, one can only speculate that at least some transferring is occurring. To better quantify this Wyandotte area meta-population, figure 7 shows the combined numbers from Twin Domes, Batwing, Wyandotte, and Saltpeter caves which accounts for approximately half of the total Indiana population. It can be observed that the population appears to be much more stable and indicates that the number of bats hasn't really changed much since 1983. It is my hypothesis that the majority of new bats in Wyandotte are migrating from Batwing and Twin Domes because Wyandotte has now become a better hibernacula with its airflow restored. Since banding Indiana bats is disallowed and recovering banded bats in Wyandotte would be difficult anyway due to the inaccessibility of the bats on the high ceilings, the question of bat inter-cave transferring may go unanswered.

Of the other caves in the Harrison/Crawford County area, Jug Hole has shown the greatest growth. First censused in 1987 with 5500 bats (see figure 8), the populations in 1989 and 1991 showed modest increases, but nearly doubled in 1993 to almost 14,000 bats. The 1995 census showed a slight decrease, but the cave took another large jump to over 20,000 in 1997. Due to the high ceilings in Jug Hole, part of the population variation can be attributed to the difficulty of estimating cluster sizes.

Figure 9 shows the number of bats counted in Parker's Pit. This is another difficult cave to census, not in counting the bats per se, but in getting the "counters" to the bats. The 1987-1997 counts include all areas from the entrance pit to the e^i Room. The 1982 count (performed by Michelle Wright) included only the entrance pit area and the room below the second drop (just before the S-bend). Since the majority of the bats are found in the e^i Room, this explains the much lower count shown in the first census.

The final cave in the Harrison/Crawford area to highlight is Wallier Cave, southeast of Laconia. The 1991 and 1993 census included 36 and 72 Indiana bats respectively. The 1995 and 1997 counts were 465 and 409 bats. It is unclear what caused this significant jump in 1995 or where these additional bats came; and there are no other known hibernacula even remotely close. It will be interesting to see what the future holds for this cave.

Moving north, Jim Ray Cave in Greene County has had remarkable population growth in recent years (see figure 10). Historic records by Mumford and others showed the cave's population never exceeded 3200 bats in nine visits between 1952 and 1975. Brack's visits in the early 1980's showed the population had jumped to approximately 12,000 Indiana bats and several thousand Little Brown bats (*Myotis lucifugus*). 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 in 1995 and made another large jump in 1997 to over 50,000 bats.

There is no clear explanation for the dramatic population increases, but two contributing factors may have played important

