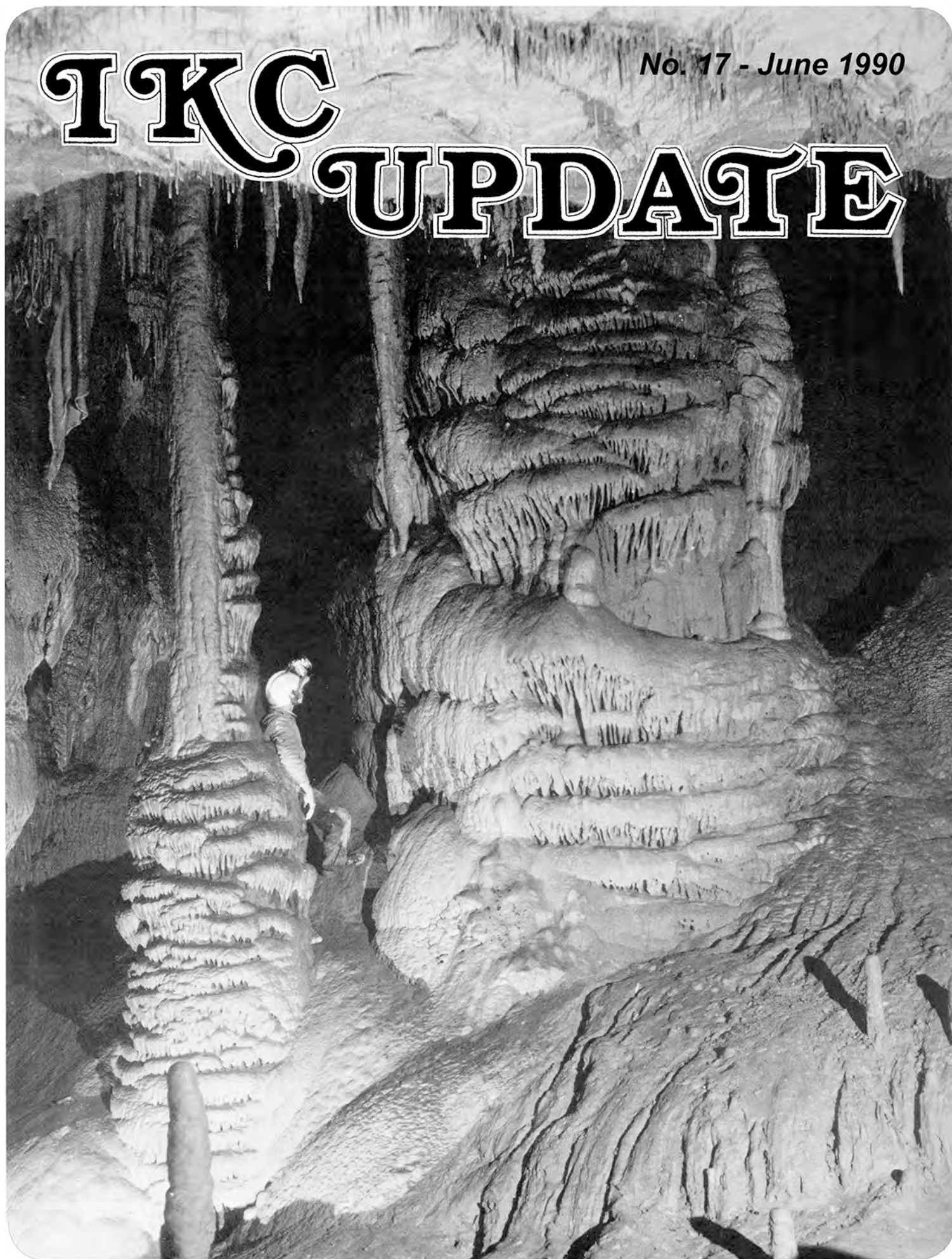


No. 17 - June 1990

# TKC UPDATE



# INDIANA KARST CONSERVANCY, INC.

PO Box 461, Plainfield, IN 46168

*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.

## \* \* \* \* \* BOARD OF DIRECTORS \* \* \* \* \*

President Keith Dunlap .....	(317) 242-2505 (W) / (317) 882-5420 (H)
Secretary Jane Miller .....	(317) 353-1437 (W) / (317) 784-3724 (H)
Treasurer Lynn Miller .....	(317) 632-4525 (W) / (317) 784-3724 (H)
Director Jeff Cody .....	(317) 882-1414 (W)
Director Glenn Lemasters .....	(317) 786-9074 (H)
Director Mike Miessen .....	(317) 353-6624 (H)
Director Ernie Payne .....	(812) 424-4473 (W) / (812) 477-7043 (H)
Director Tom Rea .....	(317) 745-7772 (H)

## \* \* \* \* \* COMMITTEES/CHAIRPERSON \* \* \* \* \*

Cave Management & Landowner Relations/ Keith Dunlap .....	(317) 882-5420
Research & Science/ Kevin Strunk .....	(317) 257-3323
Education/ Noel Sloan .....	(317) 845-8821
Membership/ Jane Miller .....	(317) 784-3724
Publications/ Keith Dunlap .....	(317) 882-5420
Environmental Concerns, HEC Liaison/ Lynn Miller .....	(317) 784-3724
Hoosier Forests Project/ Kevin Komisarck .....	(812) 339-2394

## \* \* \* \* \* CAVE PATRONS \* \* \* \* \*

Coon Cave/ Keith Dunlap .....	(317) 882-5420
Grotto Cave/ Mike Miessen .....	(317) 897-1668
Shaft Cave/ Keith Dunlap .....	(317) 882-5420
Shiloh Cave/ Marty Atherton .....	(317) 783-2194
Wayne's Cave/ Tom Rea .....	(317) 745-7772
Woodard Cave (TN)/ NIG - contact Mike Sunderman .....	(219) 485-0237

## \* \* \* \* \* GROTTO LIAISONS \* \* \* \* \*

Bloomington Indiana Grotto/ Dave Everton .....	(812) 333-5797
Central Indiana Grotto/ Mike Miessen .....	(317) 353-6624
Eastern Indiana Grotto/ Brian Leavell .....	(317) 552-7619
Evansville Metropolitan Grotto/ Ernie Payne .....	(812) 477-7043
Mid-Hoosier Grotto/ Jeff Cody .....	(317) 882-1414
Northern Indiana Grotto/ Mike Sunderman .....	(219) 485-0237

Cover photo by Richard Powell, Devil's Graveyard Cave (reprinted from the 1973 NSS Guidebook)

Publishing facilities courtesy of the Central Indiana Grotto; Editor and Publisher Keith Dunlap, Assistant Angie Manon.

## QUARTERLY MEETING REMINDER

**SATURDAY, JUNE 23rd, 7:00 PM**  
**BLOOMINGTON, INDIANA**  
IU STUDENT UNION, ROOM 400A

The quarterly meetings are for members and other interested persons to have an open forum for talking about 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.

Preliminary Agenda Items: Brief recaps of Sullivan's Clean-up, Earth Day Celebration (and display), Cave Management Seminar; Committee Reports; Henderson Park Timbering; HNF Management Plan & Cave Management Plan; FCRPA Status; Bat Projects; HNF/IKC MOU & ICS/IKC Agreement; Proposed Bylaw Revisions; and more!

Meeting directions: See inside back cover.

Meeting arrangements: Courtesy Bill Baus and the IU Spelunking Club.

### EVENTS CALENDAR

- 23 JUN = IKC WORK DAY, Bloomington, 1PM (see page 16).
- 23 JUN = IKC QUARTERLY MEETING, Bloomington (see above).
- 21-22 JUL = FIBORN KARST PRESERVE WORK WEEKEND, Michigan,  
Contact Tom Rea, 317-745-7772.
- 26 JUL = HNF INVENTORYING TEAM MEETING/COOKOUT #1 (see pp 11-12)
- 30JL-4AUG = MAMMOTH CAVE RESTORATION FIELD CAMP, Kentucky,  
Contact Norm Rogers, 309-692-6715.
- 10-12 AUG = INDIANA CAVE CAPERS, Stage Stop Campground,  
Contact Kevin Bruno, 317-255-6246.
- 25 AUG = GROTTO CAVE CLEAN-UP (see page 4).
- 25 AUG = HNF INVENTORYING TEAM MEETING/COOKOUT #2 (see pp 11-12)
- 26 AUG = COON CAVE CLEAN-UP (see page 4).

Membership to the IKC 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 informed, and to document past, report on current, and announce future IKC activities and business. Submission of articles for publication pertaining to the IKC or any other related conservation subjects are encouraged. Forward material to the *IKC Update*, PO Box 461, Plainfield, IN 46168.

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## RAMBLINGS FROM THE PRESIDENT...

The last three months have been extremely busy for the IKC and especially for your president. While the activities have consumed most of my free time, they have also been very rewarding and personally satisfying. To start with, the HEC sponsored EARTH DAY Celebration in the park was inspiring to see so many environmentally conscious people attend and take an interest in our planet (and our display). The following day, was the IKC's UNDER-EARTH DAY. What can I say about a turnout of 93 cavers to help with the restoration of Sullivan's Cave. I was particularly impressed with the response from the out of state cavers (Illinois, Michigan, and Ohio) that traveled a considerable distance to participate (the only disappointment was the poor support shown by the "local" grotto). Finally, I was honored by the invitation to participate in the Hoosier National Forest Cave Management Seminar. While my presentation for the seminar was minor, I was proud to have participated. I was truly impressed by the fact that the HNF really cares about their karst resources and are taking steps to understand what they have. Hopefully they have set the example for other Federal and state agencies to follow (especially the IDNR).

And the next three months seem just as busy. This *Update* has to be finished and printed, then the Garrison Chapel Valley workday and IKC meeting are next. Also the HNF inventorying project is starting up, and the Grotto and Coon cave cleanups are not too far away. There are also the other caving activities like the NSS Convention and Capers to prepare for and attend, and maybe a Spring Mill survey trip or two sometime. I know most of our active members are probably as busy as I am, I just hope that you make the time to participate in the various cave conservation project. It is easy to get burned out on the various projects, especially if you are the organizer, but it is all worthwhile if there are enough cavers supporting the cause. I'm not complaining, I volunteer for most of these activities because I believe we are making a difference; but some times I do over extend myself and it would be nice to have others take a leadership position. There are probably fifty other projects that the IKC should be involved in, but unless someone else volunteers to organize them, they probably won't get done.

