



No. 15 - December 1989

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.

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Cover photo by Dave Black of formations not in Lechuguilla Cave.

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

**** QUARTERLY MEETING REMINDER ******SATURDAY, DECEMBER 9th, 7:00 PM****BLOOMINGTON, INDIANA
IU MEMORIAL UNION
DISTINGUISHED ALUMNI ROOM**

The quarterly meetings are for members and other interested persons to have an open forum for discussing past, present, and future IKC projects, a place to voice opinions and make suggestions, and in general, a way to let the Directors know what are the concerns of the caving community. The meetings are informal, and everyone is encouraged to attend and participate.

Agenda: Hoosier Forests Committee report, status of HNF Management Plan, and latest news on Federal Cave Resource Act; Research & Science Committee activities; IDNR/bat projects; Sullivan Cave status, discussion of cave renovation activities; update of other current IKC projects.

Meeting directions: See inside back cover.

Meeting arrangements courtesy Bill Baus and the Indiana Cave Survey.

EVENTS CALENDAR

09 DEC = IKC QUARTERLY MEETING, Bloomington (see above).
10 DEC = IKC/CIG WAYNE'S CLEANUP TRIP (see page 6).
18 DEC = ICS QUARTERLY MEETING, War Memorial, 7:30
?? JAN = INSTALLATION OF GATE ON SULLIVAN CAVE
20-21 JAN = SPRING MILL PROJECT (contact Steve Collins)
?? FEB = DIRECTOR'S MEETING
?? MAR = IKC ANNUAL BUSINESS MEETING (Indianapolis)

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 Central Indiana Grotto, at the request of the owner of Sullivan Cave, is planning to install a gate on its dry entrance. Because previous gating projects have caused some controversies and misunderstandings in the caving community, and because this newsletter has the widest distribution among organized cavers in Indiana, I thought it would be appropriate to expound upon some of the problems the owner has had in recent years to explain why a gate is necessary. Hopefully, most cavers will view this project as a positive action for strengthening our relations with the owner, while at the same time helping to preserve a cave that has seen more than its fair share of vandalism and abuse.

Sullivan Cave, located in Lawrence County, is the third longest known cave in Indiana, with over nine miles of mapped passage. The cave has long been popular among cavers and not-so-cavers, primarily because of its semi-commercialized access policy. For years, Willie Owens promoted camping and caving. Unfortunately, Willie passed away several years ago, leaving a lot of headaches for his widow and family. Janet (Owens) Stewart and her new husband live in a trailer on the property, and thus are exposed to a lot of inconsiderate visitors. Mrs. Stewart has tried unsuccessfully to control unwanted traffic to the cave with signs and a gate across the road to the lower parking area. Recurring problems have made the access situation to Sullivan very touchy. While she remains hospitable to organized cavers that make prior trip arrangements; she has grown very tired of and annoyed with speleo-boppers who either totally ignore the signs and proceed across her property and into the cave without permission, or those that come knocking at her door, regardless of the time of day or night. But, what disturbs/angers Mrs. Stewart the most are those who have been denied permission for various reasons (lack of equipment, smell of alcohol, etc.), leaving, only to park down the road and "sneak" in from the south. Mrs. Stewart is an enduring woman, but as with so many other caves in the past, a situation like this, if not rectified, can only lead to a permanently closed cave for everyone.

Bob Vandeventer, chairman of the CIG, has had several conversations with Mrs. Stewart over the past year. He has relayed her situation to the members of the grotto and suggested the gating project to reduce her aggravation. The CIG membership approved the proposal and is funding the project, although monies are being sought from the NSS and the IKC (to be discussed at the December meeting). Measurements at the entrance have been taken, preliminary designs for a horizontal gate have been engineered, and some machine work is underway. Construction of the gate should be completed by the end of December, with installation scheduled for early next year (depending upon the weather). If anyone has concerns, comments, suggestion, questions, or criticisms, now is the time to speak your mind.

While the primary purposes of the gate are to reduce Mrs. Stewart's problems and maintain access for organized cavers, a secondary accomplishment will be to minimize further vandalism. In fact, I can foresee the IKC, the Indiana grottoes, other organizations, and individuals dedicating considerable efforts in Sullivan, similar to the restoration activities undertaken in Wayne's, Coon, and Grotto caves. I hope the organized Indiana cavers will once again sanction this new challenge.

- Keith Dunlap

NEW BRIEFS...

- The Spring Mill mapping project continues to significantly extend the caves in the park. This independent project, headed by Steve Collins, has been busy this fall with multiple survey trips monthly, currently concentrating in two major cave systems. Whistling Cave is over a mile with the main trunk passage and an equally impressive "side" lead making for easy surveying (at least when the entrance is not sumped). Also, Upper Twin (the upper cave of the Shawnee System) is quickly approaching three miles, much of which lies in the main stream passage. Further details of the projects progress are covered in the December issue of the *CIG Newsletter*. Steve is always looking for more volunteers interested in mapping (surveying experience is not required, but a wetsuit is for most trips). For more information, contact Steve, (317)-759-6124.
- Janet Thorne, NSS Conservation Committee Chair, contacted the IKC to see if we were interested in submitting a proposal to host the 1991 National Cave Management Symposium. This biannual symposium is attended by cavers, members of private conservation organizations, and representatives from many state and federal agencies that manage cave and karst resources. The IKC accepted Janet's solicitation and enlisted the Hoosier National Forest as a co-sponsor. Unfortunately, the ACCA and the Mammoth Cave National Park also submitted a proposal, and were selected as hosts.
- Research and Science chair, Kevin Strunk, reports that there is still nothing definite on the IUPUI thesis project to study the caves uncovered in the Irving Brothers' Quarry near Muncie. Kevin, Steve Collins, Bruce Bultman (the grad student), and Dr. Bob Hall visited the cave again to investigate potential topics to study. Members of the IKC may also undertake independent projects to document this unique cave, as it will more than likely be quarried away in the future. Ongoing discussions with the quarry owners have not been very successful.
- Complaints were filed with the Monroe County Prosecutors office against the individuals found trespassing in Coon Cave during the IKC clean-up trip last August. Because of the minor severity of the offense, a pre-trial diversion will be offered to the defendants with the penalty of a fine and some form of public work, but not permanent record.
- As of mid-November, the fence is still up around Shaft Cave with no signs of additional disturbances since the last report. Coon Cave remains "log-free", and Grotto's fence was in good shape, although there was evidence of visitation both over and under the fence since the hibernation closure.
- Christine Rose has been named as the new Deputy Forest Supervisor for the HNF. Her previous assignments have been with the Tujunga District, Angeles National Forest in California and two other forests in that state. She holds a BS degree in biology and a MS degree in forestry and wildlife.
- Another important agency appointment affecting caves and cavers is the DNR's new State Forester, Burnell Fischer. Prior to this position, Fischer was a professor at Purdue and an Extension Forest Specialist. He holds a BS, MS, and PhD in Forestry. Fischer replaces the recently retired John Datena.
- The IKC would like to welcome new members Eric Schmidt (Danville), Steve Wilson (Bloomington), and Steve Bisch (Evansville).