MYOTIS IN PARKER'S PIT

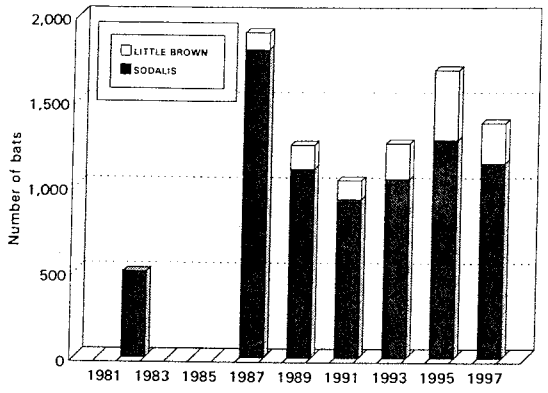


Figure 9

MYOTIS IN JIM RAY'S CAVE

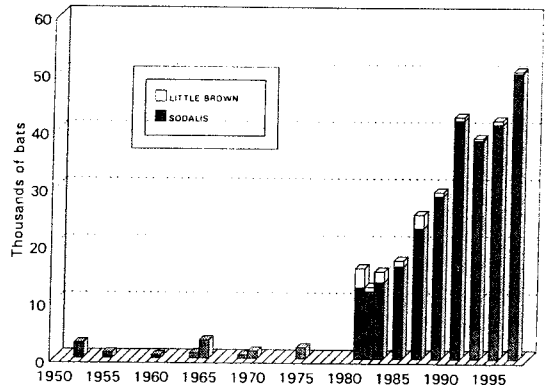


Figure 10

MYOTIS IN CLYFTY CAVE

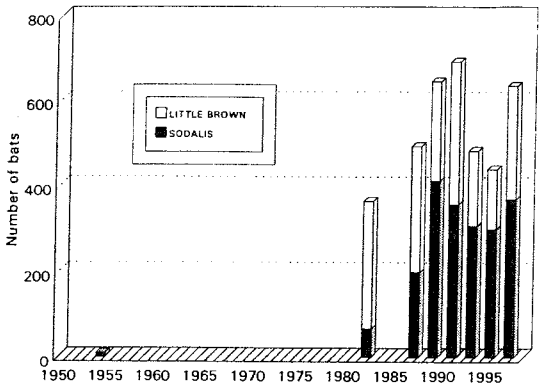


Figure 11

MYOTIS IN GROTTO CAVE

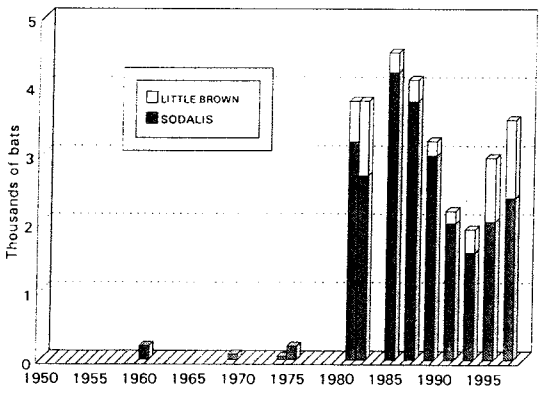


Figure 12

MYOTIS IN COON CAVE

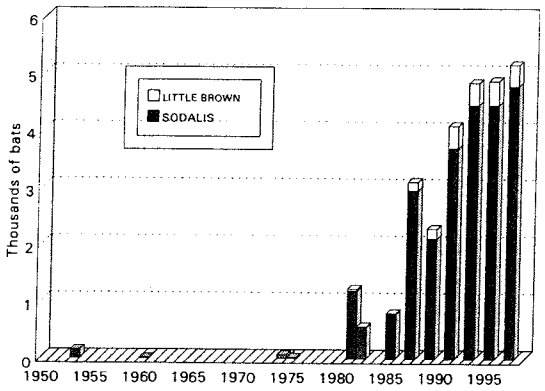


Figure 13

MYOTIS IN GROTTO & COON CAVES COMBINED

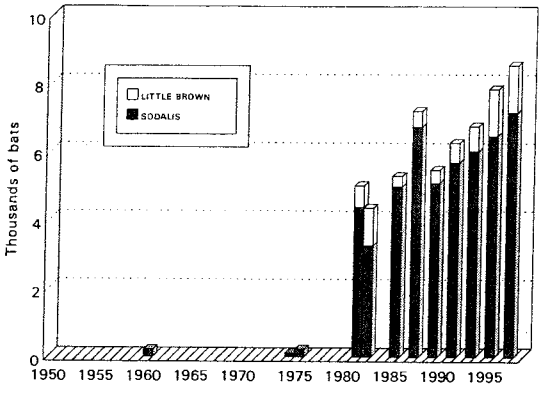


Figure 14

roles. First it is known that a medical researcher from IU was illegally collecting perhaps thousands of bats each winter during the 1970's. This may have kept the population below some critical level to grow. Second, the "rear" entrance to the cave may have naturally enlarged itself over the past twenty years, allowing more airflow to cool the cave, and thus making it a better hibernacula. Currently there is a winter temperature study being conducted in Ray's to see if there is anything obvious to make this such an ideal cave for Indiana bats.