- Keith Dunlap

## IKC ELECTION RESULTS

At the IKC Annual Business meeting, elections were held re-electing Keith Dunlap as President, Jane Miller as Secretary, and Lynn Miller as Treasurer. Jeff Cody and Ernie Payne were re-elected as Directors, while Tom Rea replaced Kenney Carrigan on the Board. Glenn Lemasters and Mike Miessen also remain on the Board, serving out their second year.

Thanks to Kenney for his contributions while serving as a Director this past year and for being an active member.

# GROTTO & COON CAVES WORK WEEKEND

AUGUST 25th & 26th (STARTING BOTH DAYS AT 10 AM)

This is the fifth annual IKC sponsored work weekend for these two caves located in Garrison Chapel Valley (SW of Bloomington). As in past years, we will continue their restoration with the usual techniques of wire brushing and "brown-washing" graffiti, and the removal of what ever remaining trash can be located.

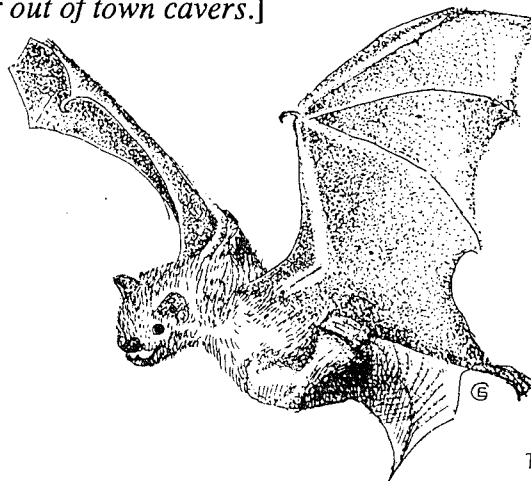
Current plans are to work in Grotto Cave on Saturday. Grotto is a moderately difficult cave with three distinct personalities: 1) a sizable walking trunk passage for the first 1000 feet; 2) a lengthy and challenging breakdown maze area extending beyond the trunk passage; and 3) an upper level canyon passage, also off the end of the main trunk passage, turning into a crawlway terminating in two formation room. It is this third area, better known as Richard's Extension, which we plan to concentrate our main cleanup efforts. This will be our initial visit to this passage, but it is not expected to be too bad because few others frequent this level due to its inconspicuous climbup (we will rig a cable ladder and belay). If you have not been in this section of Grotto before, it is well worth seeing.

On Sunday, we will work in Coon Cave. Coon is a fun cave which primarily consists of a single multi-level passage approximately 1200 feet long terminating at a crystal clear blue pool. However, along the way, there are numerous lower level breakdown mazes to explore. In particular, there is one area that crosses over several 20 foot pits. It is this area that we plan to concentrate our graffiti removal. Coon Cave has a 22 foot vertical entrance, but we will have the cable ladder and belay rigged for non-vertical cavers.

As a reminder, this cleanup weekend will be the last time to visit either of these caves until May 1st, as both caves are closed because they serve as hibernacula for the endangered Indiana bat (which you will probably see some of, as they start their fall swarming activities). Both caves are appropriate for novice cavers; all we ask is that each participant have a hard hat and their own light sources (lug sole boots recommended, but not required).

Further questions or inquiries should be directed towards Keith Dunlap: (317) 242-2505 days, 882-5420 evenings.

*[Editor's note: As a reminder, the second HNF inventorying team meeting and cookout will be Saturday evening following the Grotto Cave trip (see page 11-12). All cleanup participants are welcome to attend this meeting/cookout and find out more about the inventorying activities planned. Furthermore, primitive camping will be provided for out of town cavers.]*



# HOOSIER FORESTS PROJECT COMMITTEE UPDATE

by Kevin Komisarck

The Hoosier National Forest Plan has finally been released for public comment. The last issue of the *IKC Update* contained excerpts from the Plan of the management techniques which will be used in karst areas. As you will notice, the HNF speaks of karst areas and not just caves. This is a major change in philosophy for the HNF and one we should applaud. Not only will cave entrances now be protected, but also any water or air inputs into the caves, microclimates around these surface features, etc. In subsequent discussions with the Forest Supervisor and District Rangers, I have come away with the impression that they are attaching the same level of importance to these features as they do archaeological sites. This new outlook has resulted in a karst management plan that could easily be used as a model for other national forests and federal agencies. With this view in mind, the committee unanimously endorsed this section of the proposed Plan with a few modifications (see letter on facing page).

The committee is also requesting that each caver write a similar letter to the Forest Service in support of this part of the Plan. It is important that the Forest Service hears from us so that these changes will be made during the review process and so that the rest of the karst management plan will not be changed should others from the public comment. Whether you agree or not with how other resources of the HNF will be managed, we need to support this section of the overall Plan.

One other significant development has been a request from the Forest Service for the locations to caves that lie within their purchase boundaries in addition to those that lie on land they already own. Since caves are now a valued resource, they would like to consider the presence of caves when making decisions on new land purchases. In fact, some parcels of land may be acquired primarily because of the existence of outstanding caves and karst features on them. In view of the Forest Service's new attitude, the committee agreed that giving the HNF this additional information would indeed be beneficial to the protection of karst resources. Therefore, we have requested that the Indiana Cave Survey supply this additional information to the HNF.

*[Editor's note: Because of the integral role the Indiana Cave Survey plays in cooperative arrangement the IKC has with the HNF, it has been mutually decided to formally acknowledge their participation and to clearly state the responsibilities of all parties involved. Thus, the Memorandum of Understanding (MOU) between the IKC and the HNF is being revised, and an Agreement between the IKC and ICS has been drafted and is being reviewed.]*

*The essence of the proposed arrangement is that the IKC's HFP Committee will remain the communication channel between the HNF and caving community on all cave management issues. The ICS, via it representative in the HFPC, will supply cave location information on or near the HNF, but will retain complete ownership of information. This ownership retainment will provide a final defense of information disclosure by someone using the Freedom of Information Act, a critical concern of many cavers. Furthermore, as cave information is collected by the HNF and caver volunteers, it will be forwarded to the ICS for their database.]*

**INDIANA KARST CONSERVANCY, INC.**

PO Box 461  
Plainfield, Indiana 46168

May 21, 1990

Mr. Francis Voytas, Forest Supervisor  
Hoosier National Forest  
811 Constitution Avenue  
Bedford, In 47421

Dear Mr. Voytas:

As chairman of the Hoosier Forests Project Committee of the Indiana Karst Conservancy I am writing in response to the Hoosier National Forest Plan. First, I would like to thank you for allowing us to make suggestions for the management of caves and other karst features. The management plan which resulted from this cooperative effort is a sound one that will protect the caves on the HNF during surface disturbing activities. Probably the most important feature of the Plan is that karst systems (not just the cave entrance) will be managed. This will help insure that the cave environment will not be adversely affected by changes in water quality, nutrient inputs or microclimate due to surface activities that occur many feet away from the cave entrance.

We were also happy to see that Lost River will be considered for inclusion in the Wild and Scenic River System. This river is one of the best examples in the country, of stream piracy on such an extensive scale. We hope that further study will prove the uniqueness of this river and it will meet the necessary criteria for inclusion.

As comprehensive as the Plan is, there are two points which do not seem to be specifically addressed. First, we would like to make sure that regardless of which alternative is finally picked, the management of karst features will remain the same. In other words, it will not vary by alternative. Perhaps such a statement could be put under the section: Common Ground among Alternatives, of the DEIS, page 2-16.

Our second concern has to do with oil and gas exploration. Although the Plan Amendment does say that special precautions will be taken to avoid damaging caves, (2-24), no specifics are given. Also, in the Coordination Requirements and Stipulations for Oil and Gas Activities, (Appendix D), no mention of the protection of karst features is made. There are several activities which should be guarded against: 1) Do not drill into known cave passageways. This not only damages the cave due to broken rock and deposition of drilling mud, but also changes the climate of the cave. Even if the hole is cased, significant changes in the cave climate can be noticed. 2) The location of the reserve pit must be seriously considered. If a breach should occur, the effluent should not run into a cave entrance or sinkhole or swallowhole. 3) Oil storage tanks also must be sited with great care. If the tank should rupture, any oil or saltwater entering the cave would have disastrous consequences for the cave life. 4) Seismic surveys should not be done directly over known cave passages. Caves are rather shallow features and the detonation of twenty pounds of dynamite near a cave could cause serious destruction. 5) As in logging, erosion from the access road and drilling site should not be allowed to wash into the cave.

Finally, one last point concerning hibernacula of Indiana bats must be made. In Appendix C of the plan amendment, (C-4), it states: "Restrict access to any cave found to contain wintering Indiana bats and prohibit any disturbance within 100 feet of the cave entrance." For caves with viable colonies this prohibition is fine. Organized cavers already honor self-imposed moratoriums on visitation to some known bat caves. However, caves where only a few Indiana bats are found, this statement would be overly restrictive and unnecessary. Better wording would be: "Consider restricting access to any cave..." This would then allow access restrictions to be made on a case by case basis.

With the above changes, we believe that the karst features on the HNF will be well managed. We also believe that this plan should serve as a model for the management of karst features on other national forests.

