

IKC UPDATE

The background of the cover is a photograph of a karst landscape. It features a steep, eroded bank of reddish-brown soil or rock. At the base of the bank is a small, dark pool of water. A person is standing in the pool, illuminated by a bright light source, possibly a flashlight. The upper part of the image is filled with the bare, dark branches of trees against a pale sky.

A Quarterly Publication of the Indiana Karst Conservancy
December 2023
Number 151

INDIANA KARST CONSERVANCY, INC

PO Box 2401, Indianapolis, IN 46206-2401

ikc.caves.org

Affiliated with the National Speleological Society



The Indiana Karst Conservancy is a non-profit organization dedicated to the conservation and preservation of caves and karst features in Indiana and other areas of the world. The Conservancy encourages research and promotes education related to karst and its proper, environmentally compatible use.

EXECUTIVE BOARD

President

Matt Selig (2024)
317-258-9983
MSelig@hotmail.com

Secretary

Laura Demarest (2024)
812-320-5973
LadyLauraDemarest@gmail.com

Treasurer

Keith Dunlap (2024)
317-882-5420
Keith.Dunlap@juno.com

Directors

Bruce Bowman (2026)
765-720-1483
Bowman46118@gmail.com

Jeff Cody (2025)
317-888-9898
CodyJpme@att.net

Scott Frosch (2026)
317-250-9535
Frosch.Apple@gmail.com

Danyeale Green (2025)
317-370-7891
mudandogs@gmail.com

Dave Haun (2024)
317-517-0795
DaveHaun@ExploringEarth.com

Rand Heazlitt (2024)
502-445-9532
Pyrometric@aol.com

Goni Iskali (2025)
BattyCaver85@gmail.com

Joe Kinder (2024)
812-322-3328
KinderJoe@yahoo.com

Tom Sollman (2026)
812-753-4953
TPSollman@gmail.com

Carla Striegel-Winner (2025)
812-639-9628
CarlaStriegel@gmail.com

Paul Uglum (2024)
317-417-5596
Paul.A.Uglum@gmail.com

Richard Vernier (2026)
812-385-5058
rsavcaver2@gmail.com

COMMITTEES / CHAIRPERSON

Education/Outreach
Carla Striegel-Winner
(see E-board list)

Web Technologies
Bruce Bowman
(see E-board list)

IKC Update Editor/Publisher
Keith Dunlap
(see E-Board list)

Buddha Karst Property Manager
Keith Dunlap
(see E-board list)

Lowry Karst Property Manager
Jasper Beavers
812-343-7490
jay3130@yahoo.com

Orangeville Rise Property Manager
Carla Striegel-Winner
(see E-board list)

Robinson Ladder Property Manager
John Benton
830-305-1026
JMBenton1952@gmail.com

Shawnee Karst Property Manager
Keith Dunlap
(see E-board list)

Sullivan Cave Property Manager
Joe Kinder
(see E-Board list)

Wayne Cave Property Manager
Danyeale Green
(see E-Board list)

Indian Creek CE Monitor
Rand Heazlitt
(see E-Board list)

GROTTOES & LIAISONS

Bloomington Indiana Grotto*
Dave Everton
812-272-2300

Central Indiana Grotto*
Keith Dunlap
317-882-5420

Dayton Underground Grotto
Mike Hood
937-252-2978

Eastern Indiana Grotto
Jonathan Annonson
317-395-4325

Evansville Metro Grotto*
Steve Weinzapfel
812-630-7995

Louisville Grotto*
Susan Wilkinson
317-910-8023

Near Normal Grotto*
Ralph Sawyer
309-822-0109

Northern Indiana Grotto*
Cheryl Doan
260-385-0631

St Joseph Valley Grotto*
Joy Baiz
574-286-9404

Sub-Urban Chicago Grotto
Gary Gibula
GaryGibula@aol.com

Windy City Grotto
Susan Clark
708-415-1635

*grottos with liaison agreements

MANAGED CAVES / PATRONS

Buddha Cave
Jeff Cody
317-888-9898
CodyJpme@att.net

Lowry Cave
Jasper Beavers
812-343-7490
jay3130@yahoo.com

Robinson Ladder Cave
John Benton
830-305-1026
JMBenton1952@gmail.com

Shiloh Cave
James Adams
317-499-5451
JKAdams@aol.com

Suicide Cave
Kevin Smith
317-412-3667
FreeWheeler2Go@yahoo.com

Sullivan Cave
Paul Uglum
317-417-5596
Paul.A.Uglum@gmail.com

Upper Twin Cave
Dave Everton
812-272-2300
DEverton@indiana.edu

Wayne Cave
Dave Everton
812-272-2300
DEverton@indiana.edu

IKC QUARTERLY MEETING REMINDER

Sunday, December 10th, 1:00 PM EST

Indiana Geological and Water Survey Learning Lab: Room 1011

IU Geology Building, 1001 E 10th Street, Bloomington, IN

The quarterly meetings are for the Executive Board to conduct business, and for our members and other interested persons to have an open forum to talk about cave and karst conservation, and related topics. Past, present, and future IKC projects are discussed to solicit comments and input from our members and the caving community as a whole. The meetings are informal, and everyone is encouraged to attend and participate. The IKC Board wants your input.

Preliminary Agenda Items: Financial reports; Cave/land acquisition activities including the Wayne Cave Preserve expansion; Recap of recent preserve work projects; Education/Outreach update; Electronic scheduling and waiver system; NCRC Orientation to Cave Rescue training sponsorship; Eclipse planning and safety protocols; Bloomington development project; and more...

Meeting Details: The Board meeting will start at 1 PM. **Free parking** is available one block away at the Forrest Avenue Parking Garage (1015 E. Eleventh Street, Bloomington, IN 47408). All other parking is fee based. Prior to the meeting at noon will be a pre-meeting “social hour” for IKC members and the Board to meet-n-greet and chat about caves and conservation. Also an opportunity to check out the really cool IGWS Learning Lab. See page 24 for more details.

ACTIVITIES CALENDAR

Dec 10 – IKC Pre-Meeting Social Hour (see above and page 24)

Dec 10 – IKC Quarterly Board Meeting (see above)

March ?? – IKC Annual Business Meeting (date and location TBD)

April 20 – Indiana Cave Symposium, Paoli, Indiana

2024 – Orientation to Cave Rescue training (date and location TBD)

For more information on the Indiana Karst Conservancy, visit our website at ikc.caves.org, our Facebook page at www.facebook.com/IndianaKarstConservancy, or write to our PO box. Membership to the IKC is open to anyone or any organization interested in supporting cave and karst conservation. Annual dues are \$15. Please see inside the back cover for a membership application form or to make a much-appreciated donation. Memberships and donations may also be made electronically by credit card or PayPal using our on-line services on our website (see the Join Us! tab in the menu) or ikc.caves.org/join-the-ikc.

The *IKC Update*, distributed for free, is published quarterly for members and other interested parties. The purpose of this newsletter is to keep the membership and caving community informed of IKC activities and other news related to cave/karst conservation. Submission of original or reprinted articles for publication is encouraged. Back issues can be found at ikc.caves.org/ikc-updates.

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RAMBLINGS FROM THE PRESIDENT...

"I left a full in-box back in my office. There's a long to-do list for the IKC and other organizations. Winter will be here soon... I've got to get the hoses at the house put away. I have a zoom call before tomorrow's presentations, and I think I forgot to pay the water bill. There's a rock in my shoe. So much to do, so much to do and time as always runs short!"

SLOW DOWN!

I hear it almost as a physical voice. As if a shadowy stranger has interrupted my stream of consciousness, what Buddhists call the "*monkey-mind*." Swinging from branches, chattering and throwing out random thoughts.

STOP!

I'm walking through the forest at the Southeastern Cave Conservancy's Stephen's Gap Callahan Cave Preserve, which is part of the surface tour for the National Cave & Karst Management Symposium held in Chattanooga from November 6th thru the 10th.

Beautiful. Late fall and the colors are brown and gold, with a bit of yellow here and there. There is a profusion of limestone boulders laying on the hillside in a way they don't lay on the hills of southern Indiana's cave country. Very different than what I'm used to and familiar with.

This ancient landscape took thousands of years to form. Hundreds of thousands of years. Even hundreds of millions of years, if you go back all the way to the shallow Mississippian-era oceans that laid down these rocks.

The sun is warm and I'm sweating a bit as we clamber up a dry stream bed. Around the boulders, over the boulders. Hop here, step there. We climb up the bank of the creek and back on to the trail. I'm telling someone about a dye tracing study that's being done in the IKC's Wayne Cave to better understand the hydrology of Garrison Chapel Valley.

Breathe

Someone mentions there is a resident rattlesnake under one of the boulders we passed a while back. We didn't see it. I don't want to see it. I'm content to let resident rattlesnakes do their resident rattlesnake thing. I don't believe rattlesnakes have a monkey mind.

I'm sweating, it's warm. The sun is shining. It feels good to lean into the slope of the hillside and feel the strain in my legs as we walk uphill. My breath tugs at my lungs. We see a pit to the side of the trail. I ask somebody, "Please take my picture." I need it for this issue of the *IKC Update*!

We round a few switchbacks and find ourselves at the top of the hill staring at the dramatic dual entrance to Stephen's Gap Cave.

In its presence I feel myself part of the long procession of humanity that has encountered this cave, back to the Paleo-Indians of 9,000 years ago. I feel a sense of wonder as I climb down the slope into the portion of the cave which is accessible without vertical gear. I'm inspired by the huge, deep shaft with a waterfall tumbling down the opposite side of the pit.



Observe

Karst processes are slow, but relentless. I don't believe they have a will, but they are directed at an end, it seems, and towards a purpose. It's astonishing to see what a few simple ingredients (water, carbon dioxide and limestone) can accomplish, given enough time.

In the IKC, we have goals and an (exempt) purpose. We have a straightforward idea of what we want to accomplish and a robust debate about how to accomplish it. We have volunteers who are as hard-working and driven as the water patiently forming Stephen's Gap Cave and the tens of thousands of caves in TAG, Indiana, Kentucky and other karst regions of the world.



We share our passion for caves with each other and cavers around the world through media channels such as this newsletter, email, our website, and our Facebook page. We connect with our caver predecessors who came before us and we work to pass along a worthy legacy to the cavers of the future who will crawl in the same crawlways.

The moment for magic passes.

Relax

I think, “I need to write an email to our Treasurer. We’re closing on the Wayne Cave Preserve ‘Connection’ property next week and there are some documents to review.” Back to reality. I’m still in the middle of a forest in northeastern Alabama with no cell service (a blessing). I take a last wistful look at the Stephen’s Gap Cave entrance and we begin the walk back to our bus to make our way to civilization and its never-ending to-do lists. There are so many other things I wanted to talk about in this essay. My monkey mind is shouting

all kinds of thoughts at me about other topics I could ramble about here.