Approximately five miles to the north of Ray's is Clyfty Cave. Figure 11 shows a bat population that appears relatively stable although the last several counts have been down slightly from the 1989 peak of 412 Indiana bats.

Moving to Monroe County, Grotto Cave has been another disappointing and puzzling hibernacula. Historic records showed very small populations in the 1960's and 1970's (see figure 12). However, in the early 1980's Brack reported significant numbers of Indiana and Little Brown bats. The cave peaked in 1985 with 4200 Indiana bats and then decreased the next four census to a low of less than 1600. In 1995, the population finally rebounded and it was up again in 1997 with about 2300 Indiana bats. One observation is that the cave appeared warmer than optimum during the years when the population was decreasing, but recent temperature monitoring shows the cave is actually cooler than other area hibernacula, possibly explaining the recent increase. More data (both population and temperature) collection is needed to better understand if there is some correlation to this hypotheses.

The "sister" cave to Grotto is Coon Cave. It too had historic records in the 1950's through 1970's of only a few hundred bats (see figure 13). Brack's observations in the early 1980's were around 1000 bats. Since 1987, the population has increased significantly and exceeded 4700 Indiana bats in 1997. Part of this increase could be speculated to be another instance of inter-cave migration from Grotto. Looking at the combined numbers for Grotto and Coon (figure 14) shows that the meta-population appears to be gradually increasing, but much more consistent.

The other cave in Monroe County for which there is long term data is Buckner Cave. Historically Buckner has had a stable population of 300 to 500 bats in its entrance room (see figure 15), but since 1989 there has not been more than 50 bats found. Obviously repeated disturbance could be blamed, but the sudden drop between 1987 and 1989 would be more indicative of a single-event, intentional or accidental eradication

MYOTIS SODALIS IN BUCKNER CAVE

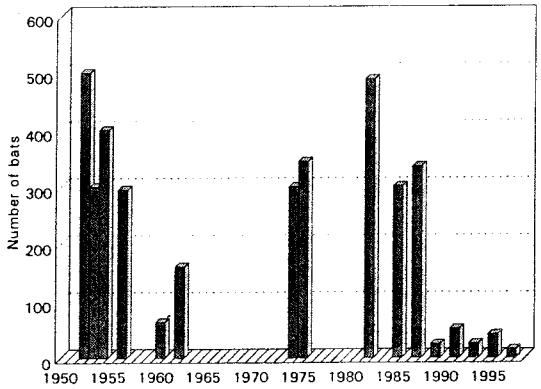


Figure 15

(e.g., shotgun or entrance room campfire). The 15 bats found in 1997 is the lowest count ever and was the result of a deliberate burning of approximately a dozen bats usually found in a small concealed crack near the start of the crawlway.

The final cave with sufficient data to discuss is Endless Cave in Washington County. Visits in 1982 and 1987 found only 2 and 1 Indiana bats, respectively (see figure 16). However, the last four counts have shown an encouraging population of both Indiana and Little Brown bats.