Sincerely,

Kevin Komisarck, Chairman  
Hoosier Forest Project Committee  
Indiana Karst Conservancy



## NEWS BRIEFS...

- ☐ The proposed HNF Management Plan was released on April 11th, with the public comment period extending through July 30th. The sections pertaining to caves were published in the March *Update* for your review. Positive input from cavers is needed to assure the proposed cave management plan is not altered. While there is still plenty of time to comment, don't wait to the last minute to do so, and don't expect someone else to do it - take it upon your self to do it! (note: as of early June there has only been one caver comment on the plan). Further details on where and what to write can be found on the preceding pages.
- ☐ The IKC was informed that the city of Salem has plans to timber Henderson Park in the near future. This was confirmed verbally by the Mayor's office, and apparently the plans will not be changed. The IKC sent a letter to the Mayor, but received no reply. Henderson Park is best known for Mill, Middle, and Waterfall caves. Director Tom Rea set up a meeting with the consultant that handled the timber sale to see if the trees around the cave entrances could be saved, but unfortunately a conflict postponed the meeting and it has yet to be rescheduled.
- ☐ The Eastern Indiana Grotto has indicated that they are interested in replacing the gate on Devil's Graveyard Cave near Corydon. The current gate is beyond repairs and the cave is receiving extensive damage. The IKC supports their efforts as this cave is one of the nicest decorated in the state (see our front cover) and needs protection. If you would like to volunteer for this project, donate money to the cause, or have input to the project, contact Brian Leavell (317) 552-7619.
- ☐ The Federal Cave Resource Protection Act regulations have still not been released. Supposedly, the regs are in the signing process, and have not been changed since the last revision in March. The original regulations were stalled at this same stage and were returned for revisions, so it is unclear when we might expect the regs to be published.
- ☐ The next stage of the Indianapolis to Evansville Highway has apparently started despite the fact that the proposed highway was determined to not be economically feasible. A consulting firm studying possible routes contact the IKC for cave locations in a ten mile wide corridor roughly following SR 45 from Bloomington to Newberry. We have turned the request over to the Indiana Cave Survey, since they are better prepared to supply such information.
- ☐ The Spring Mill Cave Survey Project has not made much progress recently due to wet weather. All but one trip, into Hamer Cave, has been "washed out". Hopefully this summer will be dryer so they can get back on schedule.
- ☐ The CIG, NIG, and EMG had a joint cleanup/restoration work weekend to Mammoth Cave in April. Approximately twenty cavers worked in Bottomless Pit removing debris from the ledges and old timber from the bottom, and removed trash from Gothic Avenue. The Park plans to schedule four cleanups a year, with the next one being the week long restoration camp in early August.
- ☐ The BIG has commented on increased damage noted in the Blair Cave System, near Buckner Cave (Monroe Co). They have discussed alternatives to the problems, but it is unknown if they have committed to any action. Interested parties should forward their input to the BIG.



- ☐ A reminder to cavers wishing to visit Sullivan's Cave, you must arrange your trip with the owner ahead of time. You will be denied permission if you show up without prior arrangements. Janet Stewart can be reached on 812-279-1303, and please call during reasonable hours.
- ☐ The Indianapolis Zoo's Science for Conservation promotion featured Scott Johnson of the IDNR as one of five presenters during the April 25th presentation held at the Circle Theater in downtown Indianapolis. Scott's lecture was primarily on the projects initiated by the IDNR to help protect the Indiana bat, but he also included a strong cave conservation message. Scott credited the IKC numerous times for assisting in the bat protection projects. IKC and CIG members also supplied slides for the presentation. Profiles of the five participant were also promoted in the print media with Scott's being reprinted on page 19.
- ☐ Preliminary first year results from the over-winter weight loss (winter disturbance) bat project have been summarized, but will not be released until reviewed by all involved. It is known that there were statically significant differences in spring weights of the bats from the three caves studied, but no formal conclusions will be made until the second year of this study is completed.
- ☐ The two summer Indiana bat projects are about to begin, one in the HNF and the other in Northern Indiana. Virgil Brack from 3D Environmental Services is managing both projects with Karen Tyrell from the Univ of Tenn overseeing the field work. Several IKC members have volunteered to help with these projects, if needed. Virgil has also asked for information on the caves on the HNF, with the request forwarded to the ICS.
- ☐ The IDNR is looking for photos, artifacts, and stories related to Wyandotte Cave for a history project sponsored by the Indiana Heritage Program. Cave historian Angelo George is conducting the research project, with the assistance of Bill Brockman. If you have materials that might be of interest, contact Roger Gleitz, Assistant Property Manager, Wyandotte Cave, RR 1 Box 85, Leavenworth, IN 47137; or 812-738-2782.
- ☐ On May 29th, Ron Richards, paleontologist from the Indiana State Museum, had a press release carried by Channel 6 News on the discovery of at least 106 peccary's (ancient pigs) in a Crawford County pit cave.
- ☐ The IKC over the last three months has gained 19 new members (see names and addresses on page 23). Many of these members learned about the IKC through our EARTH DAY, UNDER-EARTH DAY, and Cave Management Seminar participation.
- ☐ The *IKC Update* is now being printed on partially recycled paper. As you will note, the quality is every bit as good as previously, and the additional cost is minimal. You may also note that this newsletter was mailed as non-profit bulk. This will reduce one of our biggest expenses related to the newsletter.
- ☐ Finally, progress on republishing the excerpt from Blatchley's book has moved forward, but it is still not complete. Angie Manon, Jane Miller, Serena Smith, and George Brutchen have the material typed in, but formatting and layout is waiting for the publisher to find some spare time, hopefully soon.



printed on recycled paper

# HNF CAVE MANAGEMENT SEMINAR SUMMARIES

by Tom Rea

On May 10-11th the Hoosier National Forest held a cave management seminar at Spring Mill State Park. The seminar was presented to 27 Forest Service employees and three IDNR staff members, plus the 10 presenters. An interpretive field trip to Endless Cave followed, accompanied by the owners. The main purpose of this seminar was to educate and sensitize the agencies' staff to karst system management and protection.

On May 12th a second similar seminar held at the FS office was attended by approximately 65 people including: 6 cave owners, 50 cavers, and 15 presenters. This seminar was to present karst related topics of interest to the attendees and to explain the details of the proposed HNF cave management plans and inventorying procedures. Because of the number of presenters, this seminar was a real marathon, but everyone came away with a better understanding of karst systems and the HNF cave management plan.

Both seminars were organized and hosted by Larry Mullins, long time Indiana caver and a recreation specialist in the Forest Supervisor's office. Larry was assisted with presentations by local cavers Dave Black, Don Paquette, Tom Rea, and Keith Dunlap. Dave presented a description of the Indiana karst. Don described the organization and function of the National Cave Rescue Commission and discussed rescue problems. Tom talked on basic speleology, orientation to Indiana caves, use of caves, safety, risk, and law. Keith gave presentations on the Indiana Karst Conservancy, cave gate design and philosophy, cave conservation, and cave restoration. Horton Hobbs, an aquatic ecologist and invertebrate zoologist from Wittenberg University, talked on cave life and cave ecosystems. Tom Aley, Director of the Ozark Underground Laboratory, spoke on Hydrology and cave impact, use, and monitoring. Jim Neiland, a cave specialist at Mt. St. Helens National Monument, discussed cave management principals and responsibility and the Federal Cave Resources Protection Act. Ruth Brinker, the Hoosier Forest Archaeologist gave presentations on cultural resources and paleontology relating to caves. Lester Zimmer, of the Nature Conservancy, described the Nature Conservancy and its role in cave preservation. John Whitaker, a professor of life sciences at Indiana State University, discussed the cave dwelling bats in Indiana. Scott Johnson, IDNR non-game biologist, talked about Indiana bat protection projects. Ron Richards discussed paleontology related to caves. And Gordon Smith talked briefly about cave ownership and commercial caves.

Of particular interest to cavers, Larry Mullins presented the Hoosier National Forest philosophy of cave management and described the involvement of cavers in the cave inventory and management process on the Forest. Basically the Forest approach is to treat caves like any other part of the forest environment. Caving will neither be encouraged nor discouraged. Cave locations will not be given out. People wanting to look for caves will be told they are free to find them if they want to. Access to caves will not be restricted unless a valuable resource is in danger of being destroyed. Cavers will be involved in any decision to restrict access to a cave.

As a first step, a complete inventory of caves on the forest will be prepared. Teams of volunteer cavers will be developed and these cavers will conduct the inventory. Inventory activities include hill hopping, exploration, mapping, photography, biological inventories, and other studies. Interested cavers can "adopt" a cave or group of caves as their special project for long term monitoring. Anyone who is interested in participating in any way in this inventory should obtain a registration form, fill it out, and return it to Tom Rea, who is coordinating the project, or to Larry Mullins (see separate article on pages 11-12).

A special thanks should go to the HNF staff for sponsoring these seminars, and an extra special thanks to Larry Mullins.

*[Editor: Various handouts are available from the Seminar - contact Keith Dunlap for copies.]*

# CAVE MANAGEMENT

## SEMINARS, INFORMATION, AND INVENTORIES

Caves contain one of the most sensitive environments found on earth and often hold resources of great values in deciphering our past. Unlike surface resources which are commonly considered "renewable", cave resources are much more fragile and once damaged may take thousands of years to recover.

If the cave resources on the forest are to be protected, it's important for people to understand their value, and to be taught the ethics of cave stewardship. It's also important to understand that caves don't exist in isolation, separate from the rest of the environment. They are an integral part of everything we do above ground.

In areas of karst topography, caves are often the underground drainage system and carry water rapidly from distant sources to springs. Commonly these springs are used as domestic water sources for home, farms, or communities. Pollution of these supplies is a serious and rapidly increasing concern.

### SEMINARS OFFERED TO TRAIN CAVE MANAGERS

Larry Mullins, Cave Management Specialist on the Hoosier, held two seminars in May on managing caves. The first was designed to train Forest Service and Department of Natural Resources land managers and specialist. The second was open to the public with a target audience of cave owners and users. Experts from across the nation were brought in to discuss the principals of cave management, cave geology and biology, laws pertaining to caves, and liability problems. More than 100 people attended the combined sessions and gained awareness of managing caves.

### MANAGING CAVES

The thought that caves need to be "managed" is a relatively new one even though people have been using, and in many cases protecting, caves for years. In the United States the first caves to be managed were commercial tourist caves. These caves were developed as tourist attractions where an entry fee was assessed. The caves were developed to provide easy, safe, comfortable exploration, usually with a guide. It was important to cave owners to protect the resources since their livelihood depended upon the attractiveness of the caves.

With the establishment of the National Park Service, the Federal government became involved in cave management with the establishment of several parks in which a cave was the main feature or in which caves were found. With the establishment of state parks, states also became involved in cave management.

Caves development allowed great numbers of visitors to tour caves safely without the need for specialized equipment. Currently several million visitors annually visit developed caves across the country. Nearly every state has at least one commercially developed cave.

There are literally thousands of undeveloped caves nation-wide on public lands. Since the establishment of Federal land managing agencies, these undeveloped caves have been open to unsupervised public use. Managers really didn't know much about caves, where they were, or what if any value they had.