A wise person once told me, “Find something you love and work hard for it.”

I can vouch for the value of this from my own experience of studying caves and joining in the IKC’s work to protect caves and karst. Indiana’s cave landscapes are better off because of the hard work of our dedicated volunteers. There are other non-cave related projects I love and work hard for, as well. I want somehow to weave these threads into the fabric of this story, but find myself with more to say than space to say it.

So, I’ll close this year with wishes of good health for you and your families, opportunities in 2024 to work hard for what you love, safe and amazing cave adventures and a wish that as we move forward into the new year, a strong sense of purpose refreshes our hope and guides our efforts!

Matt Selig

NEWS BRIEFS...

- ❑ The IKC now manages access for the caves within Henderson Park for recreational caving. Approximately a year ago, the City of Salem (the park owner) and The Nature Conservancy (the conservation easement steward) decided to close the caves in the park due to concerns over vandalism and the effort required to interface with groups wishing to visit the caves (neither entity had the resources to do that). After the closure was announced, the IKC reached out to TNC to understand the issues and to offer assistance since the situation was similar to the IKC managing access for several DNR Spring Mill/Cave River Valley caves. Tom Swinford, Director of Stewardship for TNC, became our ally and worked with Kevin Strunk, Matt Selig, and Keith Dunlap to develop a three-party MOU, then TNC staff worked with the Mayor of Salem to assure there was mutual buy-in and all parties saw the benefit. On September 5 the agreement was signed. The IKC has appointed Scott Frosch to be the Cave Access Coordinator for Henderson Park. Groups wishing to visit the caves will need to apply for a permit and sign waivers. For more details visit: ikc.caves.org/henderson-park-cave-access

- ❑ On November 15, the IKC hosted a webinar featuring renowned cave geologists Art and Peggy Palmer. The two presented the story of exploring and mapping Blue Springs Cave in Lawrence County while geology students at Indiana University in the 1960s. After the presentation, there were numerous interesting questions and some entertaining answers. There were 138 viewers that tuned in to watch from around the United States and four other countries. The 54-minute presentation was recorded for posterity and can be viewed here: www.facebook.com/indianakarstconservancy/videos/725465932939281



- ❑ On November 3rd, Carla Striegel-Winner presented *Indiana Caves and Karst* to seventy attendees at the Friday evening dessert reception of the Indiana Forestry and Woodland Owners Association (IFWOA) conference. In addition to introducing them to the IKC, she focused on what karst is, how they can be good karst landowners and of course ended with some great photos of IKC-owned caves. It

Continued on page 19...

WAYNE CAVE PRESERVE EXPANSION – STATUS UPDATE

by Keith Dunlap

We have great news... On November 15, the IKC took ownership on the 20-acre expansion property (AKA “The Connection”) to the west of our existing Wayne Cave Preserve, expanding the preserve to 77.46 acres. This makes the Wayne Cave Preserve our largest, and we now protect over 295 acres across our seven preserves.

The main motivation for acquiring this new tract was to physically “connect” our preserve to the adjacent National Speleological Society’s Richard Blenz (Buckner Cave) Nature Preserve. The two organizations now protect over 120 continuous acres containing two multi-mile caves and numerous smaller ones. Ecologically, the IKC preserve also contains an uncommon sinkhole swamp which happens to support a rare sedge. We have documented that the Wayne Preserve seasonally hosts at least four bat species that are either listed as endangered or of special concern (see page 16). And of course by protecting this karst landscape from development, we are protecting the watershed for the long-term. To see much more about the expansion property go to ikc.caves.org/wayne-cave-preserve-expansion

Of course the expansion is not without challenges. Principally the money to buy it. Land around the Bloomington area does not come cheap. This expansion is our most expensive project to date in absolute dollars and on a dollar per acres basis. Back in June, we established a project goal of raising \$225,000 which would cover the capital cost of the land (\$200,000), the IKC’s share of the closing costs and survey expenses (\$5,000), and an appropriate contribution to the IKC’s Stewardship Endowment Fund (\$20,000) for future care for the property. The actual closing/surveying cost was slightly more than anticipated at \$5,956.



On the opposite page is the list of donors who have contributed so far to support the expansion property. We are very grateful that the Sam Shine Foundation and the Central Indiana Land Trust have stepped up in a huge way to make this project happen. We are also **very** pleased with the number of other granting organizations and individual donors (several who live adjacent to the preserve) who understand the importance of this property and have made large donations. Of course our extensive number of grass roots donors is also extremely important, demonstrating broad support in favor of this project.

If you have not yet made a donation to support our “Connection” property, or would like to make an additional contribution, please do so before December 31st. On-line donations may be made here (www.paypal.com/donate/?hosted_button_id=LA5HZGABRLDWS) or by using the QR code to the left. Or you can mail a check to IKC, PO Box 2401, Indianapolis IN 46206. ►►



WAYNE CAVE PRESERVE EXPANSION			
\$50,000 or more			
Sam Shine Foundation			
\$25,000 to \$49,999			
Central Indiana Land Trust			
\$10,000 to \$24,999			
Bar Keepers Friend Anonymous The SerVass Charitable Fund, a fund of the Indianapolis Foundation			
\$5,000 to \$9,999			
Bruce Bowman Keith Dunlap Sam Frushour Matt Laherty Matt Selig	Anonymous BicycleDoctorUSA (Steve ,Terry ,Eric, Emma Dodds) Richard Blenz Nature Conservancy National Speleological Foundation National Speleological Society		
\$2,500 to \$4,999			
Richard & Sue Vernier Central Indiana Grotto	Environmental Solutions & Innovations		
\$1,000 to \$2,499			
Joshua Abdulla Miriam Ash Barb & Don Coons Danyele Green Hank Huffman & Ellen Jacquart Wes Roeder Tom Sollman	Carla Striegel-Winner & Jamie Winner Dave Tibbets Chenier-Cabral Family Fund Mark Longacre in Memory of his Wife Nancy Hiller In Memory of Glenn Lemasters In Memory of Ray Sheldon		
\$500 to \$999			
Keith Calkins Barbara Hanka	Goni Iskali & Brad Barcom Jerry & Salisa Lewis Chris McIntyne	Stephanie Paine Crossin Gordon Smith Wesley Terrell	Richard VanRheenen Bluespring Caverns
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Project goal: \$225,000 \$209,943 raised (93.3% of goal) as of November 24, 2023			

A BEAUTIFUL NOVEMBER DAY FOR THE SULLIVAN CAVE PRESERVE FIELD HIKE AND TOUR

by Joe Kinder

On Saturday November 4th, eleven participants arrived at the Sullivan Cave Preserve for the IKC field hike and workday. The weather was near perfect for November, partly sunny with highs in the 50s. Carla Striegel-Winner, who is the IKC's Education and Outreach chairperson, started things off with introductions as well as giving the group an agenda for our day, while Keith Dunlap, who is one of the IKC's founding members and the previous Sullivan Cave Preserve Property Manager, discussed some of the history of the preserve pre-IKC, as well as some of the projects that have been completed since the IKC took ownership of the property in 1998. I was able to discuss some of my duties as current Property Manager, as well as some continuing and upcoming projects around the property and mentioned there were a few stewardship opportunities following our field hike for those wanting to stay and help.

The property tour was co-led by Keith Dunlap and Carla Striegel-Winner starting near the road access where the new (2021) property addition was purchased. Keith explained the goal of this purchase was to provide safer ingress/egress into the preserve from SR 54, as well as providing an overflow parking area and parking when there is heavy snow on the ground. We discussed the new driveway that was installed thanks to IKC member Jamie Winner and Keith. We continued the tour into an area where we discussed our 2022 tree and shrub plantings and the varieties that were chosen. We also talked about and how there is typically a long-term 50% success rate based on previous plantings, and that even though the area has experienced drought conditions these saplings seem to be doing well.



photo courtesy Carla Striegel-Winner

We continued the tour into a section of the established woods where Keith was able to point out the growth of plantings from 20+ years ago. It was great to see what our recent plantings might look like in the next 20 years. Both Keith and Carla started pointing out invasives needing to be removed as part of our woodland management plan



photo courtesy Keith Dunlap

like vinca, multi-flora rose, burning bush, and autumn olive. Keith and other volunteers have done a great job on this property over the years eradicating invasive species, but it is a never ending task.

After discussing invasives, we arrived at an area adjacent to the Sullivan property where Keith talked about the removal of the infamous diaper shed and the efforts that went into this major clean-up effort to help restore the watershed that directly drained onto the IKC property and likely into Sullivan Cave. Lots of trash including dirty diapers filled up a 40 cubic yard dumpster that was eventually removed thanks to the help of Keith and many volunteers. Carla showed before and after photos which was great for our group to see and appreciate the effort that went into this project. Continuing on the hike, Keith talked about the prairie area and described management efforts taken that have yielded positive results. After the prairie visit, we continued into another section of tree plantings from 2001 where Keith pointed out the lines of planting rows and told the story of why a few of the rows may have been crooked due to a few distracted volunteers (we will not name names or why they were distracted).

We continued our hike into the older growth portion of the Sullivan Preserve woods where Carla pointed out a deer scratch that seems to be visited by the local population year after year, and Jamie Winner pointed out a bigtooth aspen tree and showed



several of us the leaves to help with identification. After more hiking along the east boundary of the property, we ended our tour at the Sullivan Cave entrance where we took a mandatory group photo (see opposite page). After the hike/tour we enjoyed a great lunch provided by the IKC (and homemade cookies provided by Carla and Jamie's moms).

After lunch, most of the group stayed to tackle several tasks that I had on my list. I had shown up to camp the night before and started picking up sticks as well as blowing leaves to uncover the grass in the camping area. I continued to blow leaves while others were helping with other various tasks. This included hauling firewood that I had recently split down to the shed, so that it could dry over the winter and provide good campfires for next year (thanks to Laura Demarest, Cris Seuell, and Gordon



photo courtesy Carla Striegel-Winner

Sachtjen). Meanwhile Rob Bloomer worked on neatly re-stacking and consolidating several piles of firewood near the campsite. Afterwards we split some remaining bucked logs and stacked them for drying. Many hands made quick work of that task.

Meanwhile out near the highway, Keith, Aaron Valandra, and Mike Drake relocated the address sign post from the prior "2100" driveway to the "2088" and swapped out signs. Keith and Aaron also installed two temporary t-posts and strung tape across the old drive to deter visitors from entering that way.