...Continued on page 21

MYOTIS IN ENDLESS CAVE

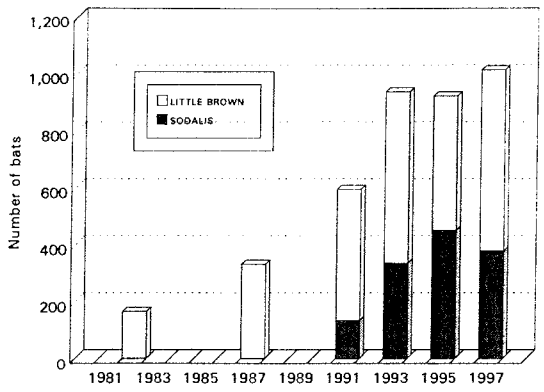


Figure 16

BIOINVENTORY UNDERWAY IN THE BLUE RIVER CAVES

by Julian Lewis

Dangling 30 feet above the floor of the pit, I pushed the ascender up the rope another foot. Stopping to inspect a small pile of rotting hickory nuts on a ledge (probably cached there long ago by a mouse or woodrat), I turned each nut with a small brush to examine it in the beam of my electric headlamp. This was my third cave visited that day. My persistence was rewarded as a "miraculous pseudoscorpion" emerged from one of the nuts. The animal is so named after the creature's scientific name *mirabilis*, or perhaps because it seemed a miracle to find one. This was only the third place the tiny (2.5mm) arachnid, resembling a tail-less scorpion, had ever been found in Indiana.

And so goes another day in the field, inventorying the caves of Blue River for The Nature Conservancy. Often accompanied by Blue River Project Manager Allen Pursell, I visited 87 caves and numerous springs during 1996, the first year of a three-year bioinventory. These Blue River caves have long been known to be inhabited by such rare vertebrates as the federally endangered Indiana bat and the state endangered Allegheny woodrat. Until recently, however, we knew very little about the rich, extremely rare, cave dwelling invertebrate fauna. As a case in point, Packard's cave pseudoscorpion was discovered in Wyandotte Cave in the 1870s but not seen again until our inventory in two other caves just last year.

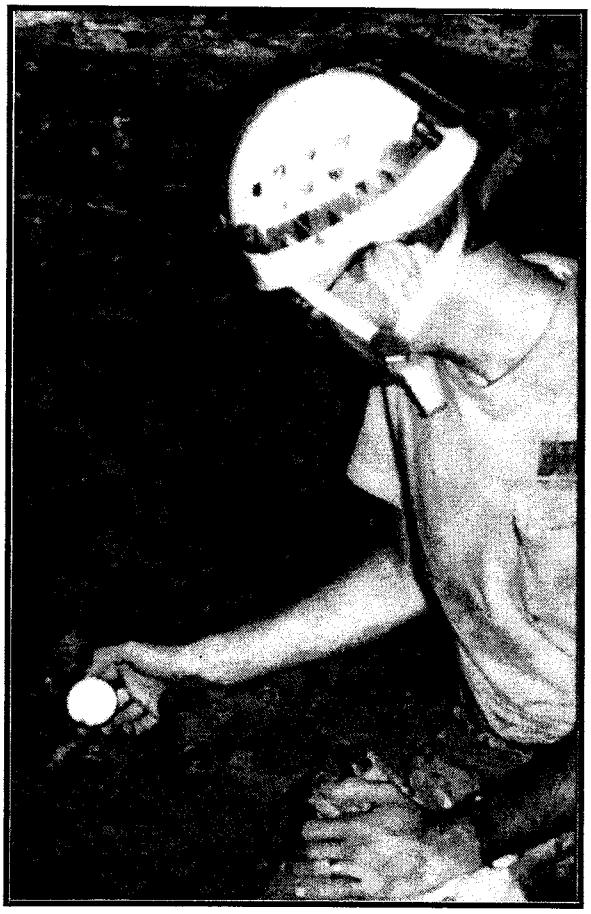
During our bioinventory, we've found 41 species of troglobites (obligate cave dwellers). Unlike their wide-ranging surface relatives, some of these white, eyeless animals are found in only one or two caves. Many of them are believed to be relicts of a colder climate when Indiana was covered by the massive glaciers of the Ice Age. With the glaciers gone, caves provide cool, moist refuges, but also a totally dark, food-poor environment.

Populations are sometimes so small that finding a single animal is cause for celebration. For example, a female of the Iceland cave sheetweb spider found during our bioinventory was only the fourth specimen ever seen of the species. A male has never been found.

On another exploration, Hank Huffman of the Indiana Department of Natural Resources' Nature Preserves Division and I, after hours of tedious work in obscure habitats, discovered only the third population in the world of the troglobitic Donaldson Cave copepod in a remote cave at Wyandotte Caves State Recreational Area.