In the late 1960's, public agencies became more concerned about their cave resources. The concerns and awareness of a need for coordinated efforts grew, and inventory processes were developed. In 1986 the Forest Service and Bureau of Land Management developed policies to manage cave resources. They also began to work with national groups such as the National Speleological Society for assistance in developing cave management plans, inventory of cave resources, and other projects such as monitoring, cleanup projects, and research.

In November of 1988 President Reagan signed into law the Federal Cave Resource Protection Act. This act makes it the "policy of the United States that Federal lands be managed in a manner which protects and maintains, to the extent practical, significant caves." The law also directs the Secretaries of Agriculture and the Interior to identify and prepare a list of significant caves under their jurisdiction, to develop regulations or restriction of their use, and to ensure that significant caves are considered in the preparation or implementation of any land management plan. The law further establishes prohibited acts and civil penalties for damaged cave contents.

### INVENTORYING THE RESOURCE

Before we can fully manage the cave resource, it becomes imperative to know what the resource includes. Existing records are poor, and specialized skills are needed to adequately inventory cave and karst resources. The Forest has worked with the Indiana Karst Conservancy to help develop records of known caves, their geologic value, and their plant and animal communities. The inventory is continuing, and volunteers are compiling information on this unique resource. AS the inventories are turned in, specific management plans will be developed for each cave or group of caves to safeguard its special characteristics and values.

*[Reprinted from the June 1990 HNF Tabloid. Written by Teena Sechler, after attending the Cave Management Seminar.]*

## HNF CAVE MANAGEMENT & RESOURCE INVENTORYING

### HOW CAN I BE AN ACTIVE PARTICIPANT?

There are two basic avenues for cavers to participate with the HNF in implementing their cave resource management plan. The first is through indirect input to your grotto representative on the Hoosier Forests Project Committee. But a better alternative is to become directly involved by volunteering to work with the HNF in inventorying caves and karst resources.

### HOW DO I VOLUNTEER AND WHAT CAN I CONTRIBUTE?

The first thing to do is to contact Larry Mullins at the FS office, or Tom Rea [Tom has volunteered to be the HNF Karst (& Cave) Analysis and Resource Survey Team (KARST) coordinator]. They will give you a personal data résumé to complete, detailing your skills and interests. Optionally, you may attend a planning/question & answer session to find out more details (see the end of this article).

Depending on your interest, you may want to participate in one or more of the following:

- ☐ Field work (ridge walking, location verification, inventorying resources, surveying...)
- ☐ Literature searches for information on HNF caves to be included in a resource library
- ☐ Determination of inventory information to be gathered for specific caves
- ☐ Drafting of cave maps
- ☐ Discover and identify the various values of cave and karst resources on the HNF
- ☐ Assist in helping answer questions that develop from the resource inventories
- ☐ Write individual cave management plans
- ☐ Participate in nominating a cave to get it designated as significant under the FCRPA
- ☐ Sign up to "Adopt-a-Cave" to monitor long term changes/damage that may occur

### AS A VOLUNTEER, WHAT WILL BE EXPECTED OF ME?

You will be expected to fill out a volunteer agreement form, respect all Federal regulations as a representative of the HNF, and above all, cave safely. Furthermore, prior to each new project, you should attend a planning meeting to help develop the inventory strategy and obtain any instructions and safety briefings that may be required.

Depending on your skills and area of interest, you will be invited to participate on project inventory teams. A project may include one cave, a valley, or a section of land. The teams will most commonly consist of cavers skilled in exploration and mapping, but may also include one or two individual para-resource specialist (visual, geology, biology, archeology, etc...) or it could potentially consists of "true" cave specialist as the needs dictate. Participants on the teams are expected to document all finding and data, and depending upon the skills, draft maps. Team members will also be called upon to help develop specific management plans for the caves they have worked on in the field.

## SO WHAT'S IN IT FOR ME?

There are many tangible and intangible benefits for participating, some are as follows:

- ☐ You will have the satisfaction of knowing you can have a meaningful role in exploration, inventory, monitoring, and management of cave and karst resources on the HNF
- ☐ You will work alongside Forest Service Employees in gathering of karst resource data for the development of individual cave management plans
- ☐ You may be called upon to sit in on planning teams for individual cave management plans, or as a consultant in the significant cave determination process under the FCRPA
- ☐ If you are interested, you may receive training as a para-resource specialist
- ☐ Under individual volunteer agreements, you are a federal employee for the purpose of tort claims and compensation for work injuries
- ☐ You may be reimbursed for incidental expenses, to the extent funds are available
- ☐ Periodically, you will receive a newsletter that provides up-to-date information on the inventory activities
- ☐ Occasionally we will have social events and/or cookouts to plan, or reward work accomplishments
- ☐ Possible access to free Forest camping in developed campgrounds in conjunction with inventorying activities
- ☐ Credit for completed ICS inventory forms, cave write-ups for publishing in grotto newsletters or possibly even scientific journal publications
- ☐ Preferential selection for future projects

## HOW SOON CAN I START?

You may contact Larry (812-275-5987/824-2192) or Tom (317-745-7772) immediately. Two planning/question and answer/cookout meeting have also been scheduled, so please plan to attend one or both (for planning purposes, please RSVP prior to meeting):

JULY 26th (Thursday):      Discussion starting at 5:00  
Pitch-in cookout at 7:00  
At Tom Rea's home in Plainfield  
(call for directions)

AUG 25th (Saturday):      Discussion at 6:00 (or after Grotto clean-up)  
Pitch-in cookout at 7:00  
At Larry Mullin's home south of Bloomington  
(call for directions)  
Camping will be available at Larry's

# UNDER-EARTH DAY CLEANUP AT SULLIVAN'S CAVE

by Keith Dunlap

In our own special way of celebrating EARTH DAY 1990, cavers from four states converged on Sullivan's Cave for a day of caving and cave restoration activities. **Ninety-three** participants from at least nine NSS grottos and the IKC (see chart below) gathered in what was undoubtedly the largest cave cleanup projected ever organized in this state. What was even more amazing was that it was probably the smoothest restoration trip the IKC has sponsored; with no one becoming "misplaced", injured, nor late exiting the cave (it is amazing the motivation that a threat to lock the gate at a specific time has on punctuality).

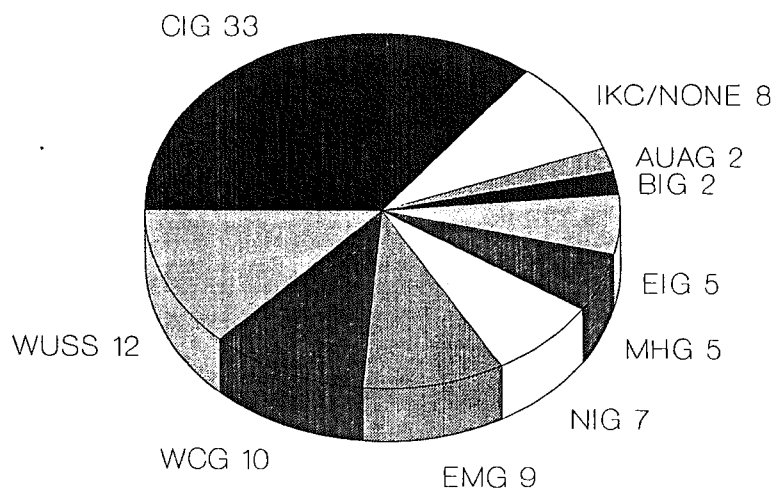
The bright, sunny, perfect spring day started at McDonalds with approximately half of the group converging there before car pooling to the cave. After a short briefing to all the participants on the options available to them within the cave, groups started entering at about 10:15 and continued for more than an hour (see photo). I was one of the last to enter, and observed several cavers brown-washing and wire brushing in the Back-breaker passage and the connection room to the Mountain Room. But perhaps the most incredible sight was entering the Mountain Room and seeing sixty to seventy pin points of light spread out over the entire room, removing graffiti from the walls and picking up trash from among the breakdown boulders.

Several groups preceded up stream to the Quarry Room to collect trash, while others attempted to the down stream route. Two groups attempted to exit through the Speed Hollow entrance, but found it sumped due to recent rains. The last cavers exited the gated entrance by 4:00, with everyone on the sign-in/out sheet accounted for (a first), thanks to Larry Reece and others who volunteered for surface duty.

In summary, approximately 400 person-hours of effort were applied to the cave on this first attempt at an organized restoration. Approximately 20 garbage bags of trash were removed, and countless square feet of graffiti erased. Sullivan's is a big cave with much more to be done, but this was a very good initial venture, and will not likely suffer further damage since access is now better regulated and restricted to conservation conscious visitors. Because of the positive responses from this first cleanup at Sullivan's, the IKC will plan to organized another trip next year in the spring.

The participants include: John Ahlberg, D Anderson, Bruce Barnes, Rachel Beverly, Betty Bunting, Bill Bunting, Emily Butterbough, Chris Carpenter, George Cesnik, Eli Chastain, Marcella Chastain, Jeff Cody, B Crawford, Mike Demske, Bruce Devore, Mike Devore, Keith Dunlap, Scott Engel, Bill English, Bambi Erwin, Scott Fee, Chris Field, Brent Fountain, Anton Fountain, Elizabeth Fountain, Mike Goltlene, Leesa Isenhomer, Jim Hall, Adam Hamilton, Bob Hargraves, David Hibbard, Penny Hibbard, John Hedge, Denis Hedley, Keith Hendershot, Doug Hill, Beeper Hobbs, Horton Hobbs III, Cindy Horn, Dick Horn, Tem Hornaday, Hank Huffman, Steve Kappus, Mike Kincaid, David Kingrey, Bob

## SULLIVAN'S CAVE CLEANUP PARTICIPANTS' GROTTO AFFILIATION





Kirkland, Tymme Laun, Gary Leindecker, Clint Litaker, Jerry Litaker, Jeff McClelland, Tim McLain, Angie Manon, Bob Masta, Anmar Mirza, Jennifer Mirza, Larry Mullins, George Mundy, Keith Nickel, Jim Nickel, Susan O'Shields, Serena Smith, Monika Palvns, Ernie Payne, Jennifer Pelter, Gene Pelter Jr, Nate Pfeffer, Lynn Pool, Larry Reece, Matt Reece, Susan Reynolds, Ray Rough, Claire Sandt, Jay Savage, Bob Sergesketter, Don Shofstall, Clyde Simerman, Matt Simerman, Barry Smith, Annette Stokes, Josh Sueer, Julie Thorp, Amy Vandeventer, Bob Vandeventer, John Vargo, Steve Watson, Steve Weinzapfel, Clay Whitaker, Cindy Wical, Josh Wical, Mark Wilcher, Craig Williams, and Chris Yeager.