HOOSIER FORESTS PROJECT COMMITTEE UPDATE

by Kevin Komisarck, Chair

The Committee met with Larry Mullins and Frank Voytas, Forest Supervisor on September 9th in Bedford. The purposes of the meeting were to iron out the final language which would be put into the Forest Plan concerning caves and to just get acquainted with one another.

Much of the original language was condensed or omitted. After some discussion with Mullins and Voytas it was agreed that much of the background information and philosophy of why caves are important would be put back into the plan. With this change, we now have essentially everything we asked for.

Voytas asked if we knew of any large (up to 2,000 acres) tract of land in the HNF that displayed good examples of karst topography and development which could be designated as special interest areas (SIA's) in the Forest Plan. This designation would essentially protect those areas from other types of land use such as timbering or oil and gas exploration. I asked Dick Powell to recommend areas which he considered significant. He proposed three areas which total nearly 1,100 acres in and around Tincher Hollow. These areas were accepted by the Forest Service for study and included in Alternative F, one of several possible management plans and the one favored by the Forest Service. This inclusion does not mean that these areas will automatically become SIA's. The areas must be inventoried to determine what type and what number of karst features are present. That means counting the number of cave entrances, swallowholes, sinkholes, etc. This inventory would be a very worthwhile project for IKC and grotto members to become involved with. Should you have the desire to go to these areas and ridgewalk please contact me.

Later that month I had the opportunity to go out on a field trip with some of the planning staff (the Forest Service people who are writing the plan) to Tincher Hollow. The trip was organized by Larry Mullins for the purpose of showing the other staff members the effects of timbering on karst features. We looked at a number of karst features (sinkholes, swallowholes and cave entrances) and the results of timbering (erosion and change of micro-climates around these features). Later in the day I took them to Connerly Cave to show them from the inside the effect that surface erosion can have on a cave. The amount of sediment in this cave is phenomenal. It is also one of the most biologically sterile caves I have been to. The result of this field trip seemed to be that everyone was convinced of the importance of protecting karst features as much as possible from surface activities.

Finally, draft regulations for the Cave Resources Protection Act have been sent out for agency review. While there are a number of good proposals in these regulations, there are also a number of bad ones. By far the worse has to do with how caves are nominated for significance.

According to the proposal "Agency units will nominate caves for initial listing as significant based on inventory data readily available (no major inventory effort)". Since the Feds have almost no information on the cave resources they currently manage very few caves will be proposed by them. *Cavers will have to do most of the nominating and also do the resource inventory!* This clearly was not the intent of Congress. While it may be fine for cavers to

nominate the caves they think are important, the Feds must go out and inventory the resources. After all that is their job. For this law to truly benefit caves this section will have to be changed.

The time for public comment will not occur until sometime in January at the earliest. By then these regulations may be significantly modified, hopefully for the better. If not, I hope that the grottoes in Indiana will be willing to write the Dept. of Interior and Agriculture and express the need for some changes to be made.

Voytas was so displeased with the proposed regulations that he is going to include a statement in our Forest Plan that states all caves in the Hoosier Forest are significant. We certainly won't object to that.

[Editor's note: Kevin composed a letter to Janet Thorne, NSS Conservation Chair, outlining the perceived deficiencies in the draft regulation and recommendation for changes. Copies of the letter and the draft regulations are available from Kevin or Tom Rea.]

* * * WAYNE'S CAVE * * *

IKC CLEANUP & CIG GROTTTO TRIP

Sunday, December 10th

Once again the Indiana Karst Conservancy and Central Indiana Grotto are sponsoring the annual cleanup/grotto trip into Wayne's Cave. If you have never been in Wayne's, or haven't been for several years, this is a golden (brown?) opportunity to visit or revisit one of Indiana's classics. Wayne's is a caver's cave with a diversity of obstacles in its four plus miles of passage, including its infamous 1300 foot crawlway. Due to the nature of Wayne's, it is advisable to not attend this trip if you are new to caving, unless you would like to concentrate your clean-up efforts in the Old Wayne's section of the cave (which is still in need of some attention).

The cleanup effort this year is tentatively planned to be concentrated in the "Camp I", "RPI", and "Well's" areas; although groups can elect to work in and/or visit other sections of the cave. Haul bags will be provided by the IKC, but the majority of the trash has already been removed during previous cleanup trips. There will be wire brushes available for graffiti removal, and we will continue to do some "brown-washing" where wire brushing is ineffective or impractical.

The number of participants on this trip may be limited, with those volunteering to perform clean-up work having first priority. For more information and details, contact Keith Dunlap (see page 1 for phone numbers).

HOOSIER ENVIRONMENTAL CONGRESS - 1989

by Lynn Miller, HEC Liaison

The 1989 version of the Hoosier Environmental Congress was held in Nashville, Indiana on November 18th and 19th. This event is put on by the Hoosier Environmental Council, of which the Indiana Karst Conservancy is a member organization. The ceremonies really began at 9:00 AM with introductory remarks by outgoing HEC president John Blair. He touched briefly on the events of the past year, goals for the future and internal problems of the HEC. He then introduced keynote speaker Dennis Hayes, Chief Executive Officer, Earth Day 1990. Mr. Hayes gave a very stimulating talk about the significance of Earth Day 1990, urging everyone who cares about the water they drink, the air they breathe, the ground they walk on, to get involved in some way. This is the twentieth anniversary of Earth Day 1970, considered the birth of the Environmental movement.

After Mr. Hayes' talk (cut short due to poor timing) a series of panel discussions began. Topics included Air, Water and Fire, (No, this was not a 70's rock group). Each of the three or four panel members made a brief presentation on their views and involvement pertaining to the topic of their panel and then were subjected to questions from the audience. The discussion panels ended when the group broke for lunch at 12:15.

Sessions started up again at 2:00 with "Earth, Part A: Public Lands". This discussion was covered by several speakers who basically told us of ongoing battles with private interests and government bureaucracy to save the last few acres of public land in Indiana from commercial development and pollution. The next session, "Earth, Part B: Sustainable Agriculture", focused on organic gardening and farming, and of the escalating problems caused by modern farming methods that continue to pour millions of pounds of potentially toxic chemicals onto the ground and eventually into the water table.

Concurrent workshops were the order for late afternoon and I attended one that focused on upcoming legislation concerning environmental issues. State Senator Vi Simpson was one of the guest speakers at this session and she spoke of several key pieces of legislation that will be introduced concerning landfills, the dumping of out of state trash, groundwater protection, underground storage tanks, wetlands protection, and others.

Saturday's session ended with dinner, awards, an auction and contra dancing.

Sunday was the annual Hoosier Environmental Council business meeting. After arising early from the campground at Brown County State Park, Jane and I drove into Nashville for a gut-stretching breakfast at Grandma's Kitchen. We then drove to the Season's Lodge and signed in as delegates for our respective groups.

The first interesting part of the meeting was the review of triumphs and failures of last years goals by Executive Director, Jeff Stant. It seems that several of the goals set at last year's meeting were not met, possibly because they were unrealistically high. But, the HEC did grow by 3500 individual memberships and 11 organizational memberships. All of this has helped the HEC to become more financially sound than it was earlier in the year.

The next order of business was to elect eight new Board members. This took up the largest portion of the meeting because all of the candidates (15, I think) had a chance to speak for a few minutes and then answer numerous questions concerning their qualifications and motivation for becoming Board members. All of the candidates seemed very well qualified, but eventually, after a run-off election to break some ties, the new Board members were chosen.