About half the troglobitic animals found so far are classified as "critically imperiled," meaning they've been found in fewer than five places globally. More than 25 species we've found are known only from the Indiana karst, and 15 of them occur only in the Blue River area. Ten of the species are new to science and are being described by zoologists at the Smithsonian Institution, museums, and universities around the country.

Reprinted from the Summer 1997 issue of *The Nature Conservancy Indiana Chapter Newsletter.*



IDNR biologist Hank Huffman ckecks a pitfall trap used to capture sparse cave fauna. Photo by Julian Lewis.

BE KIND TO BATS

by Bruce Bowman

Cavers are reminded that many caves in Indiana are places where the federally-endangered Indiana bat (*Myotis sodalis*) hibernate. Although many of these sites are registered with the Indiana DNR and posted as closed during the winter months, some landowners aren't interested or aren't aware that endangered species live in their caves. In such situations it's appropriate that cavers themselves keep track of which caves to avoid during the critical hibernating months (September 1st through April 30th).

Major hibernacula in Indiana include: Twin Domes, Jug Hole, and Parker's Pit (Harrison Co); Batwing, Saltpeter, Robinson's Ladder, and Wildcat (Crawford Co); Ray's, and Clyfty Cave (Greene Co); and Coon, Grotto, Saltpeter, and Leonard Springs Cave (Monroe Co). These caves are actually posted with signs from the DNR and USFWS. However, there are other caves that are not posted but are known to harbor Indiana bats and should be avoided if at all possible. The include: Endless and Panther Caves (Washington Co); Sexton Spring Cave and Ashcraft (Greene Co); King Blair (Monroe Co); and Wallier Cave (Harrison Co). Believe it or not, even Buckner has been known to contain a few Indiana bats!

Indiana bats are difficult to distinguish from Little Brown (*Myotis Lucifugus*) bats by their appearance. However, their clustering behavior makes them distinctive. While Little Browns generally prefer a solitary roost or cluster loosely, Indiana bats will form tight groups of 300 or more bats per square foot, often several square feet or more in size. Unfortunately, this also makes them subject to easy disturbance and malicious acts.

If you come across such a cluster, take great care not to disturb the bats -- their ability to survive the winter depends on a limited, stored fat reserve. Any tightly clustered bats found in caves other than those listed above should be reported to IDNR nongame biologist Scott Johnson at (812) 334-1137, or Keith Dunlap.

Your cooperation will help ensure that these wonderfully unique creatures may one day resume their previously numbers in our Hoosier state.

Continued from page 11....

The landowner and his family dropped by all four days to check on our progress. They seemed very pleased with the gate design, the volunteers, our dedication to protecting the cave, and our commitment to doing things right. The owner is a very nice man it's just too bad that he has been burned by so many inconsiderate cavers in the past. In talking to him, he said he had never been in the cave, but might be interested sometime. While it may be some time before there is a noticeable change in the biota, it makes sense that the cave will be "happier" with it's entrance restored to the pre-1968 condition. Furthermore, the cave is more secure, preventing vandals from destroying the many fine formations which still remain active in the cave (see the front cover).

Access is *not* permitted through the new gate. However, arrangements to visit Shiloh via the quarry (downstream) entrance can be coordinated through Jim Adams.

Continued from page 19....

There are other interesting observations and speculations that can be made from this census data, but in reality the number of sample points is too few and the time duration is too short to truly make any meaningful conclusions. Perhaps in another twenty years of systematic censusing, definitive trends can replace general speculations.