Cavers lined up to enter Sullivan's Cave.

photo by Angie Manon



Removing graffiti with a wire brush.

photo by Cindy & Dick Horn



## IKC EARTH DAY BOOTH

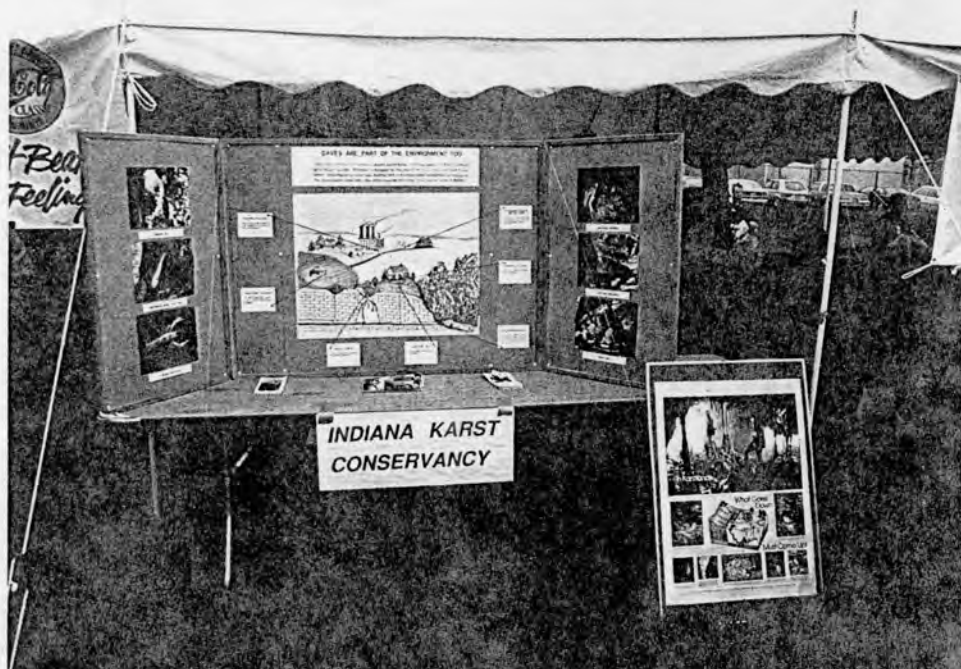
by Lynn Miller

On Saturday, April 21, an Earth Day rally was held in Military Park in Indianapolis. Numerous environmentally concerned organizations participated in this event. The Indiana Karst Conservancy and the American Cave Conservation Association were two of these organizations. Some of the others were the Nature Conservancy, the Amos W. Butler Audubon Society, Sierra Club, League of Women Voters, WFYI Channel 20, the Hoosier Environmental Council, and the Humane Society. There were also many vendors selling everything from T-shirts, books, ice cream, and tofu hot dogs (I think tofu is an Oriental word for card-board), to environmentally safe cleaning products.

The organizers of the event provided large canopies for shelter from the weather. Luck was with us though, and the threatening sky gradually became more sunny as the day progressed. Many bands performed throughout the day, from hard rock to folk music. Numerous speakers expressed their views on environmental problems.

The centerpiece of the IKC booth was our new fold-up display board. Since the focus of Earth Day was to draw attention to the pollution of our air and water, our display pointed out how sinkhole dumping, run-off of farm chemicals, industrial drainage of toxic materials and other forms of pollution find their way into cave systems and affect the caves' inhabitants as well as our groundwater. Suzie Sweeney provided a very well done cut-away drawing of a typical karst drainage system that forms the centerpiece of the display. The display is bordered with photographs of a variety of cave life (bats, salamanders, crayfish, etc.) which are affected by pollution. Scott Johnson provided the slides from which the prints were made. We received quite a few favorable comments on our exhibit.

The event was very well attended and hopefully many people learned a little more about what we are doing with our environment and our natural heritage. Maybe even a few learned that trash dumped in your sinkhole may come back out your water faucet, and that bats don't lay eggs in your hair. Among other things, I learned not to stand in line to buy a tofu hot dog.



IKC's new karst pollution educational display.

photo by Angie Manon

## GARRISON CHAPEL VALLEY WORKDAY

JUNE 23rd, STARTING AT 1 PM

This above-ground afternoon workday prior to the Quarterly meeting will meet out on Spicer Lane at the Grotto/Shaft pull off (call for directions). We will accomplish as much as we can with the available help. None of the projects are too difficult, nor require any particular skills, only the desire to contribute to the cause. All materials and tools will be provided, all that you need to do is show up. Call Keith Dunlap for additional details.

Partial list of potential projects:

- ☐ Installation of cable across gate opening at Grotto/Shaft caves pull-off
- ☐ Re-installation of routed sign at alternate pull-off to Grotto Cave
- ☐ Touch up paint on Grotto Cave sign damaged by squirrels
- ☐ Repair barb wire on top of Grotto Cave fence
- ☐ Repair gap under Grotto Cave fence (with concrete and rebar)
- ☐ Repair of cable across road to Coon Cave, installation of sign on cable
- ☐ Replace dated/old materials in information display at Buckner kiosk

## TAKING A CAVE BACK TO NATURE

On September 6, 1883, two schoolchildren discovered Crawford County's Marengo Cave. A little more than 100 years later, in December 1984, it was designated a National Landmark by the U.S. Department of the Interior.

In between, more than a century's worth of visitors have caused much environmental damage to the cave system -- damage the Southern Indiana Recreation Corp., which acquired the cave in 1973, is trying to erase.

The corporation is painstakingly restoring the cave to its natural condition.

In their early days of exploration, people were not environmentally conscious, said corporation president Gary Roberson, himself a spelunker, as are most of his employees.

The greatest damage was to the cavern floor. Some parts of the floor are filled -- wall-to-wall -- with formations.

At first there were no trails to lead visitors through the formations. So visitors tracked a gooey mud found in some parts of the cavern over the cave formations in other areas, and it hardened and continued to build up.

In the late 1800's, in attempts to make trails, people "would bring in cinders and fill in low spots to make a path," Roberson said. Also, soot from kerosene lanterns and torches used to light the cave from 1883 until the 1920's accumulated on cavern surfaces.

"In places, names were smoked (onto formations) with candles," he said.

Occasionally nature takes a hand in the cleanup. Sometimes, in areas where mineral deposits are accumulating, the deposits eventually will cover up the graffiti, Roberson said. And dripping water seeping

into the cavern through cracks and pores in limestone is gradually removing or covering some of the damage.

But nature can't clean up all the human damage -- not very quickly, anyway.

Underground restoration has been an ongoing project for more than 10 years, and Roberson estimates it will take at least another 10 winters to finish restoring the natural beauty of the cave.

Employees do the restoration work during the winter because that is the park's slowest season. Their primary tools are whisk brooms, garden trowels, screwdrivers, and buckets.

They scrap mud from the cavern floors with the trowels and use the small screwdrivers to push mud from the delicate folds and pockets of rock formation. "You have to get in there and kind of scrape around," Roberson said. "It has been walked over so long that sometimes it's almost like concrete."

There are hundreds of these little pockets, he said. "It's like cleaning a pot that you let burn on the stove. You've got to do a lot of scrubbing to get it all off. But to a person who appreciates a cave, the final product is worth the effort -- you start with a big surface of mud, digging and cleaning through it, and find all kinds of neat little cave decorations. It's kind of a treasure hunt."

After most of the mud -- wet or dry -- is removed, they clean the surface with the whisk brooms and water, washing it over and over until all traces of foreign material are removed.

"This stuff is not like paint," Roberson said, "so you can get it back in the condition it was in originally -- with lots of painstaking work and elbow grease."

*[Reprinted from the INDIANA WEEKLY]*

FEBRUARY 11, 1990

THE INDIANAPOLIS STAR

# A Mammoth Mess

## Pollution could close the world's longest cave

By ANDY MEAD

KNIGHT RIDDER NEWSPAPERS

**M**ammoth Cave, Ky. — As the crow flies, it's about six miles from Park City, Ky., to the rivers that flow through the world's longest cave.

As the toilet flushes, it's about 12 hours.

Scientists say that's how long it takes untreated sewage to make its way through the Swiss cheese rock that lies under this region.

They know because they have flushed dye into Park City septic tanks, then watched the underground rivers change color.

They also know that parts of the cave sometimes smell like sewage, and that what is called FFM, or floating fecal material, has been seen on the rivers.

Officials at Mammoth Cave National Park warn that if something isn't done, the world-famous attraction eventually might have to close.

Park Superintendent David A. Mihalic said environmental disaster wasn't the only risk. There also is the region's economy.

"You can look at it on the very high, philosophical, very noble and glorious side by saying, 'What a horrible thing it would be if the world's longest cave were polluted and closed to the public,'" he said.

"Or you can look at it in terms of crass dollar bills. What's \$38 million a year in terms of local tourism?"

Others put the effect on local tourism at \$44 million annually. Using a formula for how much a typical tourist spends, the Tourism Cabinet estimates the statewide economic effect of Mammoth Cave at \$79 million a year.

When talking about polluted caves and tourism, people in this part of Kentucky point to the town of Horse Cave, Ky.

Sitting beside Horse Cave's main street is a large hole that opens onto Hidden River Cave.

Early in this century, Hidden River Cave was a tourist attraction that rivaled Mammoth Cave.

It provided water and electricity to the town. It also was a place to dump sewage.

By 1943, the smell coming from the cave was so bad the tours stopped, water was piped in from elsewhere, tourists stopped coming and the town suffered.

That is the fate that may await Mammoth Cave.

It seemed a decade ago that Mammoth Cave's pollution problem was on the way to being solved.

A unique sewer authority was created that included three towns in two counties, as well as the national park. It got a number of grants and a Farmers Home Administration loan.