Discussion and ratification of the 1989 Action Plan and budget went quickly. The 1989 Action Plan covers several pages so I will not try to cover it here. If you are interested in it, contact the HEC office. I'm sure they will provide you a copy.

I would like to urge you to support the Hoosier Environmental Council, not just through the IKC, but as individual members. If you don't think issues such as hazardous waste, landfills, groundwater pollution and leaking underground storage tanks concern you as a caver, then you had better come to the surface long enough to sit down and read a book on cave hydrology. The HEC is helping us to protect our environment but they can't do it without our support.

YES, I want to join HEC and contribute to a healthy Hoosier environment.

For more information, write or call:

Hoosier Environmental Council
3620 North Meridian
Indianapolis, IN 46208
(317) 923-1800

- ☐ \$15 Membership ☐ \$100 Supporter
☐ \$25 Contributor ☐ \$250 Guarantor
☐ \$50 Sponsor ☐ \$500 Sustainer
☐ Founder's Circle (\$1,000 and up)
☐ Other _____

Name _____

Phone (Home) _____

(Office) _____

Address _____

City, State, Zip _____

*** TAX REMINDER ***

As December 31 rolls near, it is again time to think about donating to your favorite tax deductible organization (such as the IKC). Also, because our dues are fully deductible, members should consider pre-pay for next year's renewal, and non-members should think about joining (pay \$15 now and become a member thru March 31, 1991). A membership form is available inside the back cover.

And for our Indiana residence with a state income tax refund due to you, consider donating all or part of that refund to the nongame fund via the tax check-off at the bottom of your state tax form. Last year, over \$400,000 from 64,000 contributors were collected. This money finances almost all the state funded bat-related projects, as well as the highly publicized eagle re-introduction program, and many other nongame and endangered species projects.

THE DISCOURAGING STATUS OF
CAVE PROTECTION LEGISLATION IN INDIANA

by Jane Miller

I was recently asked by our illustrious president to respond to a member's letter concerning the IKC's interest in drafting/sponsoring cave protection legislation for Indiana. Keith asked me to do this for two reasons: (1) as secretary to the IKC, it's part of my job, (2) I served as a member (read that "secretary") of the Cave Protection Bill Committee in 1982 and 1983 when cave protection legislation for Indiana was drafted, sponsored, and campaigned into law.

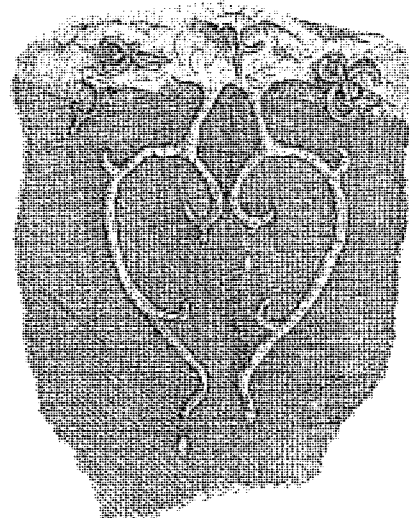
Reviewing the history of that process was enjoyable, and that thoughtful and inquisitive member now knows more than he could ever have wanted to know about it. So, . . .

QUESTION: Why is this article entitled "The Discouraging Status of Cave Protection Legislation in Indiana"? There is a law on the books (yet to be tested in the courts) in the state which protects caves, karst, and landowners. The process was completed successfully in one legislative session. So what's discouraging?

ANSWER: One of the primary reasons for the creation of this law was EDUCATION - of landowners, cavers, neophytes, potential cavers, and John Q. Public. It is discouraging to note that we have clearly lost sight of the goal of educating people about the law, when today's conservation-minded cavers are unaware of the law's existence.

The text of the law, as signed by Governor Orr on April 19, 1983, is reprinted on the facing page. At that time it was suggested that all cavers keep a couple copies in their vehicles or with their gear to share with landowners and/or other cavers. I think it's time we rekindle the attempt to achieve the goal of education we set for ourselves. An additional loose copy of the law is inserted in this issue for you to take and reproduce for further dissemination. Other copies will be available at the Quarterly Business Meeting on December 9, 1989; or you can contact me in care of the IKC and I will send you copies.

Each of us individually must expend energies in promoting the conservation of karst features. Sharing information with others about the exceedingly fragile nature of the karst ecosystem and educating them about the existence of a state law designed to protect that delicate balance is a step in the right direction. I hope you can help.



INDIANA CAVE PROTECTION LAWS

IC 14-2-6-3 AND IC 35-43-1-3

IC 14-2-6-3 (landowner liability law for sportsmen):

Any person who goes upon or through the premises including, but not as a limitation, lands, **caves**, waters, and private ways of another with or without permission to hunt, fish, swim, trap, camp, hike, sightsee, or for any other purposes, without the payment of monetary consideration, or with the payment of monetary consideration directly or indirectly on his behalf by an agency of the state or federal government, is not thereby entitled to any assurance that the premises are safe for such purpose. The owner of such premises does not assume responsibility for nor incur liability for any injury to person or property caused by an act or failure to act of other persons using such premises. The provisions of this section shall not be construed as affecting the existing case law of Indiana of liability of owners or possessors of premises with respect to business invitees in commercial establishments nor to invited guests nor shall this section be construed as to affect the attractive nuisance doctrine. Nothing in this section contained shall excuse the owner or occupant of premises from liability for injury to persons or property caused by malicious or illegal acts of the owner or occupant.

IC 35-43-1-3 (cave resource protection law):

(a) As used in this section:

"Cave" means any naturally occurring subterranean cavity, including a cavern, pit, pothole, sinkhole, well, grotto, and tunnel whether or not it has a natural entrance.

"Owner" means the person who holds title to or is in possession of the land on or under which a cave is located, or his lessee, or agent.

"Scientific purposes" means exploration and research conducted by persons affiliated with recognized scientific organizations with the intent to advance knowledge and with the intent to publish the results of said exploration or research in an appropriate medium.

(b) A person who knowingly and without the express consent of the cave owner:

(1) disfigures, destroys, or removes any stalagmite, stalactite, or other naturally occurring mineral deposit or formation, or archeological or paleontological artifact in a cave, for other than scientific purposes;

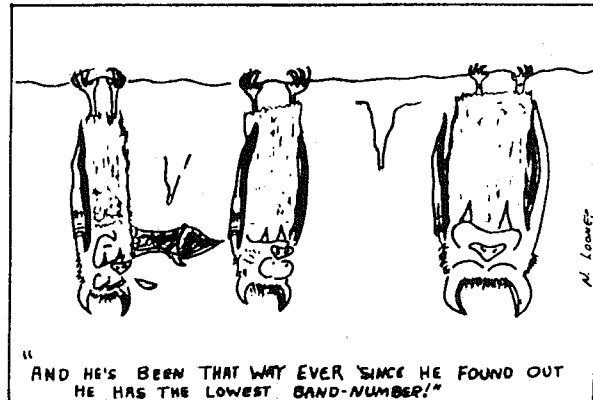
(2) breaks any lock, gate, fence, or other structure designed to control or prevent access to a cave;

(3) deposits trash, rubbish, chemicals, or other litter in a cave; or

(4) destroys, injures, removes, or harasses any cave-dwelling animal for other than scientific purposes; commits a Class A misdemeanor.