INDIANA KARST CONSERVANCY TREASURY REPORT

Income/Expense Statement
From April 1, 1997 to June 30, 1997

INCOME:		
Dues Apportionment and Residuals	498.75	
Donations (for gates)	1331.00	
Interest	92.00	
		$1,921.75
EXPENSES:		
IKC Update (printing, production, mailing)	288.21	
Membership (postage, meeting notices, etc)	18.33	
Bat Poster Distribution	236.07	
Conservation/Management	114.96	
Suicide Gate	705.91	
Shiloh Gate	675.24	
		($2,038.72)
NET OPERATING EXCESS (DEFICIT) THIS PERIOD:		($116.97)

Balance Sheet
June 30, 1997

ASSETS:			
Cash in Savings Account		914.84	
Cash in Savings Account		8104.01	
Extra steel from gates		265.25	
Shirt & Hat Inventory		54.70	
			$9,338.80
LIABILITIES & OPERATING EXCESS:			
Hancock Property Maintenance Fund		183.79	
Indiana DNR Nongame Fund		370.00	
Deferred Dues Fund:	133 members - 1997	1496.25	
	4 members - 1998	60.00	
	1 members - 1999	15.00	
Previous Operating Excess	7330.73		
Net Excess (Deficit) This Period	(116.97)		
Current Operating Excess		7213.76	
Total Liabilities & Operating Excess			$9,338.80

IKC QUARTERLY MEETING MINUTES

Sunday, July 6th, 1997
Bloomington, Indiana

BOARD MEMBERS PRESENT:

Bruce Bowman
Bambi Erwin (proxy for James Adams)
Keith Dunlap
Kriste Lindberg
Larry Mullins
Nick Noe
Tom Rea
Eric Schmidt
Robert Sergesketter
Bill Tozer

BOARD MEMBERS ABSENT:

Larry Bundy
Bruce DeVore
Dave Haun
Clyde Simerman
Tom Sollman

The Quarterly Meeting was called to order at 10:20 AM at the Indiana Memorial Union, Bloomington, Indiana. President Bruce Bowman presiding. Introductions were skipped since everyone knew everyone. Guests in attendance include Phyllis Sergesketter and Kathy Franklin. Bambi Erwin was accepted as proxy for Jim Adams. Approval of the minutes of the March meeting were tabled due to the June *IKC Update* not being received by most Board members.

Dunlap discussed the problems in recent months of very slow deliveries for newsletters sent by bulk mail. Deliveries for the similarly mailed *CIG Newsletter* have taken 20 to 45 days for the last five months compared to 7 to 10 days prior to the slowdown. The post office does not see the situation changing in the near future. Mailing a newsletter first class is prohibitively expensive ($1.01 vs $0.18).

Dunlap reported the financial to be $9018.85 in checking and savings as of July 1st. Recent expenditure on the Suicide and Shiloh gates totaled around $1400, within $100 of the donations collected ($1331) for these projects. The poster distribution cost the IKC around $240, including the mailing tube, bulk postage, and a donation to the DNR for the poster.

Bowman recapped the '97 NSS Convention in Sullivan, MO. The cover of *IKC Update* #40 (designed by Jim Adams) won the Medal for the photographic category. Cover #43 (photo by Jerry Litaker) received an Honorable Mention ribbon.

Also at the NSS Convention, Bowman represented the IKC at the NCMS Steering Committee meeting. Bruce presented the final financial for the '95 Symposium, returning over $6000 to the committee. The Steering Committee was extremely pleased with the IKC-hosted Symposium and stated it set a new standard for future hosts to emulate.

During the Convention, the Missouri Cave & Karst Conservancy hosted a pasta dinner as a fund raiser. The dinner was well attended.

Dunlap and others presented a brief recap of the Shiloh Cave regating project which took place the previous two days. Everything went pretty well as planned and there was a good turn-out of volunteers. Several people were going to return and paint the gate after the meeting. The land owner and family had been down to the site several times over the weekend and seemed very impressed with our efforts, the volunteers, and the engineering on the gate. All agreed the cave will be better off with the restored entrance opening. The gate was less expensive than originally predicted back in March (which helped to offset the slight over-run on the Suicide Cave gate).