Cavendish Sanitation Authority set about building a system that would treat sewage to near purity and carry it to the Green River, bypassing the caves instead of letting it flow into them.

But the authority has run short of money before completing the system. Park City, the main polluter of Mammoth Cave, still has no sewer system.

Everyone involved with the issue says the sewer system eventually will be completed — not only because the law requires it, but also because the stakes are too high to allow it to fail.

But no one seems to know where the money will come from.

The geologic conditions that created Mammoth Cave also are putting it in danger.

This part of Kentucky sits on 300-million-year-old limestone so fine and pure that it dissolves when put in contact with water.

This is what is called karst topography. Water seeping into the ground creates caves, and sinkholes open up on the surface.

Maps of the Mammoth Cave area show creeks running toward the national park, then disappearing underground.

Entire drainage basins, with branches running into creeks and creeks into rivers, exist beneath the surface.

The rivers are home to blind cave shrimp, blind fish and other creatures that have evolved in a world of total darkness.

Unseen hundreds of miles of caves lie beneath the surface. At least 330 miles of underground passages are connected. That's called Mammoth Cave.

It is a cave without equal — three times longer than the world's second-longest.

Park officials say it is the nation's second-oldest major tourist attraction, behind Niagara Falls. About 2 million people visit the national park each year.

Mihalic said cave wildlife probably had suffered from the sewage, but the levels aren't high enough to harm humans.

The strongest indicator of a health hazard came in August. Spot tests showed disease-causing salmonella bacteria in Owl Cave and the Right Fork of Hawkins River, areas where the public doesn't go.

Salmonella is often associated with human waste. If ingested, it can cause a variety of illnesses, including diarrhea, food poisoning and gastro-intestinal inflammation.

The tests were taken during a dry spell. Research has shown that after rains, water runs from the underground Hawkins River to Echo River, a part of the cave where there are public tours and boat rides.

The park service is beginning a three-year, \$140,000 study to find out more about how much pollution is getting into the cave.

To a visitor, Park City — a small town of about 600 people — seems anything but threatening.

Park City Mayor S.C. Denton says many of the town's residents are retired and have low incomes.

Beyond the town limits are dairy farms. Park City is on the edge of Barren County, the state's largest milk producer.

Those cows also may be contributing to pollution in Mammoth Cave, as are fertilizer and other agricultural runoff.

And the sinkholes that dot the area have traditionally been used as dumps for mattresses, household trash, old motor oil or whatever anyone wanted to get rid of.

But the most concentrated source of pollution is Park City.

Ed Council, general manager of Cavendish Sanitation Authority, describes the Park City situation this way: "They are messing in their nests."

Some of the largest producers of sewage, such as the Park City School, have



**More than 2 million people — from those who take the tours to dedicated spelunkers (left) — visit Mammoth Cave each year. Those tourists pump anywhere from \$38 million to \$79 million into Kentucky's economy.**

FILE PHOTO



small treatment plants that remove solids and add disinfectant before pouring dark, smelly water into sinkholes.

Almost everyone else in town uses a septic tank or leach field, which diffuses sewage over a wide area.

Because there are so many caves and underground fissures, leach fields and faulty septic tanks don't hold sewage for long. And some people have simply run sewage pipes from their homes to a hole between two rocks, which means sewage goes directly into the cave system.

Joe Meiman, a karst hydro-geologist for the National Park Service, said it would be unfair to say sewage percolates through the ground. A better word, he said, is pours.

"In no case does it get any kind of residence time in the ground or filtration as you normally associate with ground water," he said.

The Cavendish Sanitation Authority has completed a little more than half of the \$15 million sewer project.

Since Dec. 16, sewage from the towns of Cave City and Horse Cave no longer pours into sinkholes. It is highly treated, then piped to the Green River.

It is hoped that the new system will clean up Hidden River Cave after nearly half a century.

But that won't help Mammoth Cave.

The plans call for a pipeline to carry raw sewage from Park City to the over-size plant at Cave City, where it would be treated.

So far, that pipeline exists only on paper.

Mayor Denton says Park City can't afford to pay for the pipeline or local collection pipes without outside help.

"Most of us here in town, we're just keeping our fingers crossed that it (the government) will come through," he said. "Since we are the biggest polluter, I believe they will come through with the money."

## How pollution gets into Mammoth Cave

The future of Mammoth Cave is threatened by untreated sewage.

### Glossary

**aquifer** - an underground layer of porous rock, sand, etc. containing water, into which wells can be sunk.

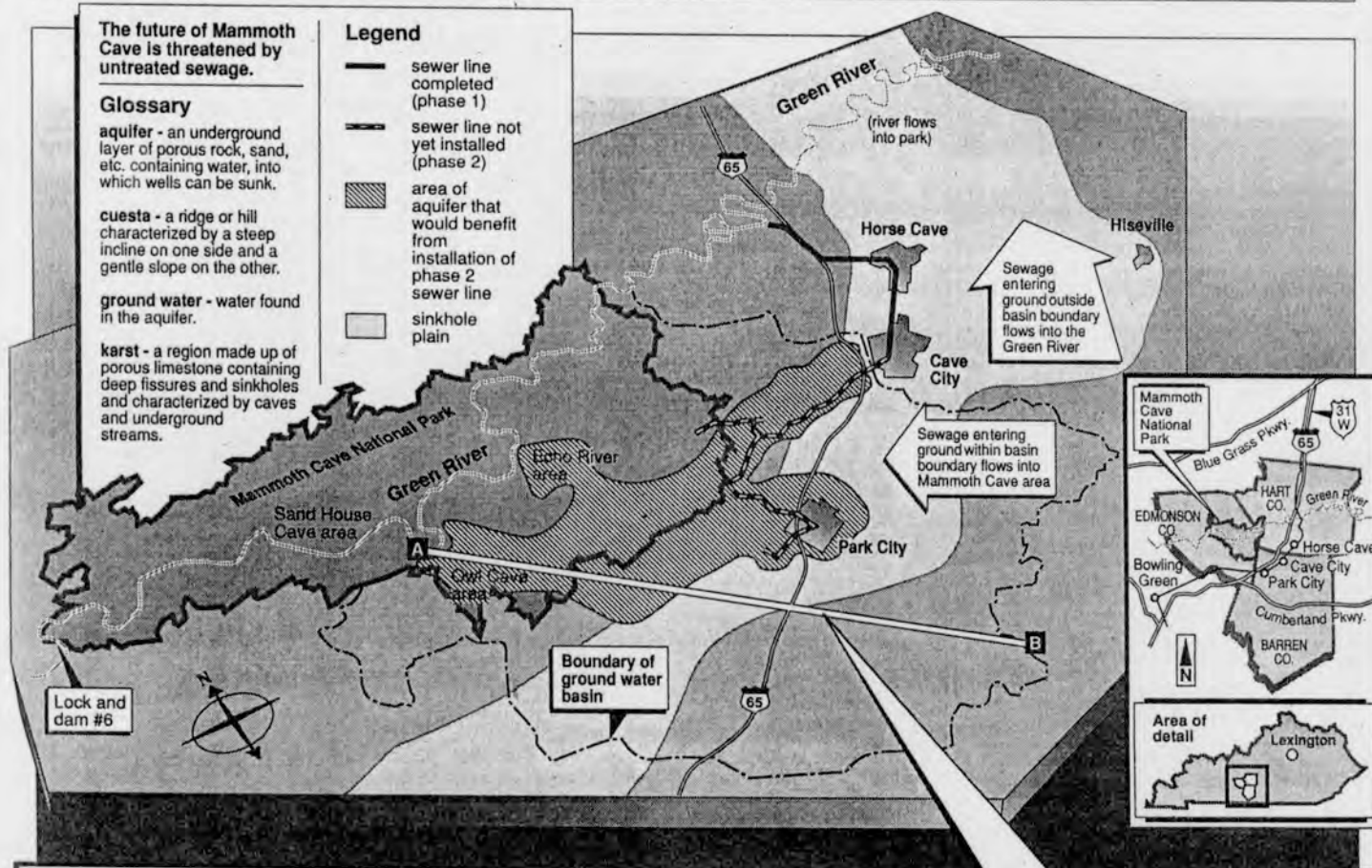
**cuesta** - a ridge or hill characterized by a steep incline on one side and a gentle slope on the other.

**ground water** - water found in the aquifer.

**karst** - a region made up of porous limestone containing deep fissures and sinkholes and characterized by caves and underground streams.

### Legend

- sewer line completed (phase 1)
- sewer line not yet installed (phase 2)
- area of aquifer that would benefit from installation of phase 2 sewer line
- sinkhole plain

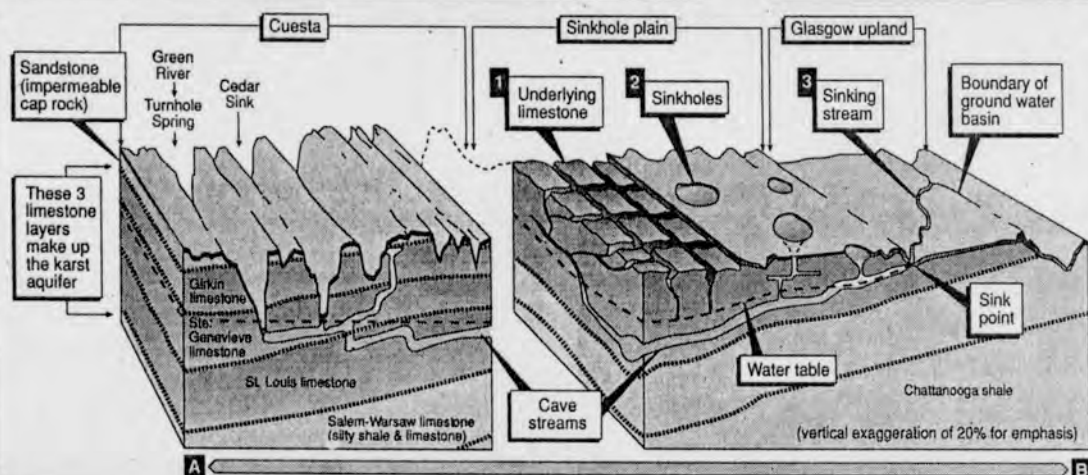


### Cross section of the karst aquifer

This is how pollution gets into the cave:

- 1 **Fast seepage** through the karst aquifer, which is made up of extremely porous and cracked limestone.
- 2 **Sinkholes**, which are large, sunken areas of land connecting directly to the underground streams.
- 3 **Surface streams** that sink underground.