BAT STUFF...

- Scott Johnson (nongame biologist, IDNR) and Les Zimmer (The Nature Conservancy) met with the step-nephew of the owner of Ray's Cave in October to discuss the potential establishment of a conservation easement for this very significant, but vulnerable bat hibernacula. While the meeting was encouraging, the elderly owner is still reluctant to consent. Efforts will continue for protection of this cave.
- The Indiana bat winter disturbance project got under way in September. See the article on the following page for more details.
- A summer bat survey project with emphasis on the Indiana bat will be conducted on the Hoosier National Forest next year. The documentation of established habitat for endangered bat species in the forest could have significant impact on future timbering activities. This project is being funded by the USFS's Challenge Grant Program and the Indiana Nongame and Endangered Species Wildlife Program.
- Also next summer starts a three year bat study entitled "A Summer Habitat Model for the Indiana Bat in Indiana". Similar studies have been or are being conducted in other states. The project is being co-funded by the USFWS and the Indiana Nongame Program.
- ISU Professor John Whitaker has banded more bats for his summer habitat project. Specifically, little browns and evening bats were tagged, and he would be very interested in any observations of these bats in caves this winter. You may contact him at 812-237-2383.
- Last year's winter bat population census reports were distributed by the IKC to the private cave owner involved, along with a cover letter emphasizing cave conservation, copies of the *IKC Update*, and an interesting article from BCI on endangered bats.
- A newspaper article appeared in the Columbus Republic prior to Halloween discussing the unfounded fears about bats. The feature was written by an IU media staffer based upon an interview of an IU professor of physiology, biophysics, and neural sciences. Generally the article was very positive and informative, and stressed the importance of bats, especially related to their physiological examination to increase our understanding of humans. However, the article included a very disturbing sentence in that, "*The many caves in the Bloomington area make it a good place to find and capture roosting bats, especially during the winter when they are hibernating.*" Since hibernating bats in the Bloomington area are potentially endangered and protected, and since there have been previous occurrences of IU professors illegally collecting endangered bat species for medical research, Scott Johnson composed a letter to the professor informing him of the implications. The professor responded with a rather brash letter refuting the interpretation of the statement and took exception to the allegations towards his research.



Oklahoma Underground 7(2) 20

WINTER BAT DISTURBANCE STUDY

by Keith Dunlap

Winter visitation by cavers and others in bat hibernacula caves has long been the blame (and sometimes the scapegoat) for the declining populations of some species of bats. While other causes are now also recognized (pesticide poisoning and loss of summer habitat), most experts still feel that winter disturbance is still a primary cause. Most cavers would agree that repeated arousal of hibernating bats (such as was occurring in Coon and Grotto caves) is detrimental, but some would debate that occasional disturbance, below a certain threshold is harmful. Furthermore, population trends at some protected caves continue to decline, while populations are actually increasing in other caves with moderate to daily disturbance. The most glaring example is Wyandotte Cave, with daily commercial tours passing under more than 10,000 hibernating bats. Efforts to protect these bats have met with internal DNR divisional conflicts on winter management of the cave.

To try to answer the question of what harm is done by winter disturbance, the IDNR Nongame Division, in cooperation with the USFWS, has initiated a two year study. The goal of the project is to collect evidence that there is a quantifiable relationship between bat disturbance and bat distress (some notable physical attribute that could reduce their ability to survive). Because of the limited scope and methodology of the project, it will not be able to disprove the assumption that bats are harmed by visitation; at a minimum the results will be inconclusive. Moreover, the study was limited to only Indiana bats (*myotis sodalis*), since this was the specific species of concern.

As with any project involving endangered species, the number one requirement of this study was to not harm the subject bats in any form, nor expose them to any additional or artificial winter disturbances. This greatly limits the means of collecting data and necessitates measuring indirect indicators to determine if the bats have been affected by whatever disturbance may occur at the selected caves with varying degrees of "natural" visitation. The parameter selected to monitor on the bats was weight loss during hibernation, justified by the assumption that the more the bats are disturbed, the more energy expended, and thus, the more body fat eliminated and the less chance for survival during hibernation. Thus, the goal is to establish a relationship between bat weight loss and degrees of disturbance.

Ideally, this study could be done by waiting until the bats entered hibernation, collecting a small population, weighting them, marking them, returning them to the cave, then repeating the procedure in the spring on the same bats before they leave the cave. This process, however, compromises the initial requirements and biases the results by disturbing the subject bats and neighboring bats at least twice, and does not guarantee a successful experiment as locating the exact same bats in the spring may be nearly impossible.

The approach finally defined is based upon statistically sampling a large enough population (a minimum of 200 bats) to represent an average weight of all the bats in a particular cave in the fall, then repeating the sampling in the spring to determine the overall average weight loss. Comparisons of these averages can then be made between the different caves with varying amounts of disturbance to see if any differences exist. In order to not disturb the bats during their hibernation period, sampling is performed just prior to and just after actual hibernation by netting bats (with a harp net) at the caves' entrances. This method will lead to slightly greater variation of results

continued...

because the sampled bats will not all enter and exit their hibernation period at the same times, but these variations will be minimized by selecting the proper times to sample (something more difficult than first thought), sampling biased towards female bats (they have been observed in the past to enter and exit hibernation more consistently than males), and conducting all the sampling at the test caves on consecutive nights.

Three caves were selected for this study. Batwing Cave will serve as the "control" cave, assuming no disturbance because of its gated entrance. Ray's Cave will serve as the "minimal disturbance" cave as it is known that this cave gets some winter traffic, although not easily quantifiable. and Wyandotte Cave will function as the "high visitation" cave.

The first of four samplings periods was conducted this fall. Unfortunately, all did not go as planned the first time, with the uncooperative weather affecting the bats considerably. Thus each cave had to be resampled to obtain the required number of female bats on approximately consecutive nights. The following is a brief summary of the activities and participants:

22SEP89 - Ray's Cave [Scott Johnson (DNR), Virgil Brack (bat biologist), Keith Dunlap (IKC), Angie Manon (IKC)] - several thousand bats netted and sorted to get enough females; 335 bats processed (identified, sexed, categorized, weighted) in about five hours.

23SEP89 - Batwing Cave [Johnson, Brack, Hank Huffman (DNR - Nature Preserves), Robert Rolley (DNR)] - only 29 bats (and most were male) netted and processed because of the sudden cold snap (44°F).

24SEP89 - Wyandotte Cave [Johnson, Brack, Dunlap, Manon] - 219 bats (mostly male) netted and processed. Still very cool.

29SEP89 - Batwing Cave [Johnson, Brack, Ken Teegen (DNR nongame technician)] - 217 bats processed.

05OCT89 - Ray's Cave [Johnson, Brack, Teegen, Rolley, Al Parker (DNR nongame technician)] - 250 bats processed.

14OCT89 - Wyandotte Cave [Johnson, Brack] 242 bats processed.

15OCT89 - Batwing Cave [Johnson, Brack, Stacey Runyan (Wyandotte Cave staff), Shelley Runyan] - 138 bats processed.