Kathy Welling gave a progress report on the Central Ohio Grotto's effort to gate Dry Cave on the Highland Nature Preserve in southcentral Ohio. The cave, located just off a county road, continues to be vandalized requiring continual restoration trips. Kathy is organizing the project with Dunlap supplying the technical know-how. The IKC will be selling the COG it's excess materials from the Indiana gating projects. Dunlap motioned that the IKC donate the materials for the door (approximately $60) to this project. Passed (9 in favor, 1 abstaining).

Bowman and Dunlap discussed the next IKC Special Reprint. They have selected Banta's *Fauna of Mayfield's Cave*. The target date is for it to be distributed with the September newsletter, but due to it's size and effort, it is more likely to go out with the December issue.

Bowman distributed copies of the just produced "Anti-dumping Sinkhole" flyer. The flyer was produced in cooperation with several organizations and agencies, with a targeted audience of landowners in southern Indiana. On the whole, the flyer was very well done. The IKC did not play a major role in putting it together. The IKC received approximately 2200 flyers. There was considerable discussion on how to distribute the flyers to gain the best impact with no less that six suggestions, including county fairs, cave owners lists, and county extension agents. It was also decided to send our copies to the IKC membership so they could distribute them directly to landowners as the need was observed.

Bowman reported on recent activities between the IKC and The Nature Conservancy to transfer ownership of the Orangeville Rise to the IKC. TNC attorneys have reviewed the proposal and approved the legal aspect of the transfer. Bruce will work with Les Zimmer and draft the required "justification documentation" over the next month. The goal is to have the transfer completed by the end of the year.

Dunlap and Bowman outlined recent interest by the Southeast Cave Conservancy to acquire the Woodard entrance to Dunbar-Woodard Cave in Tennessee. The IKC currently holds the lease for the Northern Indiana Grotto on the entrance, but neither group is particularly active in the cave, nor are they the best stewards due to the cave's location and eight hour travel time. Members of both groups have been cooperating and encouraging the SCC to pursue ownership either by purchase or donation. The biggest stumbling block are the legal concerns for hazardous debris that could be in the sinkhole. Bruce will follow-up with the NIG to make sure everyone is supportive of the SCC taking over protection of this long time NIG survey project.

Due to the "June" meeting being held in conjunction with the Shiloh regating, the traditional Hancock Property afternoon-before-the-meeting workday has been postponed until August 31st. No formal in-cave clean-ups will be organized, but members wanting to make a quick "inspection" trip into Coon, Grotto, or Shaft will have that opportunity. Coon and Grotto will be closed for the winter following the workday. Surface trash pickup, fence repairs, and other necessary maintenance will be carried out.

Bowman is working on organizing a trash dump clean up project in cooperation with The Nature Conservancy on the conservation easement associated with the Sinks of Indian Creek (Harrison Co). The date for this project has not been finalized.

Bowman reported on the status of the drill permit requirements being proposed by the IDNR's Division of Oil & Gas. Drilling in karst areas have raised concerns and added precautions are being pushed by the IKC and others. The Indiana Cave Survey is interested in sharing their extensive database with the DNR if it will lessen the chance of drilling through a known cave. Legal issues related to the database's security still have to be resolved.

The Hoosier National Forest finally became the official owner of the property containing Wesley Chapel Gulf. Several years in the works, the property and four others were acquired by US Gypsum in exchange for mineral rights elsewhere on the forest. Future management of the WCG property will be a topic of the Hoosier Forest Committee.

Inventorying of the caves on the HNF is progressing with scheduled monthly work weekends. Generally two or three caves are completed each time including documenting locations and inventorying the caves' values.

The Indiana DNR is still progressing with it's plans to implement a permit system for caves on State property. Tom Rea was present at the last meeting in mid-June and was positive about the draft plan. Eventually the plan will be published as policy with subsequent regulations to follow.