Earlier in the year I had discussed with Carla my hesitation of felling the large multi-trunk poplar tree near the lane gate. This tree had already had one trunk fall a few years ago across the driveway and the three other trunks had rotting



photo courtesy Carla Striegel-Winner

issues and it was just a matter of time before they would drop, thus a potential hazard if one came down when someone was near. Carla mentioned that her husband Jamie (a DNR forester trained in felling techniques) is comfortable cutting down trees no matter the size. He brought his equipment and was able to fell each of the three large trunks, dropping two across the old driveway (left temporarily to block the old entry point) and the other one across new driveway. Jamie bucked that log into manageable lengths and Carla, Aaron, and Wes Roeder helped roll the logs out of the way.

All in all, it was a great day for a tour of the property as well as stewardship activities around the preserve. I want to thank both Carla and Keith for setting up and spearheading this hike and workday, as well as lunch. And a special thank you to all the volunteers who stuck around to make this great preserve a little better. The IKC cannot operate without the help of our great members and volunteers.



photo courtesy Keith Dunlap

THE WAYNE – STUDEBAKER CAVE SYSTEM: EXPLORATION, CONNECTION, AND A NEW MAP

by Mike Drake and Laura Demarest

History was made in the Garrison Chapel Valley west of Bloomington, Indiana on November 12th, 2022 when seven project cavers working from both sides of a constricted passage officially connected Wayne Cave to



Photo taken to commemorate the connection (both teams united in Wayne Cave) L to R: Brandon Chasteen, Eliot Chasteen, Mike Drake, Owen Freese-Posthuma, Kevin Romanak, Cris Seuell, Laura Demarest

Studebaker Pit Cave. The connection boosted Wayne Cave's length from 4.25 miles to 5.08 miles, making it the longest cave in Monroe County and the seventh longest in the state.

This important connection was the culmination of nearly seven years of hard work, starting in January 2016 as a Shallow Grotto dig project in Studebaker Pit, which was at the time a scenic 30-35 foot vertical cave with no obvious continuing passage, but some intriguing

air movement along one side of the large room. After a year and a half of "bucket brigade" trips to clear the obstructing breakdown, the team finally intersected significant trunk passage, which was an exciting breakthrough.

Survey and exploration continued, with some notable discoveries made including the "Blenz Boulevard" passage south of the entrance pit which formed out from under the sandstone cap that covers the rest of the cave. With over 2,000 feet of mostly walking passage, it contains beautiful displays of stalagmites, stalactites, and flowstone formations.

Trending north of the entrance pit, an additional large walking passage extends in both directions and includes one of the most geologically interesting features: an exposed 4-6 inch layer of Lost River chert that can be seen in the wall. Upstream, this layer forms the perfectly flat upper surface of a low, wide waterfall deemed "Frushour Falls".

However, cave exploration rarely comes easy in this region. As the project coordinator, Mike Drake looks at this new cave map with great pride. Many memories and wonderful friendships formed in the process, and much adversity was overcome with great persistence, too.

One of the most devastating setbacks was the death of Studebaker's wonderful cave owner, Terry Wilke, in 2019. The property was sold and fortunately the new owner, Nick D'Ambrosio, was interested in joining us underground. The neighboring property where we had permission for overflow parking also changed hands around the same time and the new owner, Brandon Chasteen, and his family also showed an avid interest in caving. Both property owners (and some younger family members) wanted to join the project to help explore the cave beneath their land, so they were trained in vertical caving techniques and became part of our team. As it worked out, both owners have become awesome cavers.

Other challenges along the way included floods, high water, and freezing winter winds sucking into Studebaker making working conditions miserable at times. At least one section of breakdown near the Pancake Crawl took a year



Kevin Romanak in Blenz Boulevard

photo courtesy Brandon Chasteen

photo courtesy Brandon Chasteen

Wayne Cave cartography by Terry Cox

and a half and many long trips to dig through. The Covid pandemic also impacted project participation since many people didn't want to risk exposure. At some point, both new owners selectively harvested some mature trees along the old trail to the cave, so a new and improved trail to the cave with a switchback going up the steep hill was built. Eventually a fence was even installed around the entrance, courtesy of funding from the Bloomington Indiana Grotto and lots of volunteer labor.

Exploration in Studebaker hasn't stopped since the B.I.G.–Shallow connection was made. Recently, we opened up Dible Dome discovering sizeable walking passage closer to the surface where bats were observed. Currently, we are preparing to continue exploration of three different locations in the southern part of the cave and have been investigating surface features that may connect to passages below.

One lead consists of a promising dome in the ceiling that possibly leads to Bud and Bill Cave above. Another interesting passage currently being explored is an infeasible full of sandy dirt that appears to have had the dimensions of walking passage approximately ten feet wide before it was clogged with sediment.

At this time, a dye trace study is also being conducted to determine which underground streams in Wayne Cave may or may not connect to Studebaker passages and/or other surface springs located in Blair Hollow. After being granted permission by the IKC and collecting control samples in June, two different types of dye were injected in Wayne Cave at two locations (Camp 1 and Camp 3) on July 22nd, 2023. However, precipitation has been scarce this year

and at the time of this writing, the green dye is still at Camp 1 until sufficient rain occurs.

Some preliminary findings indicate that red dye from Camp 3 was detected in parts of Studebaker and the most downstream spring (Vannes) in Blair Hollow, which is approximately 2,000 feet away from mapped passage. Gathering this type of data informs exploration and hints at the great potential for unknown passage to be discovered.

Being involved in making cave history, the connection, a new map, and any accolades take a backseat compared to the people involved. Many cavers have assisted with the Studebaker project since 2016, spending countless hours working in unfavorable conditions in a 54°F cave that floods. Some of the main contributors to be acknowledged are Ty Spatta, Kyle Hoyt, and Kevin Romanak, though many others helped get us through to the next "objective" or lent a hand to build fence, survey, take photos, or stoke the campfire to warm us after a cold cave exit.

Special thanks to the awesome property owners who allowed this project to happen. Without their permission, none of this would be possible. Above and beyond granting permission, landowners on both sides of the property line also assisted on both sides of the connection breakthrough, including Eliot Chasteen, who was 15 years old at the time!

We would also like to thank the IKC for approving exploration and dye tracing research permits, which helped establish a new line of communication between project cavers and conservancies. Matt Selig, IKC President, has even personally assisted with the dye trace study and we appreciate this involvement and support very much.

Sam Frushour, caving guru, was our cartographer who kept the Studebaker map on a table in his basement for several years, adding trips of hard-fought footage whenever we turned in new survey notes. After the connection, he combined the Wayne and Studebaker maps together and scanned them. This updated version was sent to Nina Soluski, a graphic designer who edited out scan marks, updated fonts, ceiling heights, and added description text using Adobe Photoshop.

This has been an adventure. Many lifelong friendships have been formed with like-minded cavers that are now considered family today. Thanks to all.



photo courtesy Laura Denarest

Matt Selig at Camp 1 in Wayne Cave
with dye in background July 2023

WAYNE CAVE PRESERVE KARST GEOLOGY HIKE

by Carroll Ritter

On a fine early fall day (October 7th, 2023 to be exact), fourteen of us were treated to a great geology lesson by Matt Selig, followed by a nice hike across both the existing Wayne Cave Preserve and onto the soon to be IKC expansion property. Some attendees did not realize the significance of Wayne Cave, its history, or know it is now Indiana's seventh longest cave. Nor did they realize the underground complexity of the Wayne Cave system and related caves in proximity.

As our hiking trail crossed the existing 57.59-acre property, several karst features were seen and discussed, including a sinkhole swamp with a rare sedge. To the west, we proceeded onto the new extension property of almost 20 acres, with open habitat, rocky outcrops, and fine oaks and hickories. Keith Dunlap explained the features and acquisition status. Of importance, when this property is added to the existing preserve and connects to NSS's Richard Blenz (Buckner) Preserve, almost 121 acres of great karst will be protected.

Facilitated by Carla, a bonus experience was available; several folks donned their hard hats and were treated to a brief adventure down into Jim's Hole. One attendee had not been caving before, so he got introduced to the fascinating world beneath us.

As we picked up the trail again back on the



photo courtesy Carla Striegel-Winner

Everyone loves a class field trip in the woods

original preserve, the nice loop was completed. Thanks to Property Manager Danyele Green and her volunteer helpers for keeping this great walking trail in fine shape and to Cris Seuell for her most interesting plant identifications. Local resident Mark Longacre was also very informative and walks the preserve almost daily.

The grand finale of the geology hike was that the group marched on down to the actual Wayne Cave entrance.

Though gated, we peered down into the opening and enjoyed Matt's adventurous stories of the 1200-foot-long crawlway, squeezes, big rooms, and formations. We'll leave those stories for another time.



photos courtesy Carla Striegel-Winner

Matt Selig holding his geology 101 class at the Wayne Cave Preserve "education center"

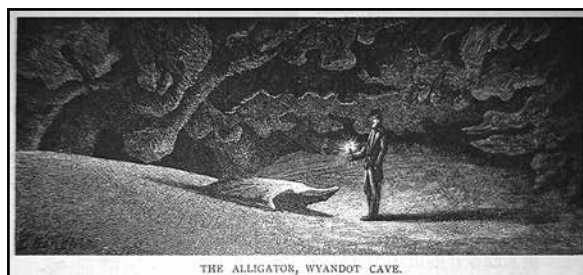
A LOOK BACK AT INDIANA KARST

compiled by John Benton

This article is an excerpt from H.W. Rothrock's memoirs. H.W. was one of the original heirs of Wyandotte Cave. The memoirs were dictated by H.W. in 1915 and are on file at the Indiana State Library. The story below tells of a party who became lost in Wyandotte Cave in 1866. They knew they were on the show cave route, and others would have been coming, so their situation was not "dire". One can substitute current day individual names to the folks in the story and chuckle, as everyone knows people that this could happen to:

In 1866 we gave a big ball, dinner, and picnic at Wyandotte; and had a large crowd to go into the cave. We announced that I would lead the party, as chief guide, into the cave at ten in the morning. Dr. E.R. Hawn, of Leavenworth, with a party of about twenty of his friends, came early to avoid the summer heat to go into the cave. The doctor, being a particular friend of mine, came to me and said, "Mr. Rothrock, can't you give us an extra guide to take us out of this excessive heat? It doesn't matter whether he is a good guide or not; you can pick us up when you come in if we are lost." So I put them in charge of Dan Duffin, who was just learning to guide. He had confidence in himself and felt quite elated to be guiding such a distinguished party, as they were the elite of the old village of Leavenworth.