A harp net was installed in the entrance to Ray's Cave. Keith sorts the bats as quickly as possible, releasing males, and placing the females in a small cage. The cage was then transported to the examination and recording site, just down from the entrance.

Photos by Angie Manon



As the bats attempt to exit the cave, they become entangled between the two vertical rows of wire in the harp net, and slide down to the canvas trough below. As the bats climb the sides of the trough, they are retained by the clear plastic flaps attached at the top of the trough. The sorter then reaches under the flap to remove the bats.



Processing entailed Virgil (right) removing each bat from the cage, determining the bats gender (releasing any males that slipped through the preliminary screening), identifying the species (releasing non-*sodalis*), examining and recording several characteristics, then placing the bat in a Batman cup on the precision scale. Scott (left) would then weigh and release the bat. Angie recorded all data.

Reprinted from
HNF Tabloid

CAVES AND KARST A Special Resource

The Hoosier has some very special values that are largely hidden from view and unrecognized by most visitors to the Forest. These values are underground. The Forest is located on an area rich in caves and karst features. Everybody knows what caves are, but what is karst?

The word karst is taken from an area in Yugoslavia, called the Carso Plateau, where these features were first documented. Karst topography occurs in limestone. Limestone is easily attacked by weak acids in rainwater filtering through vegetation and soils. The acid slowly dissolves the limestone creating voids. These voids gradually enlarge as underground water moves through them. Over time the interaction of water and stone creates caves, sinkholes, rises, swallowholes, sinking streams, blind valleys, gulfs, springs, and other karst features.

Indiana has one of the best known karst areas in the United States. Well over 100 studies have been published on karst features within the state. Many of these significant karst features are in the area of the Hoosier National Forest. The karst region in southern Indiana is divided into two parallel areas called the Mitchell Plain (the eastern one third) and the Crawford Upland in the west. The Upland is technically less than 100 feet higher than the plain, so the division is not obvious to most, but underground the rock layers are significantly different.

Like pages in a book, many layers of rock (limestone, shale and sandstone) over 400 feet thick were built up by ancient seas that once covered this part of Indiana. The lowest and thickest layers are limestone up to 170 feet thick.

Over time the earth moved, and massive rock beds tilted and developed cracks and faults. The upper layers in the Mitchell Plain have been eroded away exposing the geologically older limestones. Here the karst features such as sinkholes and disappearing streams are common features of the landscape. It is here that towns such as Bloomington, Oolitic, Bedford and Mitchell developed around the limestone quarry industry. It is also here that the majority of Indiana's 2500 caves can be found.

The Crawford Upland runs along the western edge of the Mitchell Plain. This area still has the upper strata of shale and sandstone rock over the limestone. The limestone still has caves, springs and other karst features. The area's drainage is still subterranean, exhibiting sinking streams, dry-beds, rises, swallow holes, and other karst features. The karst features are still there, but many are hidden beneath layers of rock. The State's best caves lie at the interface between the Mitchell Plain and the Crawford Upland called the Chester Escarpment.

The Federal Cave Resources Protection Act

In 1988 Congress passed the Federal Cave Resources Protection Act for the stated purpose to secure, protect, and preserve significant caves on Federal lands for "the perpetual use, enjoyment, and benefit of all people; and to foster increased cooperation and exchange of information between governmental authorities and those who utilize caves located on Federal lands for scientific, education or recreational purposes."

The act provides for special identification and recognition of significant caves on Federal Lands. Caves identified as "Significant" will be assured of strict confidentiality of information regarding their location, a permit system for collection or removal of cave resources, and civil penalties for protecting the caves. Nominations for this category are accepted from interested groups or individuals knowledgeable of the caves values.

How will karst resources be managed on the Forest?

Cave ecosystems are unique. Cave life is in a finite space without light. Water, air temperature and humidity, and food are provided in a normally steady state. Major changes to this delicate environmental balance are disastrous to many of these rare and unique plants and animals. Because caves are dependant on the interaction with the surface, management above ground is important. Cave ecosystems rely on maintenance of microclimates, prevention of erosion and siltation, soil acidity, and other factors.

Forest managers will cooperate with spelunkers and speleologists who know and understand cave ecology, study literature, and survey each cave to understand it's particular characteristics and environment. Each cave will have a prescription and plan written including measures for preservation of any items of concern. Projects in the area of the cave will be examined against the previously prepared prescription to ensure protection for the caves. Unless a particular cave is endangered from overuse, all caves will be open to visitation. Recreational exploration will neither be encouraged nor discouraged.

How will other karst features be protected under the Forest plan?

Other karst features not currently known to connect to an open cave will be located and identified as project plans are being developed. These include karst springs, rises, swallow holes, sinking streams and known underground drainages. These features should be considered for potential as valuable water sources, or potentially significant caves yet undiscovered. The need for any special treatment will be determined during on the ground, site-specific project planning.

A few sites with unique or intricate karst features of significance will be evaluated for possible designation as Forest Special Interest Areas. If designated, these areas will be protected and managed to preserve their special values.

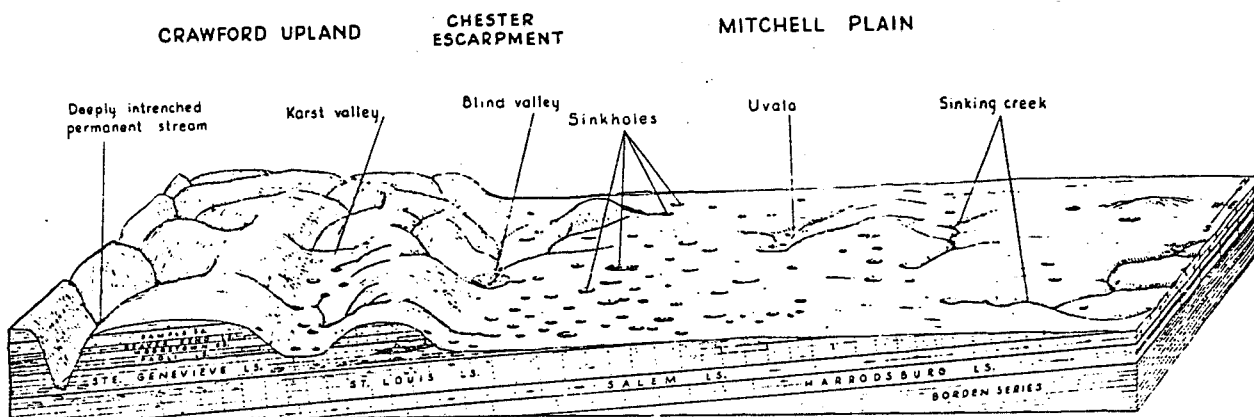


Diagram of a portion of the karst area in southern Indiana (from *Principals of Geomorphology*, William D. Thornbury).

SPORTING

Spelunking: Only Adventurers Need Apply

Why get into a sport that's cold, wet and infested with bats? For the beauty and adventure, of course.

by Dennis Hamilton

You crawl, using fingers, elbows and knees, through the blackest darkness imaginable. Your grip against the slimy walls is tenuous. You watch for "bathtubs"—the pools of water that can be as deep as your imagination. You psych up for the descent into the "pit," the vertical shaft 300 feet down that requires you to rappel like a mountain climber. Sometimes the passages grow so tight that even if you're an experienced adventurer, claustrophobia forces you back through the rocky arteries of the earth.