There is a possible cave trip into Twin Dome Cave later this summer to set up a photo monitoring station. The station would be used to help census the Indiana bats that hibernate there which is currently difficult to do accurately due to the high ceilings where the bats cluster.

The IKC needs volunteers to lead cave trips during Cave Capers to Coon, Grotto, Shaft, Shiloh, and Waynes caves. The trips can be used to educate and introduce cavers unfamiliar with the IKC and it's restoration activities. The IKC will also provide two door prize packages. Each package will consist of a copy of the 1995 NCMS *Proceedings* and an IKC hat.

Scott Fee of the Southeast Cave Conservancy (also an IKC member) requested a donation towards the purchase of Fricks Cave (AL). The cave is a significant Gray bat cave and was purchased recently (along with 31 acres) by the SCC to protect it from nearby development. While the IKC strongly support the SCC on this acquisition, there was hesitation in spending IKC funds outside of Indiana. After much discussion, Dunlap motioned (Sergesketter seconded) to donate $100 towards the purchase. Passed (10 in favor).

Noe lead a discussion on the need to revamp our table top display. The current display is showing it's age and is not very portable. Many agreed the display could be better and several potential themes were suggested. It was thought a professional folding display (excluding the actual artwork) would easily run $1000-1500. Nick volunteered to solicit more ideas on what the display should be.

Bowman also suggested our current membership/ information flyer could use some changes. At a minimum, the IKC web address needs to be added. Lindberg volunteered to review the flyer and make suggestions. In the short term, Dunlap will add the www address to existing flyers.

The next meeting was selected to be in Indianapolis at the home of member Bambi Erwin. This will also be the annual cook-out and dessert contest. Sunday, September 14th was selected. The meeting will start at 4 PM.

The meeting was adjourned at 12:35.

Respectfully submitted, Keith Dunlap

Continued from page 7...

such issues as the gas drilling permit system, or karst inventory on the Hoosier National Forest.

Management. The IKC already manages six caves through our leasing agreements (Coon, Grotto, Shaft, Waynes, Shiloh and Suicide). With the exception of Suicide Cave, these caves either contain endangered and/or threatened species, or are located in areas that make them subject to heavy visitation and vandalism. Many such caves in Indiana are already protected and managed by their owners, including the Indiana Department of Natural Resources. This may not be true in other areas of the country.

Owning the cave is the only way to ensure its protection "forever." At the same time, our long-term management of these caves demonstrates that it isn't absolutely necessary to own a cave to manage it effectively. Where the current owner is doing a good job (with or without the IKC's help), it may not be necessary to acquire the property. Buying a cave just for the sake of ownership doesn't always make good sense. In such cases, a conservation easement is a much better option (it protects the resource, costs almost nothing, and gives the landowner significant tax relief).

Summary. Someone reading this editorial might conclude that the IKC doesn't want to acquire caves. That's not at all true. We still have a land acquisition committee, and although our efforts are sporadic, we continue to check on properties and follow up on leads as they come to our attention. We still have a prioritized list of caves we would like to purchase. We will soon become more pro-active by contacting selected cave landowners to make them aware of our interest. We actually attempted to buy Suicide Cave. Furthermore, we expect to acquire our first property in about six months (this has been in the works for over a year) and another property is in the discussion stage. We've investigated insurance and are ready to purchase it as soon as we have something to insure. Like caving itself, keeping a low profile often gives the best pay-back; therefore we haven't made a great deal of noise about these activities.

At the same time, there are many worthy tasks that accomplish similar objectives with less risk. It's no coincidence that "conservative" and "conservation" share the same root. We do need to pursue more easement opportunities. We do need people who will push things to completion. If you'd like to see the IKC become more aggressive in cave acquisitions, please let me know. I would be glad to appoint you to the committee. There is plenty of responsibility to go around, and I'd much rather spend my time holding people back than prodding them forward.

If anyone has a contrary opinion to share, a healthy debate on this matter would be very welcome.

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.

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