When they arrived at the cave, Duffin began, "Ladies and gentlemen, this is Columbian Arch. This is Washington Avenue. Ladies and gentlemen, this is Fat Man's Misery." Dr. Hawn was a very heavy man, weighing about 350 pounds, and seemed to take umbrage at Dan's putting too much stress on the "FAT" of Fat Man's Misery. Dr. Hawn said, "Don't get personal about fat men." Dan Duffin continued, "Here is Counterfeiters' Trench; the Junction Room; the Australian Continent. Here we go to the left-hand avenue and travel for a mile, taking all right hand avenues, and arrive at the Junction Room again. This we call, going around the Continent. Now we have Creeping Avenue, where we creep for about a hundred yards. Dr. Hawn, I hope you will not think me personal, for the entire party will have to crawl." The party got



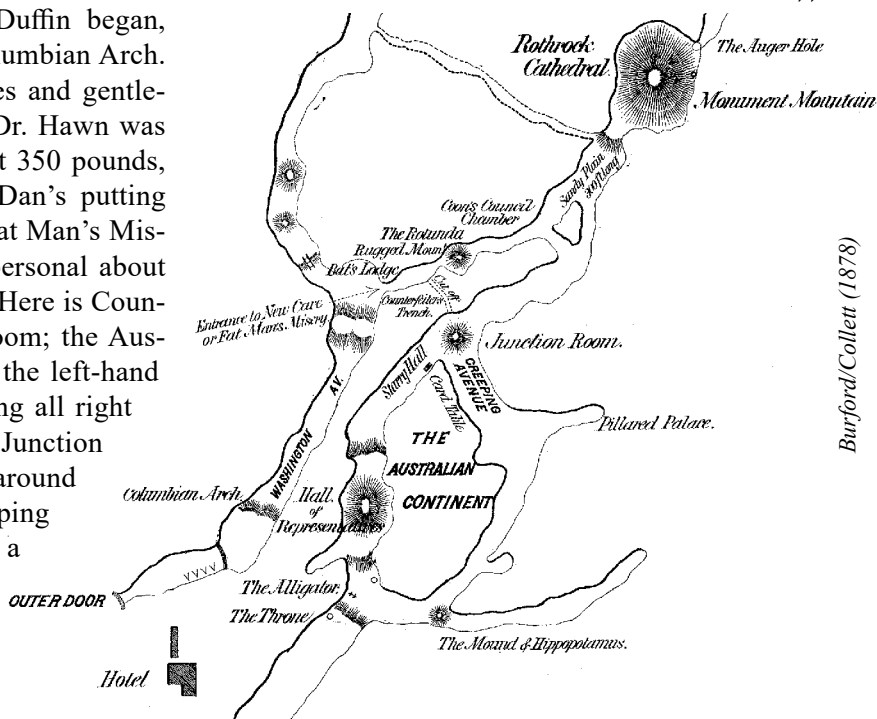
THE ALLIGATOR, WYANDOT CAVE.

Hovey/Scribner's Monthly (1879)

along pretty well seeing the Throne, Pillared Palace, the Card Table, Hall of Representatives, and back to the Junction Room. The party expected to meet me here with the large party, as it was now after ten o'clock. Duffin didn't know that he had made the trip around the Continent, so turned to the right, as I had instructed him to do and took the party through the long Creeping Avenue again. As soon as he came to the Creeping Avenue, he knew he was lost, but didn't want to own up to it, so he called it, "Creeping Avenue Number Two". The doctor and his party began to think they were going around the Continent twice, and the doctor said, "Mr. Duffin, I believe this is the creeping place we went through an hour and a half ago. I believe we are lost."

Duffin said, "Dr. Hawn, I guess I know what I'm doing. I'll meet Mr. Rothrock pretty soon now." About this time they saw a light ahead, and all hurried to it, thinking it was our party

►►



Burford/Collett (1878)

meeting them. When they came to the light, it proved to be a candle sitting on the head of the Alligator. They all knew where they were, since one of their party had left a candle burning on the Alligator when they were there before.

Dr. Hawn said, "I reckon this is Alligator Number Two, is it?" Duffin said, "Ladies and gentlemen, I'll have to acknowledge that I'm

lost, and we'll have to wait here until Mr. Rothrock picks us up."

"We'll do nothing of the kind," said the doctor. "I'll rest a little and take the party out. I believe I still know more about the cave than you do, Mr. Duffin." After resting a time, Dr. Hawn brought the party out to meet me.

-- Dictated by H.W. Rothrock, December 28, 1915.

2023 NATIONAL CAVE AND KARST MANAGEMENT SYMPOSIUM

by Matt Selig

The IKC was a sponsor of the 15th National Cave and Karst Management Symposium hosted November 6th thru 10th in Chattanooga, Tennessee. The IKC's display generated a lot of interest in our cave conservation activities in Indiana.

I attended the dye tracing workshop led by Ben Miller on Monday and we spent the morning reviewing the principles and best practices of performing dye traces in karst aquifers. In the afternoon, we went to Neversink Pit, a cave owned by the Southeastern Cave Conservancy (SCCi) and injected fluorescein dye in that cave. We also visited a local spring where dye bugs had been placed for this dye trace study.

On Tuesday we saw several presentations that focused on the hydrology of karst aquifers. Results of research into dye tracing the drainage basins of community drinking water springs in Tennessee were seen and Ben Miller also presented results of dye tracing at the Buffalo National River in Arkansas. In the afternoon, we looked at studies of contaminants in ground water at Mammoth Cave and how geology impacts groundwater recharge at Jewel Cave in South Dakota.

On Wednesday I joined the tour group that visited several caves in northeastern Alabama. We saw Russell Cave National Monument which has been used by humans for more than 9,000 years. We hiked to the majestic entrance of the SC-Ci's Stephen's Gap Cave, and then hiked half a mile into the gigantic borehole of Cathedral Caverns where numerous amazing speleothems were seen. We ended the surface tour at the entrance of Sauta Cave, which is gated to protect a colony of 400,000 gray bats.

On Thursday during the day, I had

to attend to some work business (and visit a Civil War battlefield), but in the evening I joined past IKC President Dr. Jerry Lewis (and his wife Salisa!) for the Symposium banquet at the Ruby Falls event center on Lookout Mountain. We were treated to an outstanding presentation by Dr. Matt Niemiller (Bedford, Indiana native) on the history and current state of cave biology research in TAG and on the Cumberland Plateau.

I ended the banquet on the viewing platform at Ruby Falls thinking about the great experience of spending four days with cave enthusiasts while thinking about the cutting edges of karst research. I made many new friends and caught up with many people I've caved with over the last several decades. I look forward to the next Symposium!



photo courtesy Matt Selig

BAT ACOUSTIC MONITORING AT THE WAYNE CAVE PRESERVE

by Goni Iskali

In the September *IKC Update*, we reported on the bat surveys that the IKC completed at our six largest preserves this past summer. These surveys included passive acoustic transects to get a snapshot of what bats may be using our properties during the summer maternity season. However, we also completed a more intensive acoustic survey at the Wayne Cave Preserve from August 19 to 22, 2023. The purpose of this survey was to try to detect if federally and/or state-listed bats use the Wayne property during the summer. If these sensitive species are detected at our preserves, this could help boost the IKC's chances of obtaining grants/funding and guide us on how to better customize our management plan. The four focus species for this survey were the Indiana bat (*Myotis sodalis*; federally and state endangered), the northern long-eared bat (*Myotis septentrionalis*; federally and state endangered), the tricolored bat (*Perimyotis subflavus*; federally proposed as endangered and state endangered), and the little brown bat (*Myotis lucifugus*; being considered for federal listing and state endangered).

The two survey stations were made possible with the help of bat biologist Aaron McAlexander from Western Ecosystems Technology, Inc (WEST), a consulting firm in Bloomington and my previous employer. Aaron generously

let us borrow and use their most cutting-edge acoustic recorders that are available for professional bat surveys: The Wildlife Acoustic Song Meter SM4 Acoustic Recorder. He also helped deploy the detectors, with one detector placed in the dry creek bed near the trail on the west side of the property and the other detector placed at the edge of the sinkhole swamp. The reason why these two locations were chosen were because 1) they are both near the expansion property the IKC is acquiring and this data would give us info on whether the bats were using both the Wayne and the expansion, 2) they are most likely to attract bats due to available water and flight corridors (e.g. trails and creek), and 3) they are somewhat open because bat calls can be difficult to ID to species when bats emit calls in a cluttered environment. The detectors were programmed to record 30 minutes before sunset and 30 minutes after sunrise for four nights. The acoustic calls were processed and verified by Ashley Reed, a qualified acoustic bat biologist and previous employee of WEST. She processed the data by first running it through an automated identification program (Kaleidoscope) and then qualitatively identifying every

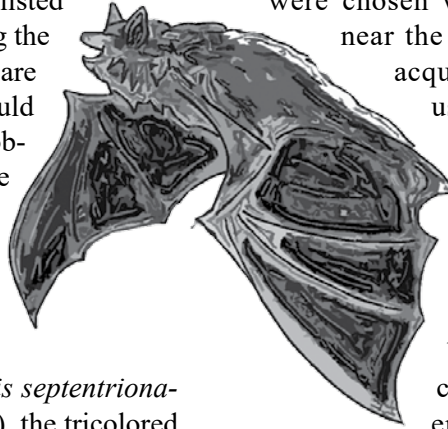


Table 1. Summary of Data Collected on the Indiana Karst Conservancy Wayne Cave Property, Monroe County, Indiana between August 18 – 22, 2023. Kaleidoscope Pro 5.4.0 was used to classify bat echolocation calls. Manual review was completed for little brown bat, northern long-eared bat, Indiana bat, and tricolored bat echolocation calls. The number of manually reviewed bat echolocation calls is given in parentheses. Manual review was not completed for any other bat species nor the NOID or noise files.