Any materials directly entering the ground, such as sewage, agricultural waste or garbage, are quickly transported into the aquifer through these channels and soon find their way into Mammoth Cave streams.





Scott Johnson examines a tiny mammal in its underground habitat.

## Scott Johnson: Mammal mania

Bats, bobcats, and Franklin ground squirrels may not have much in common other than their classification as mammals, but they head Scott Johnson's list of concerns.

Johnson, a nongame mammal biologist with the Division of Fish and Wildlife, grew up in northeastern Ohio. A river ran close to his home and he spent many hours exploring its banks. Several miles away a favorite creek supplied the rocks, snakes and salamanders kids love to find. These two spots laid the foundation for Johnson's career.

After completing his degree in zoology at Ohio University, Johnson continued his education earning a master's degree in wildlife management from the University of Wisconsin at Stevens Point.

Currently, Johnson works for the Indiana Department of Natural Resources and is responsible for the management and conservation of all nongame and endangered mammals in Indiana.

The biologist spends a great deal of time coordinating surveys and handling necessary paperwork. But, after talking to him at length about conservation projects, one knows Johnson's heart is in the field with the wildlife he fights to protect.

The decline of the Indiana bat (*Myotis sodalis*) concerns Johnson. At present, 85 percent of the known population can be found in seven caves in Indiana, Missouri and Kentucky. Since censuses became standardized in 1983, populations at these seven caves have declined as much as 36

percent, and perhaps as much as 60 percent since 1960 when people became concerned about Indiana bats' dwindling numbers. By 1989, the population at the seven caves declined to about 185,000.

Johnson says, "Protecting bat habitat is a top priority for the nongame program." Indiana bats hibernate in large clusters of 300 per square foot. Caves with winter temperatures below 50 may house several groups where temperature and humidity meet the bats' needs.



A cluster of hibernating Indiana bats hangs from the ceiling of a southern Indiana cave.

Human disturbance of hibernating bats is one of several factors contributing to the population decline. Vandals deliberately destroy hibernating bats. Unknowing cave visitors may disturb them as well.

Before hibernating, Indiana bats load up on insects and live on body fat during the winter. Even though bats only hibernate 10 to 14 days at a time and then

wake to take care of bodily functions, they cannot eat during the winter. Being insectivorous, bats find no food available. They depend on stored fat for survival.

When aroused from hibernation, bats may use up 10 to 30 days of their reserve. If too much energy is burned off in this way, bats can starve to death.

To limit the number of disturbances, surveyors only count bats every other year. The same person counts the species in seven caves where 85 percent of the population roosts. This eliminates bias. Another person surveys the remaining caves in Indiana.

"Protecting caves involves a multifaceted approach. Gating, fencing, posting warning signs, and working with land owners and cavers are several methods being used in Indiana," Johnson says.

Special gates used on cave entrances were designed with Indiana bats in mind. These tiny nocturnal mammals fit in an adult's closed hand, weigh less than one-third of an ounce (6 to 9 grams) and have a 10-inch wingspan. Vertical slats run two to three feet apart, with horizontal ones set every six to seven inches. This spacing gives bats easy access to the cave and allows cool air to circulate in the usual manner. Bats require a very narrow temperature range for efficient hibernation. Gates should not block air flow or change the cave's temperature. If bats cannot fly through easily, snakes, owls, raccoons and other predators catch them when they stop on the slats.



Gating protects some caves where Indiana bats hibernate.

Scientists cannot say decline of the bat population is related only to cave problems. Johnson says other issues may be involved.

Many small mammals breed more than once a season and have more than one offspring in a litter. Female Indiana bats give birth to only one baby per season. The species uses loose bark on dead or dying trees in riparian areas for maternity colonies. Windstorms can blow off bark and destroy the roosting place.

Indiana bats forage in wooded areas near streams. When humans clear the land for development or agricultural purposes or change the flow of streams, the bats' summer habitat is destroyed. These mammals need the tops of large trees and unpolluted streams for survival.

Pesticide contamination may also play a role in the problem. A decline in the insect population reduces the bats' food supply as well.

Fundamental questions about Indiana bats still puzzle scientists as they scramble to save the tiny, endangered species.

In addition to protecting Indiana bats, Johnson tries to document the presence of bobcats in south central Indiana. When citizens report a sighting, he often goes to the area to try to confirm it. He sets up between 180 to 190 scent stations on patches of bare ground where animals appear to pass. He rakes off rocks and vegetation and sifts agricultural lime in 3-foot-diameter patches. In each area, he sets up a cotton swab soaked in bobcat urine. A team returns later and identifies animals by tracks left at the station.

Bobcats are not easy to find, says Johnson. The animals tend to be reclusive and run off if they spot humans. They den up in rocky outcrop areas and prefer early successional stage habitat with good shrub and brush cover.

Another project involves surveying Franklin's ground squirrels in the northwest part of the state. Johnson says the squirrel reaches its edge of distribution in Indiana and is basically a prairie animal. Humans have reduced the squirrels' range through developments and intensive agricultural activity which now occupy the areas once covered with grasslands. The largest populations in Indiana now live along railroad right-of-ways where prairie vegetation still exists.

Public donations fund these and other nongame programs in Indiana. Johnson says Hoosiers interested in wildlife conservation can make contributions by checking the nongame wildlife fund on their state income tax forms. Look for the bald eagle. Citizens also can voice their support for conservation efforts.

This is second in a series of five stories on conservation biologists who work to protect endangered wildlife and wildlands. Monday features Sara DeJong, a tropical ecologist in the rain forests of Colombia, South America.

Each scientist will visit two classes participating in the Science for Conservation program on Wednesday morning, April 25. At 7 p.m., all five conservationists will speak at a special presentation at the Circle Theatre. Tickets available at theatre box office for \$3.

# Science for Conservation



World Wildlife Fund

THE INDIANAPOLIS STAR  
THE INDIANAPOLIS NEWS



Sunday, April 15, 1990

The Indianapolis Star

**INDIANA KARST CONSERVANCY, INC.**  
**Statement of Receipts, Expenditures, and Changes in**  
**Fund Balance for the Quarter Ending 03/31/90**

**GENERAL FUND****RECEIPTS**

DUES	357.00	
DONATIONS	37.00	
INTEREST	31.50	
TOTAL RECEIPTS		425.50

**EXPENDITURES**

POSTAGE, GENERAL	9.88	
ANN MEET NOTICE	24.25	
WAYNE LOCK/KEY	23.15	
SULLIVAN GATE	68.44	
DISPLAY BOARD	63.97	
SEC STATE FEE	10.00	
EARTH DAY BOOTHS	50.00	
TOTAL EXPENDITURES		249.69

EXCESS TO FUND BALANCE		175.81
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FUND BALANCE 12/31/89		1982.81
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FUND BALANCE 03/31/90		2158.62
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**BUCKNER FUND**

RECEIPTS		0.00
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EXPENDITURES		0.00
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EXCESS TO FUND BALANCE		0.00
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FUND BALANCE 12/31/89		232.66
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FUND BALANCE 03/31/90		232.66
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**HANCOCK PROPERTY**

RECEIPTS		0.00
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EXPENDITURES		0.00
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EXCESS TO FUND BALANCE		0.00
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FUND BALANCE 12/31/89		394.87
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FUND BALANCE 03/31/90		394.87
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TOTAL BALANCE - ALL FUNDS 3/31/90		<u>2786.15</u>
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## IKC ANNUAL BUSINESS MEETING MINUTES

Saturday, March 31, 1990  
Indianapolis, Indiana

### DIRECTORS PRESENT:

Keith Dunlap  
Glenn Lemasters  
Mike Miessen

Lynn Miller  
Jeff Cody  
Jane Miller

### DIRECTORS ABSENT:

Kenney Carrigan  
Ernie Payne

The meeting was called to order at 10:10 a.m. Introductions were made. Nineteen members and five visitors were present.

**EARTH DAY** - Keith summarized our planned activities for Earth Day. There will be a display booth prepared and utilized at the Indiana Earth Day rally to be held in downtown Indianapolis on Saturday, April 21 in Military Park.

**UNDER EARTH DAY** - We will also sponsor a clean-up of Sullivan's Cave on Sunday, April 22. "Under Earth Day" will be a major event, involving cavers from all over the state. Individuals and/or grottoes that cannot be at Sullivan's on 4/22/90 are encouraged to initiate their own activities in honor of the 20th anniversary of Earth Day.

**SULLIVAN'S CAVE** - Volunteers are needed to route informational signs for this property. (Remember, the CIG has gated this cave at the request of the landowner, who will maintain control of the cave personally.) Contact Keith Dunlap if you would be willing to assist.

**INDIANAPOLIS ZOO "SCIENCE FOR CONSERVATION" PROGRAM** - Will focus on karst and caves and the creatures that inhabit these features. Scott Johnson will be one of the speakers for the program which begins April 23rd. Scott and the IKC have been involved in preparing materials for this program.

**ELECTIONS** - Officers and Directors for the coming year are:

#### OFFICERS:

Keith Dunlap	President
Lynn Miller	Treasurer
Jane Miller	Secretary

#### DIRECTORS:

Jeff Cody	3/92
Ernie Payne	3/92
Tom Rea	3/92

Glenn Lemasters and Mike Miessen continue as Directors. Their terms expire in March, 1991.

**IDNR ACTIVITIES** - The bat over-winter weight loss project has entered the second phase with the spring "weighing in" process underway.

Virgil Brack is looking for volunteers to assist him in summer habitat studies. Contact Virgil or Keith if you are willing to help.

The IDNR is preparing a series of educational posters concerning the relationships of habitats and animals. The first in the series will address the karst ecosystem and should be out in the fall.

**CAVE MANAGEMENT SEMINAR** - The Forest Service (Larry Mullins) is presenting a 2 day seminar (5/10 & 5/11) for HNF and DNR personnel to sensitize them to the special concerns of managing caves. In addition, on Saturday, May 12, 1990, there will be a one day session on cave management, inventorying, etc. for cavers and cave owners. Contact Larry Mullins or the HNF office if you would like to attend.