And then there are the bats.

Welcome to the sport of spelunking—or cave exploration—as it is apart from tourist-trodden, souvenir-shop spectacles such as Mammoth Cave. It is not for the timid. The meek might inherit the earth, but they will want no part of the caves. These are best left to those who are hopelessly addicted to adventure.

"You do it for the thrill of seeing something that perhaps no one else has ever seen," says Sherry Lorange, who, along with her husband, Michael, has been spelunking for about a decade. "Once in a while you come upon a virgin passage, where you are the first person to ever see it. That is a thrill."

While Lorange has visited the tourist attractions ("I spent my honeymoon at Mammoth Cave," she confesses), most of her adventures into the subterranean world have been in Indiana caves. These are not caves you will find on state-park maps or be told about by the Department of Natural Resources. Most are privately owned, their whereabouts kept largely secret by the grottoes, or caving clubs, scattered around Indiana. These clubs are not so much sitting on their treasures as they are protecting the caves from people—and people from themselves.

"If you go in there with a flashlight, a pair of tennis shoes and a case of beer—and we're seeing more of this—you're taking your life into your own hands," contends Lorange. "You have to be an organized caver."

While spelunking is statistically one of the safest sports, she admits that there are risks. Most caves are a consequence of the Ice Age, which flattened much of northern Indiana but left intact a lot of the hilly terrain that supports caves in the southern part of the state.

"These caves are a million years old," she says. "That's a danger right there. They are getting to the point where they could change. If this rock that's been holding up this wall decides to give way while you're in there—well, good luck getting out."

Other accidents happen due to a caver's ignorance and a shortage of common sense. "If you get caught in a flooded cave," says Lorange, "you did it through stupidity. You ought to know a little history of the cave before you go in. If it tends to flood, you will know that."

Unfortunately, as previously private caves are discovered by generic thrill-seekers, the danger has become only one of many problems. The lives of caves' principal occupants, bats, are constantly threatened. Indeed, this has become an issue among organized spelunkers. Says Lorange, "We fight for the protection of bats."

The myths about bats have spawned unfounded fears about their predatory nature, their willingness to attack people and their propensity for transmitting disease. None of that, say experts, is true.

Some cave-dwelling life forms would be at risk if careless explorers ruined their habitats. An albino shrimp, long thought to be extinct, has been found in a Kentucky cave. The species has not been found anywhere else.

Beyond wanting to maintain the environmental purity of the caves, spelunkers are drawn to the beauty and the chance of discovery. The natural rock formations, the striking stalagmites and stalagmites whose creation began hundreds of thousands of years ago with a single drop of water, even the relics of civilization past—all draw cavers like a magnet.

During the exploration of a private cave, Lorange's group found something that even the cave's owners had never seen. "We found a hatchet embedded in the wall," she says. "I don't know how it got there. We just happened to come through at the right time." Years of erosion had exposed the hatchet. Despite its value, they left it behind; it was part of the cave.

Virgin caves open up more often than most people think, says Lorange. A farmer will one day find a sinkhole on his property, and reading about a sinkhole will get every caver's attention. "A sinkhole is where

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there's a cave passage underneath the ground," she says. "After hundreds of thousands of years, the rock in the cave gives way, falls in and brings the ground with it." Somewhere nearby, she says, there will be a way into the cave.

Even caves that have been well-explored are somewhat like time capsules. Cavers in southern Indiana frequently find arrowheads and other relics of the Indian tribes that once inhabited the caves. And with 2,300 caves, Indiana has a lot of subterranean territory with tales to tell. ❧

The Caver's Functional Fashions

Cave explorers might never make Mr. Blackwell's best-dressed list, but their chances for safe adventures are greater when they have the appropriate gear. Caves are dark, frequently wet and a cool 57 degrees year-round. Some tips:

- **Headgear.** Helmets are required because sharp rock formations and tight quarters, to say nothing of accidental falls, can cause serious injury at a point when someone is almost inaccessible.

- **Light.** Carbide lamps, similar to those that coal miners wear, or battery-powered lamps attached to the helmets are needed. Take along extra battery power. After 20 feet, caves have no light whatsoever—and in Indiana, they range from several hundred yards to several miles long.

- **Insulated clothing.** Caves aren't warm even in summer. Spelunkers wear insulated clothing to protect them against protracted exposure to the constant 57 degrees.

- **Wetsuits.** Some caves have known waterpools. When exploring these, cavers take along full-body wet suits like those that skin divers wear.

- **First-aid kits.** A requirement on any expedition.

- **Common sense.** Don't go in unprepared. Don't go in alone. Never drink alcohol in a cave. Never go in inexperienced.

There are several grottoes throughout Indiana. For more information, contact Sherry Lorange at the Mid-Hoosier Grotto, 933-9472, or Larry Bundy at 736-8841.

INDIANA KARST CONSERVANCY, INC.
Statement of Receipts, Expenditures, and Changes in
Fund Balance for the Quarter Ending 9/30/89

GENERAL FUND

RECEIPTS

DUES	90.00
DONATIONS	38.50
INTEREST	34.46

TOTAL RECEIPTS	162.96
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EXPENDITURES

Membership Cards	16.48
Shiloh Lease	1.00

TOTAL EXPENDITURES	17.48
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EXCESS TO FUND BALANCE	145.48
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FUND BALANCE 6/30/89	2133.89
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FUND BALANCE 9/30/89	2279.37
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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 6/30/89	232.66
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FUND BALANCE 9/30/89	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
------------------------	------

FUND BALANCE 6/30/89	414.42
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FUND BALANCE 9/30/89	414.42
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TOTAL BALANCE - ALL FUNDS 9/30/89	2926.45
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MINUTES IKC QUARTERLY BUSINESS MEETING
September 23, 1989
Indianapolis, Indiana

DIRECTORS PRESENT:

Keith Dunlap Lynn Miller
Jane Miller Glenn Lemasters
Mike Miessen

DIRECTORS ABSENT:

Jeff Cody
Kenny Carrigan
Ernie Payne

The meeting was called to order at 2:05 p.m. Introductions were made.

WORK DAYS - During the last quarter work projects were completed at Shaft, Coon, & Grotto. A field fence was installed around the entrance to Shaft to prevent anyone from accidentally falling into the pit. Coon & Grotto each received their annual cleanup prior to the seasonal closure of these bat hibernacula.

COMMITTEE REPORTS:

HOOSIER FOREST PROJECTS COMMITTEE (and HNF management plan status)-

This committee met with Larry Mullins and Frank Voytas of the Forest Service in early September and were able to have a positive impact on the management plan with respect to caves and karst features. Under the current proposed plan all caves are "significant". Both Voytas and Mullins have a good appreciation for karst and are willing to "set aside" karst areas which we identify as significant or potentially significant. Kevin Komisarck, committee chair, is reviewing forest properties to identify areas we may request special consideration for.

Larry Mullins reported that many management questions will have to be answered in the very near future if we are to identify/request "set asides" for karst areas. Larry also provided an update on other projects of concern in and around the Hoosier. 1) The Lost River has been proposed for Wild & Scenic status. If this is to happen it will require widespread local support. The process could take three years. 2) Prospect Dam, Orange County; Larry suggests that we get involved in attempting to defeat this project and provided names of contact persons in other conservation organizations.