		Species ¹										
Site	Date	EPTFUS	LASBOR	LASCIN	LASNOC	MYOLUC	MYOSEP	MYOSO D	NYCHU M	PERSUB	NOID	NOISE
1 (Dry Creek)	20230818	95	82			51 (2)		10 (0)	7	4 (0)	186	320
	20230819	122	271			23 (0)		2 (0)	41	12 (3)	202	238
	20230820	118	62			14 (0)		1 (0)	13	2 (1)	68	716
	20230821	164	49	1	3	42 (2)			7	2 (1)	116	50
	20230822	93	10			11 (1)				4 (3)	25	329
Total		592	474	1	3	141 (5)		13 (0)	68	24 (8)	597	1,653
2 (Sink- hole Pond)	20230818	37		1	9	27 (1)	15 (2)	34 (2)	1	2 (0)	116	388
	20230819	139	4	3	17	15 (0)	5 (0)	19 (0)	7	5 (0)	109	762
	20230820	142	2	2	15	10 (0)		5 (0)	9	6 (2)	71	1,193
	20230821	73		1	9	8 (2)		10 (1)	14	3 (0)	79	2,016
	20230822	50	3		16	13 (3)	2 (1)	18 (5)	2	5 (1)	112	2,375
Total		441	9	7	66	73 (6)	22 (3)	86 (8)	33	21 (3)	487	6,734
Total		1,033	483	8	69	214 (11)	22 (3)	99 (8)	101	45 (11)	1,084	8,387

¹ EPTFUS = big brown bat, LASBOR = eastern red bat, LASCIN = hoary bat, LASNOC = silver haired bat, MYOLUC = little brown bat, MYOSEP = northern long-eared bat, MYOSOD = Indiana bat, NYCHUM = evening bat, PERSUB = tricolored bat

² NOID = no identification by Kaleidoscope

³ NOISE = classified as non-bat noise by Kaleidoscope



bat call that was labeled by Kaleidoscope as one of the four focus species.

The results of the acoustic surveys are reported in Table 1, with the parenthesis representing the number of calls that were manually confirmed by Ashley as belonging to one of the four focus species. ***The thrilling news is that all four of the focus species were confirmed to occur at the Wayne Preserve!*** This is extremely rare and surprising, especially for an area that's somewhat removed from any known major hibernacula for these four species. Wayne Cave is not a major hibernaculum for bats in general or these species, although the occasional tricolored bat is seen there in the winter, as is the case with a lot of Indiana caves. Most of the calls from the focus species were recorded near the sinkhole swamp, which is not surprising because the creek bed was very dry in August and less likely to attract bats. The results of this survey indicate that the management of the Wayne Cave Preserve is clearly benefiting bats, including federally and/or state listed species. The heterogeneity of habitats including the availability of water sources, undisturbed and connected forest patches, and a fairly uncluttered environment that's free of invasive plants are likely some of the reasons why the bats are attracted to this preserve (huge thanks to Dany-



photo courtesy Goni Iskali

ele Green and all the volunteers who help manage the preserve!). Our goal for the future is to survey our other IKC preserves in a similar way through the help of university research, state or federal research, and/or volunteers, so that we can learn about what sensitive bat species may be using our properties, which can help us cater our management plans to these species.

WHAT'S UP IN 2024 WITH OUTREACH AND EDUCATION

by Carla Striegel-Winner

We did a lot in 2023 and our goal for 2024 is to continue engaging with you, our members, and to introduce new supporters and potential members to our work. We will keep up with the quarterly field events, starting with a spring hike at Henderson Park, with our new Cave Access Coordinator, Scott Frosch, who is a nature guy in general and loves that property. In early summer we are looking at a botany hike (location TBD) since that has been a requested topic. Fall will bring our third annual Big Day birding hike and the winter event is still up in the air.

In addition to the field events, we will host stewardship opportunities as stand alone events, or in conjunction with a quarterly meeting or field day. We will also work alongside the Indiana Cave Survey to hold the annual Indiana Cave Symposium on April 20 at the Orange County Community Center in Paoli, with plans to again hold a pre-symposium workshop or tour. Also in 2024 we are hoping to

sponsor another Orientation to Cave Rescue (OCR) class with discounts for our members.

We also want you to know that if you have a group, cavers or not, that you would like us to present to on caves or karst and conservation, please reach out to me to see if we can make that happen. There are several Board members who can present via Zoom, or in some circumstances we can make an in-person appearance.

Our IKC website homepage (ikc.caves.org) typically lists our upcoming events with links for more info, and of course our Facebook page (www.facebook.com/IndianaKarstConservancy) is a great place to check out to see what is going on in the IKC world.

Members who have ideas, suggestions, or comments regarding outreach can contact any Board member or reach out to me at IndianaKarstConservancy.info@gmail.com.

BATS AS HETEROTHERMIC ENDOTHERMS:

Why is a caver more likely than a bat to suffer from hypothermia?

by Darwin C. Brack and Virgil Brack, Jr

Although perhaps in a minority in terms of species, bats are among the most noted cave inhabitants. As children, we learned bats are mammals, like humans, and mammals are warm-blooded, nourish their young with milk from mammary glands, possess hair, and have a four-chambered heart. Most children also learned that bats (and bears) hibernate, which is an exemption from the “warm-blooded” clause of the mammalian definition. Similarly, we learned birds are warm-blooded, while fish, amphibians, and reptiles are cold-blooded.

The warm- and cold-blooded definitions, as the only two options, stick with us for life and distort the reality of thermal physiology. In fact, vertebrates use a continuum of strategies to regulate body temperature, as highlighted by hibernating bats. So, throw out the terms warm- and cold-blooded. Why? Warm-blooded is short-hand for “a constant body temperature, even in a cold environment,” which is inaccurate. Evolution did not produce a one-size-fits-all solution to a complex problem like staying warm, or cool, in continuum

of thermally variable environments.

Body temperature is a balance between the rate at which heat is supplied and the rate at which it is dissipated. There are two general sources of heat: internal metabolism and the external environment. Losses occur through the skin, the rate of which is influenced strongly by external temperature and insulation (fur, feathers, or fat), and from evaporation associated with respiration (e.g., panting), sweating, and strategies like moistening the body with water, mud, saliva, or urine.

Organisms that remain warm in a cold environment are “homeothermic” (Greek homo = same; therm = heat). Those that do so by producing heat internally are endotherms (Greek endo = inside). Organisms that have a variable body temperature are heterothermic (Greek hetero = other). Those that do not produce heat internally are ectotherms (Greek ecto = outside).

Humans are an extreme example of a homeothermic endotherm, and well into the 20th century this paradigm was assumed to be widespread

	Homeotherm	Heterotherm
Endotherm	<p>Endothermic Homeotherm</p> <p>Endogenous (internal) heat production and</p> <p>Maintains a constant body temperature</p> <p>Examples: humans, dogs, cats, horses</p>	<p>Endothermic Heterotherm</p> <p>Endogenous (internal) heat production but</p> <p>sometimes does <u>not</u> maintain a constant body temperature</p> <p>Examples: (1) bats and other animals that hibernate and use torpor; (2) when inactive, the body temperature of most marsupials cools, but remains above ambient</p>
Ectotherm	<p>Ectothermic Homeotherm</p> <p>Often has a body temperature approaching that of the environment (i.e., does <u>not</u> use endogenous heat to maintain a constant warm body)</p> <p>but</p> <p>At specific times uses muscle contraction to produces heat</p> <p>Examples: bluefin tuna diving in ice cold waters, some moths on cold nights, bees keeping a hive warm, and pythons incubating eggs</p> <p>Note: Large dinosaurs maintained a body temperature within narrow bounds because of the time required to cool and warm a large body mass</p>	<p>Ectothermic Heterotherm</p> <p>Often has a body temperature approaching that of the environment (i.e., does <u>not</u> use endogenous heat to maintain a constant warm body)</p> <p>Examples: most invertebrates, fish, amphibians, and reptiles</p> <p>but</p> <p>Many use (1) behavior (basking) and (2) anatomical features (blood-filled fins or sinuses) to warm in a cold environment or cool in a hot environment, or (3) physiological or biochemical adaptations (e.g., enzymes) that allow activity at extreme temperatures</p>



among mammals and birds. We now know many birds and mammals do not maintain high and constant body temperatures. When an endotherm varies its body temperature to accommodate environmental situations it is heterothermic – a heterothermic endotherm. In short, mammalian (and avian) endothermy is not synonymous with homeothermy and mammals (and birds) use a continuum of (heterothermic) thermoregulatory patterns.

Typically, ectotherms are said to have a body temperature that conforms to their environment, and as a group are often considered to lack the physiological capacity to internally generate sufficient heat to maintain a relatively constant body temperature independent of ambient temperature. However, ectotherms often maintain a non-conforming body temperature using a variety of behaviors, the best known of which is basking, commonly used by snakes and lizards. However, some ectotherms produce heat internally, i.e., are endothermic, although they often produce heat only under certain environmental conditions and do not sustain a constant temperature long-term. Bluefin tuna, other deep-sea fishes, some moths, bees, pythons, and probably many dinosaurs were “sometimes endotherms.” So heterotherms are not always ectothermic, and endotherms are not always homeothermic.

Mammals are endothermic, but many species use heterothermy. When endothermic organisms drop their body temperature, or go heterothermic, for a few hours or a few days it is typically called torpor. Heterothermy for long periods and at lower temperatures (often winter) is termed hibernation. There are many times when, and reasons why, a constant body temperature is not advantageous. If it is cool and a species must spend a lot of energy to stay warm, it may be advantageous to allow your body temperature to drop, saving the energy cost of keeping warm. Think of how much you could save

on your winter heating bill if you could comfortably turn the heat down 15 or 20 degrees.

Bats, though endothermic, often employ heterothermy. They hibernate in winter, but also use torpor during the coldest part of the night or during short cold spells in spring and autumn. Hibernation and torpor are unique successes of endothermic heterotherms, enabling them to survive periods of low resource availability.

So what? We need to quit indoctrinating future generations with the notion that there are only two thermal strategies. Vertebrate endotherms and ectotherms use a continuum of strategies. Many mammals and birds, though endothermic and typically considered homeothermic, employ many heterothermic strategies. Bats hibernate in winter and like hummingbirds and chickadees, they use torpor in many situations. Still, heterothermy is not a solution for all thermal problems. Small mammals and birds use heterothermy more than large species because they have a proportionately larger surface area from which to lose heat; the rate of temperature change in large animals is slow, limiting the effectiveness of heterothermy. The TV coroner makes this clear by stating the number of hours since death, based on body temperature of an ectothermic corpse. Cavers take note: a hypothermic bat can raise its body temperature, but a hypothermic human cannot do so without an external heat source. You are not a bat. Be safe. Avoid hypothermia.

Acknowledgments: We thank Keith Dunlap, Steve Collins, Tom Sollman, and others, many from IKC, for their contribution to our understanding of hibernation by bats in Indiana’s caves.

Corresponding author: Virgil Brack, Jr., Environmental Solutions & Innovations, Inc., 4525 Este Avenue, Cincinnati, OH 45232 USA, 513-235-1076 (phone), vbrack@envsi.com.

...continued from page 5

was well received, with one participant coming up after and saying “That was neat! I’m a tree girl and I never really even thought about karst in Indiana.” Carla was able to attend the Friday field sessions as well and was quite impressed with the conference. More about IFWOA here: www.ifwoa.org.