**KARST REGISTRY PROGRAM** - The concept of a registry program has been discussed extensively. This is a very worthwhile project desperately in search of a leader. Please contact Keith Dunlap or Jane Miller if you would be interested in initiating this project.

**EXPANDING MANAGEMENT SITES** - Discussion was held of the desirability for the IKC to become active in the management of new caves. Several properties were considered as possible sites. There was much general discussion about possible management practices ("management" DOES NOT mean "gating").

Larry Mullins proposed forming a committee to address the political issues, to define alternative cave management strategies, and to determine the criteria for implementing a specific strategy.

**IRVING BROTHER'S QUARRY CAVE** - We are still in need of a graduate student (or some other interested party) to work on this inventorying/mapping project before the cave is mined into oblivion. If you are interested in this project or know of someone who would be, contact Keith Dunlap.

**1992 NSS CONVENTION** - Windy City will be sponsoring a pre-convention speleo-camp in Monroe County. The IKC will cooperate by providing access to IKC managed caves.

**HEC** - Our membership dues to the Hoosier Environmental Council are due. The membership approved renewal.

**OHIO VALLEY REGION** - OVR would like the IKC to appoint a representative to its meetings. If you would like to volunteer to represent the IKC at OVR meetings, contact a director.

**GLEANINGS FROM NATURE** - Blatchley's definitive chapter on caves will be reprinted by the IKC. Angie Manon, Jennifer Pelter, Serena Smith, Tom Rea, George Brutchin, and Jane Miller volunteered to assist in preparing the work for publication.

**ADMINISTRATIVE ITEMS -**

A) The Bylaws Committee (Keith, Lynn, & Jane) needs to review the bylaws and address the topic of organizational memberships.

B) Bulk mail authorization/permit is pending.

C) Treasurer's report - discussion of changing the timetable for the reporting of information. It will remain a quarterly report.

D) Buckner's Fund will be rolled back into the general fund for administrative ease.

**FEDERAL CAVE RESOURCES PROTECTION ACT** - Janet Thorne reported that the agencies continue to work on development of regulations and the definition of "significant". The Departments of Agriculture and Interior are considering comments. Publication of regulations in the Federal Register is anticipated in late April or early May. This will be followed by a 60 day comment period. It will be essential for concerned cavers to comment either positively or negatively on these regs when they come out.

**HOOSIER NATIONAL FOREST MANAGEMENT PLAN** - The revised full management plan is to be published April 10th with a 90 day comment period. Excerpts of the Cave Specific Sections of the Management Plan appeared in the 3/90 *Update*. There is a lot of good verbiage; caves will get attention on the Hoosier forests as a result.

*continued...*

We encourage members to write positive comments concerning this language during the comment period. This plan could become a model for cave management for other National Forests.

The IKC would like to thank the Hoosier Forests Projects Committee and Larry Mullins for their input into this process.

NEXT MEETING - Saturday, June 23, 1990 at 7:00 p.m., Indiana University Memorial Union Building, Bloomington, Indiana.

The meeting was adjourned at 12:55 p.m.

Submitted by Jane E. Miller, Secretary.

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## NEW MEMBERS

(as of 12JUN90)

John Benton  
2006 Leland Drive  
Huntingburg, IN 47542

Gary J. Doyle  
864 Poplar Lane  
Bolingbrook, IL 60439

Joe Oliphant  
575 South Center St.  
Plainfield, IN 46168

Bruce Bowman  
R.R. 2, Box 182  
Clayton, IN 46118

Allen J. Goodcase  
8940 Shields  
Brookfield, IL 60513

Gene A. Pelter  
720 Poplar St.  
Fort Wayne, IN 46802

Jeff Bray  
945 Ellenberger Pkwy E. Dr.  
Indianapolis, IN 46219

Tom Kolb  
2412 Schutte Road  
Evansville, IN 47712

Ronald L. Richards  
8141 Pickford Dr.  
Indianapolis, IN 46227

Larry R. Bundy  
499 Young Street  
Franklin, IN 46131

Kevin Komisarck  
302 East 17th St.  
Bloomington, IN 47408

Raymond Rough  
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Whitestown, IN 46075

Linda C. Bundy  
499 Young Street  
Franklin, IN 46131

Michael G. Lorance  
Rt. 1, Box 72H  
Nineveh, IN 46164

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Floyds Knobs, IN 47119

Rick Cadwell  
2267 Black Rock Road  
Plainfield, IN 46168

Richard L. Newton  
R. 1, Box 131  
Marengo, IN 47140

Keith Calkins  
610 N. Main St.  
Berrien Springs, MI 49103

Susan O'Shields  
8909 W. Cermak  
North Riverside, IL 60546

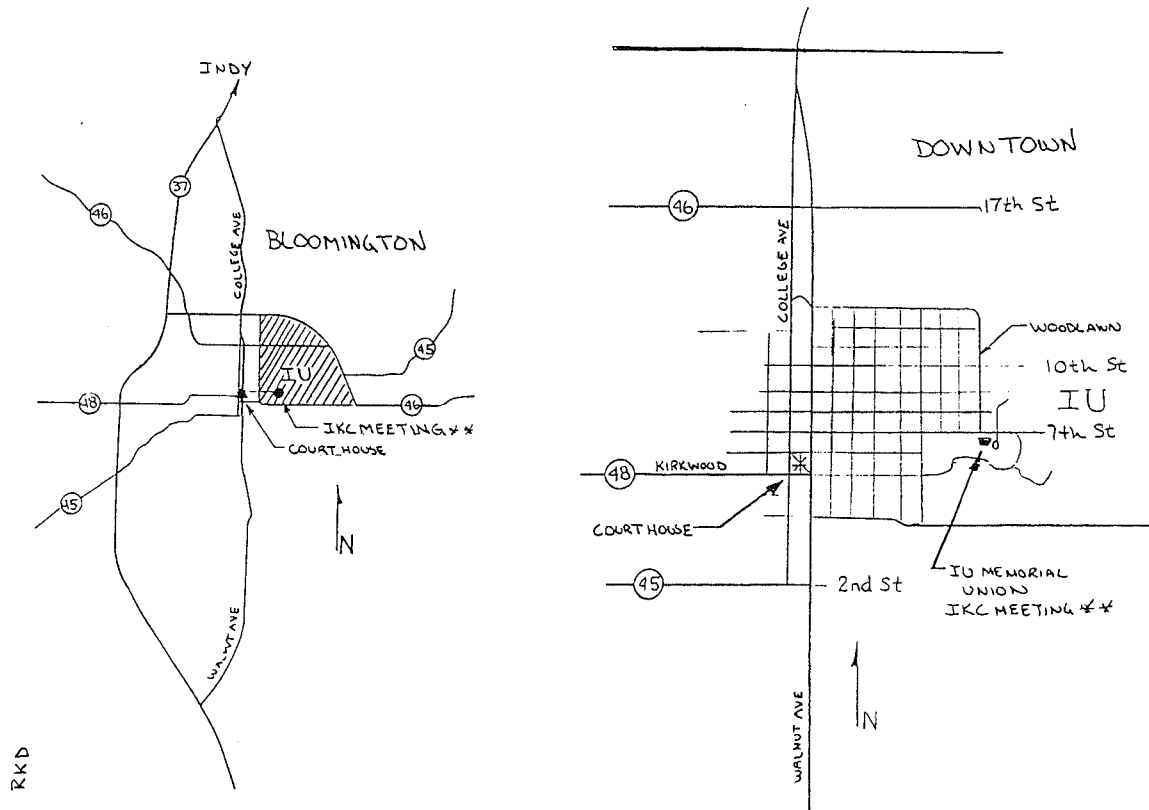


# DIRECTIONS TO THE IKC QUARTERLY MEETING

SATURDAY JUNE 23rd, 7:00 PM

IU UNION, ROOM 400A

Head towards downtown Bloomington to the courthouse. Take Walnut one block north to 7th Street. Head east on 7th for approximately eight blocks. Just past Woodlawn Avenue (a four way stop), turn south (right) into the Memorial Union's circle drive and parking lot. Enter the Union through the door on circle drive. Proceed in and take elevator to fourth floor and hunt for Room 400A.



INDIANA KARST CONSERVANCY, INC: PO Box 461, Plainfield, IN 46168

I would like to help the IKC conserve Indiana's unique cave and other karst features.

Enclosed is:

\$\_\_\_\_\_ for IKC membership at \$15 per year (dues expire March 31st each year, you may pro-rate @ \$1.25/month, if you wish).

\$\_\_\_\_\_ donation to the general IKC fund.

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

\_\_\_\_\_ I know an area worthy of protection. Please contact me.

\_\_\_\_\_ I would like to volunteer to help.

Name \_\_\_\_\_

Address \_\_\_\_\_

City/state/zip \_\_\_\_\_

Make checks payable to the INDIANA KARST CONSERVANCY and mail to the IKC TREASURER, PO Box 461, Plainfield, IN 46168. The IKC is an IRS recognized 501(c)(3) non-profit organization with membership dues and donations tax deductible. A cancelled check is considered an acceptable receipt, but if you wish a separate receipt, check here ☐

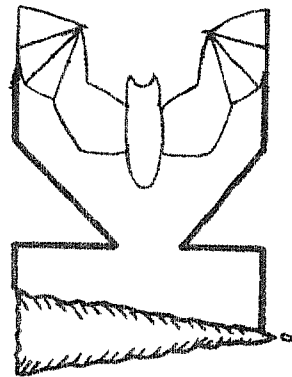
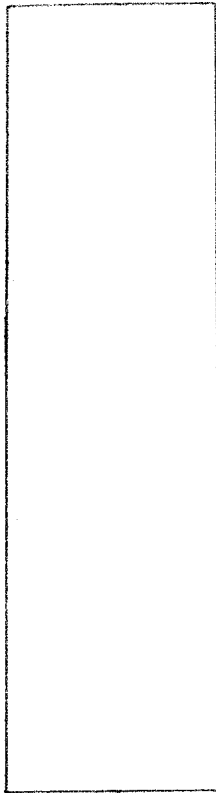
Suggestions for other interested persons (names and addresses please):

**Indiana Karst Conservancy**  
**PO Box 461**  
**Plainfield, IN 46168**



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