The Hoosier Environmental Council is sponsoring a Festival for the Forest in Bloomington on Saturday, October 7, 1989 to encourage individuals to write to the FS to express their opinions on the management plan and to encourage adoption of the "Conservationist Alternative" to the plan. A summary of all proposed plans can be found in the FS publication "Hoosier National Forest", August '89 edition.

EDUCATION COMMITTEE - Mike Miessen reported (in Noel Sloan's absence) that the video project is on hold. Lynn Miller reported that Ed Paynter of the Sierra Club is interested in having us present a program to his group on caving.

continued...

REGISTRY PROGRAM - An informal committee (Glenn Lemasters, Lynn & Jane Miller) are looking into developing such a program for the IKC, identifying needs and parameters. Anyone interested in working on this project is invited to contact the above.

RESEARCH & SCIENCE COMMITTEE - Keith referred members to the summary in the Sept. '89 UPDATE. Concerning the cave in Muncie: The landowner expects to quarry the cave out of existence within the next decade. He is willing to allow research, etc. in the system. An IUPUI graduate student is considering a thesis proposal on the project.

FINANCIAL CONCERNS:

- 1) Muncie thesis project. IKC should consider providing monetary support for this project if/when it gets going.
- 2) Woodard Gate. Steve Reesman reported that the heavy spring rains washed out much of the gravel fill around the gate. A 3' diameter hole needs to be concrete filled with steel "windows" to allow water to pass through. The Board approved funds not to exceed \$100 for repairs. The NIG will provide the labor and plans to repair the gate over Thanksgiving.
- 3) Sullivan's Cave. The CIG has been contacted by Willie Owens' daughter concerning a gate for the cave. She wants to maintain personal control of access to the cave. A motion was made and passed to provide that the IKC will support the efforts of the CIG in the gating of Sullivan's.

PLESS CAVE - The landowner has been denying access to the cave due to liability concerns. Jeff Cody has talked with the owners and provided general information about caves, the cave law, sample releases, etc., and offered IKC assistance.

TRESPASSERS PROSECUTION - Trespassers were confronted in Coon on August 26. The IKC will file a complaint.

DEPARTMENT OF NATURAL RESOURCES - Copies of the Bat Census Report are available to members. Please contact Keith Dunlap if you wish to receive a copy. The IKC will appreciate interested individuals providing \$1 for postage and handling.

The Winter Disturbance Study was begun on September 22. This project, funded by US Fish & Wildlife, will attempt to correlate over winter weight loss with the level of disturbance.

Ray's Cave - Scott Johnson (IDNR) is still pursuing a conservation easement for the property.

Bat Slide Show - Scott will be assembling a slide show on bats over the next six months. IKC members are encouraged to contribute slides for inclusion.

Bats of Indiana Poster - A poster featuring the bats of Indiana will be available for sale next spring. This project is being funded by the DNR.

HOOSIER ENVIRONMENTAL COUNCIL ANNUAL CONGRESS AND BUSINESS MEETING
November 18 & 19, Nashville, Indiana. As a member organization of the HEC the IKC is entitled to have one voting delegate at the annual business meeting. Lynn Miller was appointed the IKC representative to this meeting.

1991 NATIONAL CAVE MANAGEMENT SYMPOSIUM - Janet Thorne inquired whether the IKC would be interested in submitting a bid to host this event. The NCMS is frequently co-sponsored by a state or federal agency. The sponsors are responsible for location, registration, accommodations, publications, and field trips. The Symposium usually attracts 50 - 100 participants. After discussion the Board directed Keith to notify Janet that we would be interested in hosting the 1991 NCMS.

WAYNE'S CLEANUP TRIP - This trip will be co-sponsored with the CIG. Interested parties should meet on Sunday, Dec. 10 at 9:00 a.m. at the McDonald's at 37 & 45, or at the cave entrance at 9:30 a.m. Contact Keith Dunlap or Tom Rea for additional information.

NEXT QUARTERLY BUSINESS MEETING - Saturday, December 9, 1989, 7:00 p.m., Bloomington, Indiana. Specific location to be announced. Plan to attend the business meeting on Saturday and stay in Bloomington for the Wayne's cleanup on Sunday.

The meeting was adjourned at 4:10 p.m.

Submitted by Jane E. Miller, Secretary

State's only wilderness could be loved to death

THE INDIANAPOLIS STAR

By **PATRICK T. MORRISON**
STAR STAFF WRITER

Patton Cave lies at the end of a rigorous 2½-mile hike into Indiana's only federally designated wilderness area.

Tromping up hill and down dale to get there, however, won't guarantee an escape from man's imprint.

Those visiting the cave discover that the ground around it looks more like an urban playground than an idyllic overlook.

The hilltop is bare and brown — hard dirt without grass or flowers. Crushed cans, plastic wrappers and remnants of campfires litter the area. Burns and torn bark mar the trees.

In the cave, soft drink cans and used batteries reveal that here, too, others have tread.

Like much of the rest of the 13,000-acre Charles C. Deam Wilderness, Patton Cave and its

ridgetop suffer from a strange malady.

Hoosiers looking for a tranquil outdoor experience are using the federal haven along the south edge of Monroe Reservoir so much that it's having an adverse effect in some places. On some busy weekends, several thousand horse riders and hikers take to the wooded slopes and ravines of the Monroe County wilderness.

"That's really the biggest issue," said Ron Rothschild, a public affairs officer for the U.S. Forest Service, the federal agency that manages the wilderness. "They're just loving it to death."

Heavy use of parts of the 80-mile trail network have turned single-file pathways into beaten tracks the width of two-lane highways and eroded ditches that hold back standing water or impassable mud.

Several trails have deteriorat-

ed so badly that the Forest Service is considering closing them. Others could be closed because they parallel better constructed paths.

Throughout the trail network, litterers have left beer cans, cigarette wrappers, spent shotgun shells and food packaging.

"The Deam is one of the most heavily used wilderness areas in the country," explained Jeff St. Clair, who tracks forest and wilderness issues for the Hoosier Environmental Council. "Just about every acre is accessible to people."

Because of the easy availability and popularity of the area, a visit there doesn't always result in the "wilderness experience" envisioned by federal officials when they wrote the Wilderness Act 25 years ago.

In that act, Congress recognized that some areas of the country needed to be left alone

continued...

so people could enjoy nature in an undisturbed state — "A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain."

The act set up the Wilderness Preservation System and, at the time, set aside 9 million acres throughout the nation as wilderness areas.

Indiana did not get its federally designated wilderness until 1982, when Indiana's congressional delegation unanimously called for its establishment on 12,953 acres of the Hoosier National Forest along the south edge of Lake Monroe.

The tract was named after Charles C. Deam, a Bluffton drugstore owner who became Indiana's foremost authority on plants. He was the state's first forester and for many years was recognized as the dean of Indiana conservationists.

In its own quirky way, the Deam Wilderness is unique.

Unlike the vast wilderness tracts in the West, it is a relatively small parcel of land, and very little of it was left untouched by man.

"Basically, we're building a wilderness out of land that was heavily used," Rothschadl said.

The land that is the Deam Wilderness once held 81 small farms, according to Frank Voytas, U.S. Forest Service supervisor for the Hoosier National Forest.