- ❑ Each year the IKC enters its newsletter covers in the NSS Graphic Arts salon with the covers displayed and judged at the national convention. For our four 2022 covers, three of them received ribbons. *IKC Update* #145 (cover photo by Chris Bell) and cover #146 (cover photo by Brian Cross) each received Honorable Mention, while cover #147 (cover photo by Scott Frosch) was awarded a Merit Award ribbon. You can see all of the winners here: www.caves.org/salon/2023-graphic-art-salon.
- ❑ The IKC has gained *nine* new members in the last quarter. Welcome Alex Clem, James Crouch, Elijah Gresham, Robert Miller, Steven Morris, Paul Patch, Jason Rudder, Gordon Sachtjen, and Alex Taul. The IKC membership currently stands at 296.

SULLIVAN CAVE PRESERVE WORKDAY

by Jeff Cody

While attending the September IKC quarterly meeting, Sullivan Cave Property Manager Joe Kinder announced his plans to paint the firewood shed near the camping area. He also had some mowing to do and wanted to hang a bat house constructed by Bill Greenwald in one of the trees. The plan was for the following Saturday (September 30). I am not much of a handyman, but do feel confident painting as I worked in a commercial paint store for fifteen years dealing with paint contractors each day. I picked up a few tricks from them.

Sullivan Cave had brought me much joy over the decades dating back to my first visit in 1982. With that in mind, I decided it was time to give back a little to the Sullivan property so I volunteered to help. Joe has done a great job since he took over as Property Manager and I had previously told him I would help whenever possible.

I keep a nice stash of paint tools for projects around the house. I gathered up both 4-inch and 9-inch roller frames. Also a couple fiberglass extension poles, a 4-inch roller bucket/pot, an empty five gallon bucket with a roller grid, and a couple drop cloths and some rags. I loaded all that and my 5-foot step-ladder into my car. I also brought some extra water for wash up as there is no running water on site. It is much easier to roll a 9-inch roller from a five gallon bucket instead of a roller tray. It is also always more comfortable to roll with a short extension handle than without one. Joe asked me what supplies he needed to buy. I told him a couple cheap disposable brushes, a 9-inch roller cover, and a couple 4-inch covers. Aside from using an airless paint sprayer, this was likely the best way to attack this job.

Joe had a meet-up time around noon. I left home at 10:30 and got there a little early. Joe and his son Jamison were already there. They had just finished mowing around the shed. IKC Board member Goni Iskali had also planned to assist with

the painting, but at the last minute had a conflict. She did stop by to drop off the paint that she had been storing. Jamison and I began to paint while Joe continued mowing the camping area. The 4-inch roller was perfect for the posts and other areas where the 9-inch could not get to. It appears to me the shed was previously painted with some kind of solid stain and some areas appeared to be bare wood. The rest was very faded. Needless to say the new paint really soaked in. The fascia boards on both peaks were new and also soaked



all photos courtesy Joe Kinder

up the paint. The 9-inch roller made short work of the open areas. Most of the work was on the trim areas. The 4-inch roller really helped here. About an hour after we started, Jay Jeskewich, a long-time friend of Joe's, showed up to help. The third person made a difference on the trim work. We had two gallons of paint and that was just enough to do the outside. The inside could stand painting too, but all the stacked wood would have to come out. Joe then asked about painting the metal roof, but I suggested using an aluminum roof coating instead, which we did not have.

There was some rotted siding near ground level, but for the most part, the painting was a huge aesthetic improvement. Some will just call the paint color "brown", but the official shade is appropriately "middle earth brown".

Once the mowing was finished Joe used my stepladder to hang the bat house on one of the trees overlooking the camping area. Joe and Jamison also split firewood from a dead elm Joe had previously felled (it was a parking lot hazard and needed to come down). We then cleaned up everything and I was on the road back home around 4 PM.

I find it rewarding to help out like this. I am one of the very early IKC members and have watched the organization grow from nothing to what we are today. We are gaining credibility with state agen-



cies and other land conservancies. I think property maintenance is important. Our properties can be a very useful tool to recruit new members and donors. Applying a coat of paint on this shed in a high profile spot within sight of the parking area can make a huge difference. Same goes with our kiosks. Those are what anyone who enters the property will see, and first impressions sometimes are the most important and most lasting. I encourage all IKC members and especially ones who live in central and southern Indiana to help. Many times special skills are not needed and your efforts will be appreciated. Being able to do what we do “in house” saves the IKC lots of money too. You can work at your own pace and will likely have



fun. All of our Property Managers do a fantastic job. Let's give them the help they deserve.

2024 ECLIPSE PLANNING

by Carla Striegel-Winner

Most of our cave preserves fall within the totality path for the Monday, April 8 2024 total eclipse, although since most of them are forested, they might not be the ideal choice for a viewing area. With that caveat, this event will be absolutely amazing. Even if it is cloudy, we will see it get dark and birds will roost. I do hope we all get to experience totality on a bright sunny day, as I was able to in 2017 by traveling to southern Illinois. However, there are safety issues to consider. And those are not limited to just getting the appropriate viewing glasses, although that is of utmost importance as well.

Indiana and Texas are predicted to receive the most visitors coming from out of state to see the eclipse. There will be a lot of road traffic on that day (and throughout the preceding weekend) and thus limited or no emergency response. In southern Indiana, the peak of the eclipse will be around 3:07 PM EDT with totality being up to four minutes duration depending upon how close you are to the center of the path. Prior to the eclipse, visitors will filter in over the weekend or that morning so traffic will be considerably more than what we are accustomed to. Post-eclipse, everyone wants to get home and there are expectations of major traffic backups and gridlock along all major roadways and interstates (particularly I-69 because it parallels the eclipse path), lasting six hours or more. It is recommended that if you travel for the eclipse, that you choose to stay at your

location overnight on Monday or at least delay getting on the road for several hours, to help with that gridlock and keep yourself and others safe.

There is a 30% chance of April 8 being a sunny day. There may be less gridlock if it is forecasted to be cloudy, but many people have already made lodging reservations from all over the state and other states as well. The DNR tells us that all of their inns and most of their campgrounds in the area of totality

are already fully reserved. As you plan for this amazing event, please keep your safety in mind and be prepared if you choose to travel.

Several IKC Board members have been working on ensuring we have safety protocols in place for our preserves on the day and the preceding weekend. Should you wish to visit an IKC preserve or cave between April 5 and 8, please contact that Property Manager or Cave Patron for information. At this time we are still working on the recommendations and there will likely be some limitations or extra procedures that weekend and Monday. We hope to have those finalized soon and will have the information on our website and to all of our Property Managers and Cave Patrons so they may handle your requests and questions.

If you live in the path of totality, you might consider viewing from home rather than driving somewhere on the long weekend of April 5 – 8. Regardless of where you view it, it will be an experience you will not forget!



A 1983 REQUEST FOR CAVERS' HELP FINALLY GOES TO PRINT


by Carla Striegel-Winner

While on a winter hike and ridgewalk on public land last winter, I was checking out a sandstone shelter and I came across something that made me stop in my tracks. *Hmmm*. I have never seen this fern before. I know plants well enough to know that if I don't recognize it, that plant is probably not very common. I took some pictures and that night, after some Googling-around, I realized I had come across one of Indiana's very few locations of the extremely rare **filmy fern** (*Vandenboschia boschiana*), and that made my week! Fast forward a couple of months and I had the pleasure of attending a hike led by Mike Homoya, retired botanist for the Indiana DNR Division of Nature Preserves and self-described as having "Filmy Fern Fever." He has looked high and low for it and is convinced there is more out there, if only a few more observers would get the fever too and look for it under shallow and hidden sandstone overhangs. Wyatt Williams, Div of Nature Preserve ecologist, had told me that filmy fern could possibly be found on the sandstone at the contact with lime-

stone in some pit caves, so I already had the idea that perhaps we need to spread the word to cavers to be on the lookout. On this hike with Mike, I found out that he had actually tried to reach out to cavers a long time ago! He asked me to have Wyatt look in the old files to see if his plea could be found!

Wyatt found it! A 1983 memo (see below) to "Southern Indiana Pit Cavers or Associates" with the subject of "Request for Field Search and Report of 'Filmy Fern' Sightings" was in the Division of Nature Preserves archives, although it is speculated it never ended up in any grotto newsletters or other caving publications in Indiana. The original memo is included for historical purposes, but the scientific name, collection suggestion, and the contact info have all changed.

I asked Wyatt to please update this plea (see page 24). Wouldn't it be cool if cavers could help find new populations of this amazing fern? Winter is a great time to get Filmy Fern Fever. I've already got it and I hope some of you will too!



MEMO

TO: Southern Indiana Pit Cavers or Associates

FROM: Lester L. Zimmer

DATE: March 8, 1983

SUBJECT: Request for Field Search and Report of "Filmy Fern" Sightings

The Indiana Natural Heritage Program, within the Department of Natural Resources, is keeping track of our state's most rare and most endangered "elements" or species of plants and animals. Program botanists have determined that one plant, "Filmy Fern", is incredibly rare (see enclosed "request for help") and may be accidentally lost from Indiana if we: 1) don't find more places it occurs naturally, and 2) try to protect, in some manner, a few of those places with good populations.

Because we know the plant likes fairly moderate constant conditions and because we know of a sand-stone "necked" pit cave in Illinois where this rare plant grows, we are hoping to find it in Indiana in a similar setting: where sandstone and pits or caves mix in Southern Indiana.

Please review the enclosed materials designed to make you (and other cavers you know) familiar with the plant and its importance. Please pass along extra copies to pit cavers who would most likely be willing to keep an eye out for this special fern. And please encourage them to report any findings and preferably send in samples (only one frond; NOT the whole plant!) to the Heritage Program as suggested herein. I'd be happy to provide more copies of this on request.

Thank you very much for your attention and cooperation in this matter.

Lester L. Zimmer

LLZ/bih

A REQUEST FOR HELP....

The Indiana Natural Heritage Program (of the Indiana Department of Natural Resources) is requesting help in locating populations of one of Indiana's most endangered plant species, *Trichomanes boschianum*. Commonly called Filmy Fern, it is currently known from only one site in the State, in Crawford County. It is a temperate member of a mostly tropical fern family, reaching the near northern limit of its range in Indiana. The small, membranous fronds occur at the one site in Indiana in a dimly lit grotto at the base of a sandstone overhang. In this environment the climate is modified, where light, humidity, and temperature are relatively constant.

The fronds (leaves) are from one inch to six inches long, delicate, light green, and translucent. The translucence is the result of the leaves being only one cell thick, thus the name "Filmy Fern." The fronds occur in mats, never singly, often in the company of mosses and liverworts. Refer to a fern guide for additional descriptions and illustrations.