Most of those farms were abandoned because the area's steep hills and thin soils made agriculture unprofitable.

In less than 50 years, the

land has returned to hardwood forest.

"Southern Indiana's climate is just ideal," said Rothschadl, "with the combination of humidity, rainfall and warmth. Nature really does the job. The natural return of forest vegetation is very quick."

The farms left their legacy, however. As part of the legislation establishing the wilderness, roads that lead to six small cemeteries were left open so family members could visit the plots.

The farms' wells also remain, as do a few scattered fences and foundations.

With the Deam Wilderness continuing to get heavy use, Rothschadl said the Forest Service will need to repair some of the most abused trail spots.

"That's in our plan for this year," he said. "We'll have to spend quite a bit of money on trails."

Forest Service plans include closing trails with severe erosion problems.

But St. Clair blames the Forest Service, in part, for some of the problems it now faces.

"The Forest Service has basically said, 'That's a wilderness, we don't manage it,'" he said. Since the wilderness was established, he claims, the Forest Service has done little trail maintenance.

St. Clair said that, so far, the only real trail maintenance has been through an "adopt a trail" program. Both horse riders and environmental groups have helped the Forest Service clean up and maintain some of those areas.

What does the future hold for the Deam Wilderness?

The Forest Service is in the

process of finishing a management plan for the next 10 years.

The preliminary plan envisions the wilderness growing by about 1,000 acres through acquisition of private land. While access to cemeteries will be kept open, the Forest Service projects that most evidence of past trails, homesites and other human activity will "have faded from the landscape."

Ironically, efforts to expand the wilderness area probably would create a great deal of controversy.

In the debate about the Hoosier National Forest, environmental groups have been criticized for wanting to "lock up" all of the forest into roadless wilderness areas.

St. Clair admits that the designation of wilderness has become a buzz word in the forest debate. "It's a fear of the entire timber industry that we want to lock up the whole forest as wilderness."

However, environmentalists will lobby the Forest Service to keep areas around the wilderness free of roads and timber cutting when the 10-year management plan for the national forest is completed.

"We can protect the areas. And in the next planning cycle, maybe it (the outlying areas) can be put into wilderness," St. Clair said.

If the environmentalists are successful, it would keep roads out of Nebo Ridge and two other areas to the north of the wilderness. St. Clair foresees an area of up to 35,000 acres left without roads.

"It could really be a centerpiece for the Midwest," he said.

*** ELECTION NOTICE ***

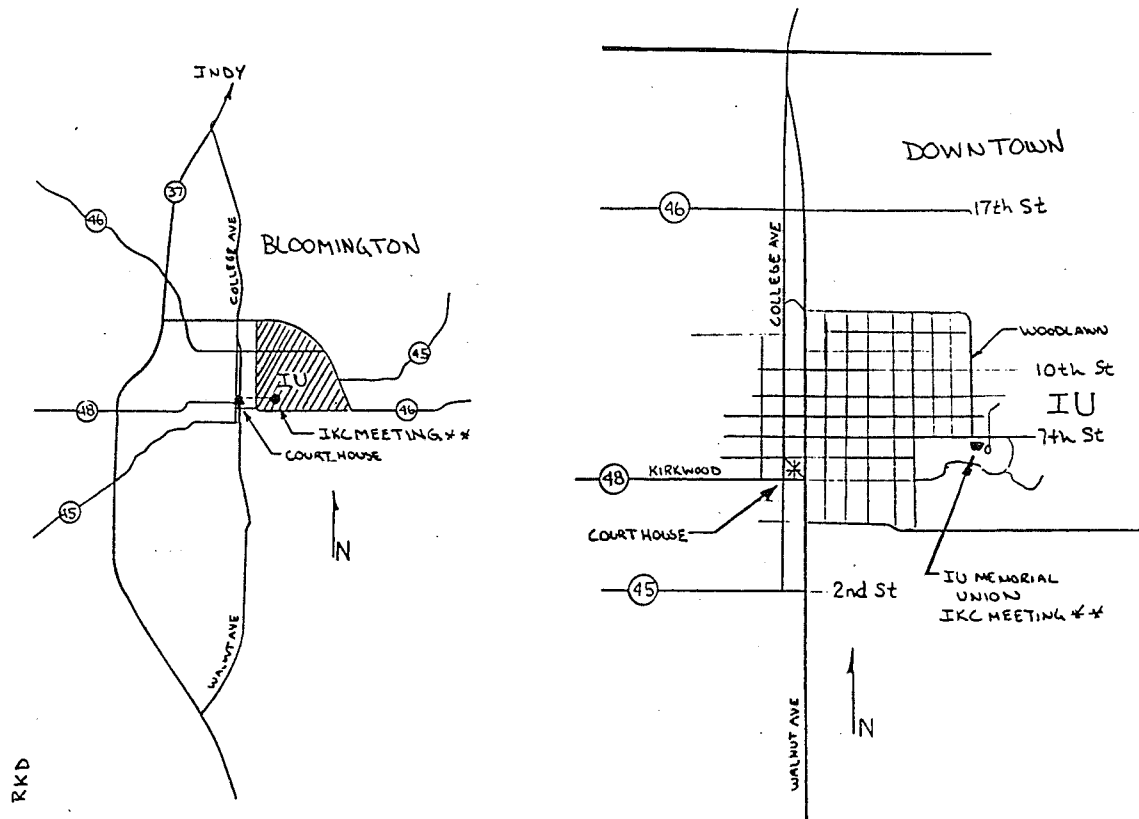
IKC elections are again approaching and it is time to start soliciting nominations for the governing board. The three Officers and three of the five Directors will be up for selection (Directors Mike Miessen and Glenn Lemasters will remain on the Board for the second half of their two year terms). Should you be interested in serving on the board, contact Keith Dunlap. A final slate of candidates will be assembled early next year and mailed in mid-February, prior to the annual business meeting.

continued...

MAP AND DIRECTIONS TO THE IKC QUARTERLY MEETING

SATURDAY DECEMBER 9th, 7:00 PM

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 the staircase to mezzanine level. Continue straight past the elevators, then left down the hall. The Alumni room is on the left as the hall turns right.



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 _____

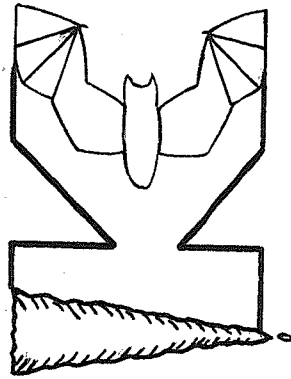
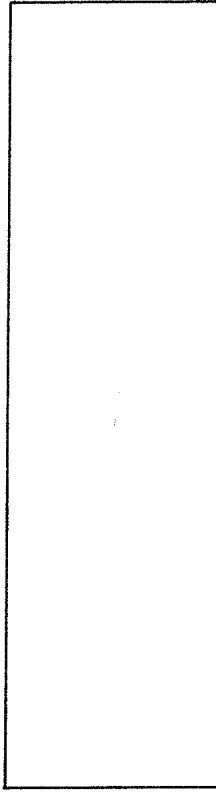
Address _____

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



PROTECTING CAVES THROUGH ACTIVE CONSERVATION