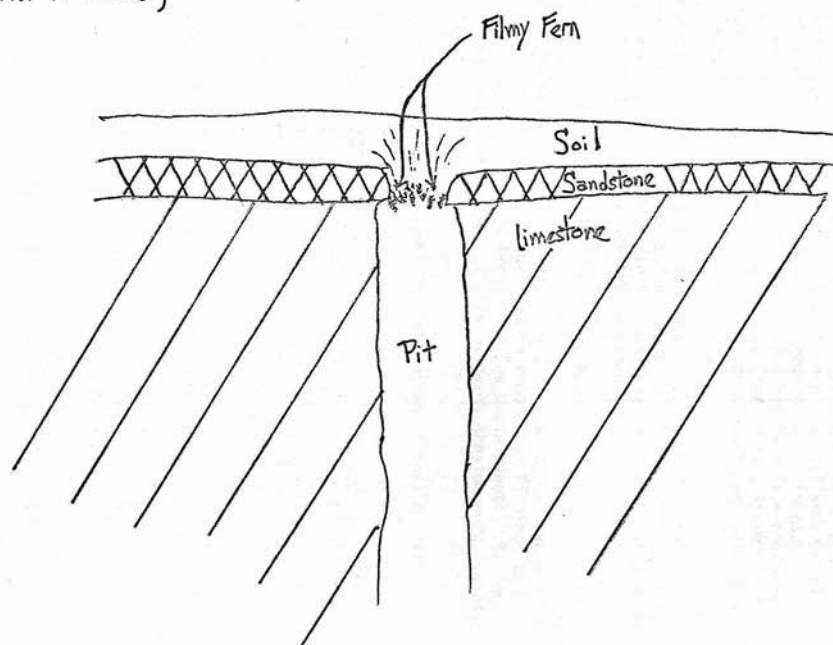
In at least one site, in Illinois, Filmy Fern grows on a rim of sandstone that caps a limestone pit cave (see diagram). It is thought that the fern may occur in similar situations in Indiana also. Please note during your caving if sandstone is present at the entrance and if so, if Filmy Fern is present. Also check horizontal entrances that have sandstone outcroppings.

If you think you have found the plant, carefully collect one small frond and send it (kept moist in a plastic baggie) to:

Mike Homoya
Indiana Natural Heritage Program
Indiana Department of Natural Resources
Room 612, State Office Building
Indianapolis, IN 46204

Phone (317) 232-4070

Example where Filmy Fern occurs at Pit Cave
in southern Illinois.
(Not to Scale)



HOW CAVERS CAN HELP: FILMY FERN

by Wyatt Williams

You are following a sandstone cliff on your hike out to the cave and back to your vehicle. Glancing into the many cracks and overhangs you wonder if you will see a salamander or maybe a Native American glyph when you happen to notice it – a small patch of nearly-translucent, deep green fern leaves hiding at the back of the overhangs. You have found the state endangered filmy fern (*Vandemboschia boschiana*)!

If you want to be certain, you can look for the delicate, lacey appearance of the deep green fronds. If you shine a bright light on it you will notice just how thin it is – one cell thick, to be exact! Each frond may be several inches long as they cascade off the sandstone in their dense colonies, but they are only one cell thick which is where they get

the name “filmy” fern. You will likely notice withered, brown fronds around the edges of the colony – possible evidence of frost damage. Current thinking is that this member of a more tropical group of ferns is a relic of



pre-glacial times in North America and the reason that you found it in a small sandstone overhang, because it is nestled into a small pocket that stays above freezing with high humidity all year. If you think you have found a population, take a few photos

and get the coordinates from a GPS unit or GPS app on your phone; we would love to verify and monitor the population!

At present, we only know this ethereal fern from Perry, Crawford, and Martin Counties in Indiana with all populations nestled about



JOIN US FOR AN IKC PRE-MEETING SOCIAL HOUR

SUNDAY, DECEMBER 10 AT NOON EST

Indiana Geological and Water Survey Learning Lab: Room 1011

IU Geology Building, 1001 E. 10th Street, Bloomington, IN 47405

Please join us before the IKC quarterly Board meeting at the IGWS Learning Lab for a private IKC pre-meeting social hour. This is your opportunity to chat with the IKC Board members so bring your questions or comments, or just come to say hello and socialize. Also take the opportunity to check out the really cool Learning Lab (igws.indiana.edu/learninglab). Light refreshments will be served.

The IKC Board meeting follows in the same room at 1 PM EST. You can choose to stay for the meeting if you like (or head downtown to finish your holiday shopping!).

Free parking is available one block away at the Forrest Avenue Parking Garage (1015 E. Eleventh Street, Bloomington, IN 47408). All other parking is fee based.

Questions? Contact Carla Striegel-Winner (IndianaKarstConservancy.info@gmail.com).

arms-length into overhangs along sandstone cliffs. In Illinois, there is a huge population that was discovered by a caver rappelling into a pit cave! That cave is situated on a ridgetop with a sandstone cap over the limestone cave system – something you may have encountered in Harrison County and elsewhere! Aside from these few places in Indiana and Illinois, filmy fern is known from a smattering of scattered counties in the Appalachians and Ozarks, and is considered endangered or threatened

throughout most of its range.

Perhaps this fern truly is rare, occupying small climate-controlled niches within sandstone cliffs, or maybe it has just been overlooked because it's hard to find. My suspicion is that both are true and that cavers looking in the right places will probably turn up more populations than previously known. If you think you've found filmy fern, please send photos and coordinates to IDNR Division of Nature Preserves ecologist Wyatt Williams at WWilliams@dnr.IN.gov.

BIRDS OF A FEATHER FLOCK TOGETHER AT BUDDHA NP

by Carla Striegel-Winner

We had a seasonally cool autumn day for our second annual Big Day hike Saturday, October 14 at Buddha Karst Preserve. Twelve of us did not let the cool, cloudy weather stop us from identifying 28 species of birds while we hiked the one mile perimeter loop trail. Birding hikes were held that day at 14 Indiana Land Protection Alliance (ILPA) member preserves throughout Indiana as part of a global day of citizen science. Our expert birding guide, Amy Kearns of Mitchell, was amazing and passionate (and didn't mind at all that we were not all birders). We enjoyed her enthusiasm and found many natural wonders to check out in addition to the birds we were able to identify.

What I really appreciate about these hikes is the opportunity to pull together IKC members, as well as folks just now discovering our organization. A couple of comments on our Facebook page lead me to believe it was a good mix: "It was an incredibly interesting walk! Birds, plants, cave openings and info shared by so many knowledgeable people made this a great hike." and "It was a wonderful time with amazing people. Thank you [IKC] for hosting!"

We ended our hike with a light drizzle, which did not stop us from hanging out in the parking area chatting for 30 minutes longer. I love enjoying the day with fellow outdoors-people!

We are very appreciative of the Indiana Audubon and ILPA

for organizing these birding outings throughout the state at the various land trust preserves. The two organizations work together to provide expert guides and reimbursement for snacks for participants (we had donuts and cookies).

Each birding guide submits their checklist of species to the Cornell Lab of Ornithology eBird app. You can find the Buddha list here: www.ebird.org/checklist/S152244694

Amy has since nominated Buddha Karst Nature Preserve for Birding Hotspot status – and it was accepted! As birders visit the property (www.ebird.org/hotspot/L27516201) and share their lists onto the app, it helps us maintain a list of species and could help with management decisions in the future.



INDIANA KARST CONSERVANCY TREASURY REPORT

Income/Expense Statement From July 1, 2023 to September 30, 2023

INCOME:

Dues Apportionment and Residuals	1,138.75	
Donations - General	174.82	
Donations - Land Acquisition Fund	59,023.00	
Widlerness First Aid Class	550.00	
General Investment Earnings	2,638.55	
		\$63,525.12

EXPENSES:

IKC Update (printing, production, mailing)	631.57	
Education / Outreach	203.46	
Stewardship / Conservation	628.17	
Widlerness First Aid Class	2,316.95	
Business (PayPal fees, renewal letters, etc)	113.92	
Transfers to/from restricted funds/other adjustments	56,738.00	
		(\$60,632.07)

NET OPERATING EXCESS (DEFICIT) THIS PERIOD: \$2,893.05

Balance Sheet September 30, 2023

ASSETS:

Cash in Checking/Saving/Brokerage accounts	702,846.97	
Robinson Ladder Cave Preserve (73.48 acres)	162,000.00	
Shawnee Karst Preserve (67.78 acres)	175,000.00	
Wayne Cave Preserve (57.59 acres)	188,000.00	
Buddha Karst Nature Preserve (36.84 acres)	29,000.00	
Sullivan Cave Preserve (30.00 acres)	88,000.00	
Lowry Karst Preserve (6.66 acres)	33,000.00	
Orangeville Rise Nature Preserve (3.01 acres)	7,000.00	
Indian Creek Conservation Easement (valued at \$1/acre)	13.16	
		<u>\$1,384,860.13</u>

FUNDS & OPERATING EXCESS:

Land Acquisition Restricted Fund	146,085.42	
Bio-Inventory Grant	600.00	
Deferred Dues Restricted Fund (289 members)	7,222.50	
Stewardship Endowment Fund (-3.28%)	88,507.64	
Gale & Ray Beach Endowment Fund (-3.02%)	363,755.57	
Previous General Fund (total)	93,795.95	
Net Excess (Deficit) This Period	<u>2,893.05</u>	
Current General Fund (unrestricted)	96,689.00	
Current General Fund (committed)	2,490.92	
Real Estate Basis (excluding value of CE)	<u>682,000.00</u>	

Total Liabilities & Operating Excess \$1,384,860.13

IKC EXECUTIVE BOARD MEETING MINUTES

Sunday, September 24th, 2023 – 1:00 PM EDT

Wayne Cave Preserve – 8307 W. Gardner Road, Bloomington, IN 47403

Board Members Present:

Matt Selig, President
 Laura Demarest, Secretary
 Keith Dunlap, Treasurer
 Jeff Cody
 Scott Frosch
 Danyele Green
 Dave Haun*
 Goniela Iskali
 Joe Kinder
 Tom Sollman
 Carla Striegel-Winner (via teleconference call)
 Paul Uglum
 Richard Vernier

* represented by proxy (see below)

Board Members Absent:

Rand Heazlitt,
 Bruce Bowman

Others Present: Danielle Hafele, Austin Hafele, Tim Harris, Wes Roeder, Cris Seuell, and Sue Vernier.

Call to Order – IKC Exempt Purpose & Introductions

Meeting was called to order by Matt Selig at 1:05 PM EDT.

Acceptance of Proxies

Kevin Strunk for Dave Haun.

Approval of Previous Minutes

The minutes from the June meeting as published in the September 2023 *IKC Update* were corrected to remove Jim Adams from the list of attendees and add Bruce Bowman. The minutes as submitted by the Secretary to the Editor were correct, but the error was introduced during the layout process using a prior template. *Paul Uglum made a motion to approve the minutes as amended. Danyele Green seconded. Unanimously approved.*

E-mail Motions Since Last Meeting

None

Treasurer Report

Dunlap outlined the current financial status of the organization:

Assets:

Cash assets totaling	\$697,240.90
Land assets totaling	\$682,000.00
Total Assets	\$1,379,240.90

Dedicated Funds:

Land Acquisition Fund	\$138,123.42
Stewardship Endowment	\$89,144.29

Gale & Ray Beach Endowment	\$365,214.99
Deferred Dues	\$7,668.75
General (unrestricted) Fund	\$97,089.45
Total Dedicated Funds	\$697,240.90

Additional information on the Stewardship Fund and Beach Endowment investments was provided with the financial report.

Membership currently stands at 288 paid members, which is the highest total in IKC history, though 22 people who have not renewed were dropped from the list after several reminders. Membership continues to grow.

“Connection” Update – Fund-raising

Keith summarized the fund-raising efforts to raise \$225,000 for the 20-acre ‘Connection’ property which will be added to the Wayne Cave Preserve. Almost \$36,000 in ‘pre-donations’ were in the acquisition fund. Another \$51,000 in donations has been collected since the acquisition announcement in June, including an NSS grant of \$5,000. Additionally, CILTI pledged \$30,000 and the Sam Shine Foundation pledged \$50,000. The total remaining to be raised at the time of this meeting is \$55,657.00. There are several other tentative pledges in the works that need to be confirmed, so the remaining funding gap that has no identified sources is \$17,157.00. To fulfill this remainder, funding could come from IKC’s land acquisition fund or from the IKC general fund. If necessary, funding could also come from sources such as DNR, though this option would likely involve an easement. Discussion ensued about various fund-raising strategies and options. A small committee consisting of Matt, Keith, Danyele, and anyone else interested will continue to pursue information and work with DNR and other groups to ascertain what benefits/constraints an easement may entail. Keith will work with Matt to close on the property and finalize the sale paperwork soon. *Paul Uglum moved to instruct President Matt Selig to move forward to close on the Wayne Preserve Connection property. Scott Frosch seconded. 11-0-2 Motion passed.*

Education/Outreach Committee

Review Summer Outreach – Carla gave a summary of recent outreach activities including a successful July Wilderness First Aid class and a July 8th Shawnee Karst Preserve hike where almost half of the participants were not (yet) IKC members. There was also a field day scheduled with Indiana Land Protection Alliance (ILPA) to tour their Executive Director around the Connection property. Matt will be offering a Garrison Chapel Valley geology hike in early October and other plans for future events are in development.



Update on Fall Outreach – October 14th is Indiana Audubon Big Day so a bird-watching event will be held at Buddha Karst Preserve with Indiana DNR Assistant Ornithologist, Amy Kearns. There will also be a Sullivan Preserve field day with hike and stewardship activities on November 4th. On November 3rd, Carla will give a presentation at the Indiana Forestry and Woodland Owners annual meeting. There will also be a virtual presentation with Art and Peggy Palmer on November 15th at 7:00 PM EST and more information will be shared soon. Carla also spoke with the IGWS (Indiana Geological and Water Survey) about using their learning lab for a potential future meeting. In other news, the IKC social media reach has grown to 1,800 followers!

Wilderness First Aid Class Debrief

Danyeale gave an overview of the two-day Solo Wilderness First Aid class held on July 29-30 at Lawrence County Independent Schools. A total of 21 students attended, though 24 total paid (reimbursements were not requested). Of the 21 attendees, 9 took the optional CPR class in the evening. The IKC donated \$150 to LCIS as a show of appreciation for the use of their facility. Danyeale and Tymme taught the class, reporting that 80% of the students were cavers and everyone was very engaged.

Prep for 2024 Eclipse

Scott and Danyeale are working on planning for the upcoming major solar eclipse occurring on April 8th, 2024 (Monday). Danyeale shared a 'prep kit' provided by IU for organizations to plan for record attendance levels and to be aware that emergency services will likely be impacted due to large crowds and increased traffic. Some discussion ensued on whether or not the IKC should host any sort of promotional event or if any of the IKC properties are suitable for viewing the eclipse since most are heavily forested. A small working group will continue to gather ideas for the upcoming eclipse and give guidance to property managers about logistics. Other organizations such as ILPA will likely be hosting eclipse events.

ILPA Update

Carla shared that ILPA is continuing to offer many free and useful services for its members. Executive Director Andrea Huntington and climate fellow, Gabby Robles, was recently given a tour of the Wayne Preserve. They are also interested in wetlands and Carla is working with them on opportunities for outreach in that regard.

2024 OCR Training w/ NCRC

Laura mentioned that there is demand in the caving community for rescue training and that it would be appropriate to plan another Orientation to Cave Rescue (OCR) class in the spring if the IKC would like to help sponsor it again. The consensus was affirmative; Laura will reach

out to NCRC Central Region Coordinator, Jess Deli, to confirm dates and check on location availability.

SCCi Online Waiver Update

Paul anticipates that the online waiver will be activated sometime this fall since most of the information has been collected and the new webpage is almost ready to go 'live'.

Henderson Park MOU

Matt summarized MOU efforts involving himself, Keith, and Kevin Strunk who coordinated with Tom Swinford of TNC and the mayor of Salem to establish a working agreement for the IKC to manage cave access. Scott Frosch will be the Access Coordinator arranging visitation for this site. He mentioned that some signs will need to be installed on-site to convey information about new access protocol like what is currently featured at Cave River Valley. An emergency contacts sign is also needed. Keith will provide signs as necessary with the anticipation that the cost will be less than \$100.

Cave/Land Acquisition Activities

- Lamplighter Cave Entrance – Scott hasn't followed up with this landowner lately, but there was discussion about organizing a board members' trip in the future to evaluate its value as a potential IKC acquisition.
- Lowry Expansion – Matt got another number for the adjacent landowner, but still hasn't been able to get in touch regarding whether they might consider selling adjoining acreage.
- Freeman Pit – Danyeale shared that the cave was recently sold, and she is currently working to get in contact with the new landowners to discuss future access options.

Recap of Preserves Work Projects & Upcoming Preserves Projects

Buddha Karst Nature Preserve – Keith will mow one more time before the upcoming Big Day. There is a very large tree down that will need to be dealt with at some point.

Lowry Karst Preserve – Keith conducted some stilt-grass treatment on the property about a month ago. No updates from Cave Patron/Property Manager Jasper Beavers.

Orangeville Rise Nature Preserve – Carla said the bronze plaque has been replaced with Keith Dunlap's assistance; a social media post was made to highlight this update. The neighboring store has been purchased and the new owner has reached out to Carla to learn more about the IKC.

Robinson Ladder Cave Preserve – No report from John Benton.

Shawnee Karst Preserve – Keith mowed the trails in early summer and all recently planted trees look to be doing well.

Sullivan Cave Preserve – Joe reported that Keith mowed the overflow parking area mid-summer and Bambi Dunlap painted the entrance gate. In the upcoming months, Joe will be working with Goni to paint the firewood shed.

Wayne Cave Preserve – Danyele is meeting with NRCS personnel to review invasives species removal progress for the EQIP contract. The geology hike will be on October 7th with Matt Selig. The Verniers conducted a fall bird count and identified 16 species. The vascular plant inventory will be conducted for the last time this year by Nic Garza. The workday prior to the IKC Quarterly meeting involved clearing a good portion of the fallen tree near the Wayne Cave entrance and hauling it to the camping area for firewood, but more work will be needed. Goni also reported some updates from the bat research; a stationary data-logger bat detector was set-up for a week and four species of special concern were identified near the vernal pond.

Indian Creek Conservation Easement – Rand had nothing to report, but Keith mentioned that there is a deadline to complete the property check and it needs to be done soon.

Items from the Floor

- Kevin Strunk mentioned that he and Danyele had looked into an upcoming apartment development that is being planned in a karst area in Monroe County, with one large sink in particular that should be investigated. What level of involvement should the IKC have on these types of matters? It was suggested that a letter could be submitted to indicate that the IKC is opposed to any waiver of the environmental regulations, especially as it will affect karst negatively. Danyele agreed to submit a letter.

- Scott Frosch met a meteorologist from Purdue who is looking for locations to install weather systems, especially for 'populations at risk'. Cavers could be considered 'at risk' for flooding so may qualify. Scott can gather information and follow up with more information at the next meeting. This would be associated with Purdue MESOnet which is managed by the Indiana State Climate Office.
- Carla wanted to convey thanks to Goni and Danielle Hafele for conducting a productive bat survey this past summer and asked Goni to summarize the findings of that project. Six properties were surveyed for bat acoustic data, which was shared in the September *IKC Update*. At the December meeting, Goni will provide some updates on continued studies in 2024 – they may not sample as frequently as they did for this summer's baseline data, but will collect more data.
- Keith wanted to thank *IKC Update* contributors for recent submissions that have been well-received.
- Matt wanted to thank everyone for their hard work and progress on many important IKC projects. In November he will be going to the National Cave and Karst Management Symposium in Chattanooga, TN. He offered to pay \$350 so the IKC can be listed as a sponsor and wanted to let the Board know.

Next Meeting Date and Place Selection

The next IKC Quarterly meeting was tentatively scheduled for Sunday, December 10th @ 1:00 – meeting at the Indiana Geological and Water Survey building on IU campus with tour to precede the meeting (details to follow).

Adjourn

The meeting was adjourned at 3:37 pm EDT.

*Respectfully compiled and submitted by Laura Demarest,
IKC Secretary*

INDIANA KARST CONSERVANCY, PO BOX 2401, INDIANAPOLIS, IN 46206-2401

I would like to help the IKC protect Indiana's unique caves and other karst features. Enclosed is:

\$ _____ for IKC membership dues at \$15 per year (dues expire March 31st of each year, please pro-rate @ \$1.25/month).

\$ _____ donation to the general IKC fund.

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

_____ I know of an area worthy of protection. Please contact me.

_____ I would like to volunteer to help. Please contact me.

NAME _____

ADDRESS _____

CITY/STATE/ZIP _____

PHONE # _____

Make checks payable to the Indiana Karst Conservancy, Inc. and mail to the IKC Treasurer, c/o Indiana Karst Conservancy, PO Box 2401, Indianapolis, IN 46206-2401. The IKC is an IRS recognized 501(c)(3) non-profit organization with membership dues and donations fully tax deductible.

