PHOLEOS

Journal of the Wittenberg University Speleological Society

Volume 30(1) April, 2010

30 Years of WUSS

PHOLEOS

Pholeos *(*Greek - *cave)* is a biannual journal of the Wittenberg University Speleological Society (WUSS), an internal organization of the National Speleological Society (NSS).

Purpose
The Wittenberg University Speleological Society is a chartered internal organization of the National Speleological Society, Inc. The Grotto received its charter in May 1980 and is dedicated to the advancement of speleology, to cave conservation and preservation, and to the safety of all persons entering the spelean domain.

WUSS Web page
http://www.wusscavers.com

Subscription rates are $10 a year for two issues of *Pholeos*. Back issues are available at $5.00 an issue.

Exchanges with other grottoes and caving groups are encouraged. Send all correspondence, subscriptions and exchanges to the grotto address.

Membership
The Wittenberg University Speleological Society is open to all persons with an interest in caving. Membership is $10 a semester or $20 a year and comes with a subscription to *Pholeos*. Life membership is $150.

Meetings
Meetings are held every Wednesday at 7:00 p.m. when Wittenberg University classes are in session. Regular meetings are in Room 319 in the Barbara Deer Kuss Science Hall (corner of Plum St. and Bill Edwards Dr. - parking available in the adjacent lot).

Submissions
Members are encouraged to submit articles, trip reports, artwork, photographs, and other material to the Editor. Submissions may be given to the Editor in person or sent to the Editor at the Grotto address. Guidelines for submitting research papers can be found on the inside back cover of this issue.

GROTTO ADDRESS
Wittenberg University Speleological Society
c/o Horton H. Hobbs III
Department of Biology
Wittenberg University
P.O. Box 720
Springfield, Ohio, USA 45501-0720

Tel. (937) 327-6484
FAX (937) 327-6487

Cover Design: by K.M. Kissell

PHOLEOS

VOL. 30 (1,2)
April 2010

Contents:

EDITOR'S NOTE

Well, here it is, *Pholeos*, 30(1,2) and just in time for the 30th anniversary of the Wittenberg University Speleological Society! It has been a long a winding road to get this issue, and the two preceding ones, out in time for the anniversary celebration. Compounding the tedious journey was our relative inability to go caving due to the recurring spread of White Nose Syndrome. However, our extra free time allowed us to focus on the important things in life, like this issue and the 30th anniversary celebration! Found within these pages is everything related to the history of the club. You can read yearly highlights from all 30 years, flip through historical photos, find the names of all the officer's in the club's past, read about yet another win by WUSS at the Old Timer's Reunion, catch up on current conservation issues and you even get a nice big map to hang on your wall! All in all, I think this is a nicely rounded volume! But seriously, in researching for this issue I have had the pleasure of reading most of the club's illustrious history and I can clearly say that if the next thirty years is anything like the past thirty, we are in for one heck of a ride. I would like to extend my thanks to all WUSSes, past and present, for the wonderful memories that dance across these pages and for the memories that are yet to come.

Kevin M. Kissell, Editor
WUSS #0530
NSS #54578

2009 -2010 OFFICERS

Danielle Carey,
Co-President
s10.dcarey@wittenberg.edu
WUSS #0551
NSS #59092

Holly Kellar,
Co-President
s10.hkellar@wittenberg.edu
WUSS #0553
NSS #58851

John Mohr,
Secretary
s12.jmohr@wittenberg.edu
WUSS #0568
NSS #61713

Travis Croxall,
Treasurer
s11.tcroxall@wittenberg.edu
WUSS #0560
NSS #60826

Kevin M. Kissell,
Editor
kmkviper@yahoo.com
WUSS #0530
NSS #54578

Horton H. Hobbs III,
Faculty Advisor
hhobbs@wittenberg.edu
WUSS #0001
NSS #12386 HM, CM, SC, FE

MESSAGES FROM THE PRESIDENTS

I waited eagerly in the infamous room 319 in the "BDK", aka Barbara Deer Kuss Science Center, with friends from my WITTSem class. We were taking "Into the Unknown" with this really "famous" professor who… I don't know… basically was amazing in these weird fields known as Speleology and limnology. Ehh… no big deal, right? WRONG! I had no idea what I was in for but what I got was even more unexpected. I was introduced to what seemed like an elite group, they were so connected and close that I felt like such an outsider. How would I ever be able to fit in with these kids and worse off… how would I ever be able to fit into cracks they were talking about?! Holly Kellar, my current co-president, and I were compelled to return the next Wednesday and the next Wednesday and every other Wednesday for the rest of our time at Wittenberg.

After four years of being inducted into the long and distinguished line of WUSSes, I cannot imagine ever finding a group of people so committed to caving and each other as a family. This year marks the 30th anniversary for the Wittenberg University Speleological Society, and as a family we have made it through so much in the last 5 years. We have faced loss together, compelled and supported each other with determining our future endeavors, and have racked in some quality time underground. Even with the stark contrast in our ability to cave due to WNS, we have drawn amazing new freshmen into the WUSS fold this year. I feel so proud to lead this group with Holly because while it is a group of outlandish individuals, it's also a wackadoodle family.

In our planning for the super awesome shindig on the weekend of April 10th, we have all put in equal effort and I hope that everyone attending will be just as impressed as I am sure we are with ourselves and our ability to plan! I hope that the 30th issue of *Pholeos* finds you well and I also hope that I will see you all in the coming weeks!

Danielle B. Carey, Co-President
WUSS #0551
NSS #59092

Five years ago, I never would have thought that I would be happy to refer to myself as a WUSS. I also never thought that I would be part of a group, driving a thirteen passenger Witt van across winding hills in the dark with ten headlamp strobe lights flashing away, blasting the original Batman TV show theme song . . . danunanananana BATMAN! What was our destination? A little piece of heaven nestled in northeastern Kentucky that we like to call home—Carter! No matter what trip we were going on or how many of us there were, we were always equipped with way more gear than necessary. I will also never forget making the short trek to Annex to X Cave with Dani, Travis, and some other rowdy freshmen. We stood there with bare feet next to the freezing underground lake, waiting for someone to take the first plunge. Eventually we all lunged into the water to race to the other side. Now really, who in their right mind would SWIM through a glacial, frosty cave in the middle of November? A WUSS that's who!

Dani Carey, my co-president, and I have learned so much from this group, even after our first intro trip. Universal truths like, just because you are in a tent, doesn't mean that the nylon walls will keep others from hearing your private bedtime conversations. And even though Kevin Kissell can swoop down and pull Katy out of the rushing torrent of a river, he cannot always be there to save the day. Eventually WE would be leading intro trips together… a scary thought indeed. Now as co-president looking back on all of the years, I truly have never been so pleased to be part of such an amazing group of people. This year marks the 30th anniversary of WUSS. Each of you have helped make this mud-loving, bat-hugging, caving group what it is today. It is my greatest hope that you all will make it back to Witt for the BIG bash and share some of the stories that have made this group a big amazing family.

Holly Kellar, Co-President
WUSS #0553
NSS #58851

The History of WUSS

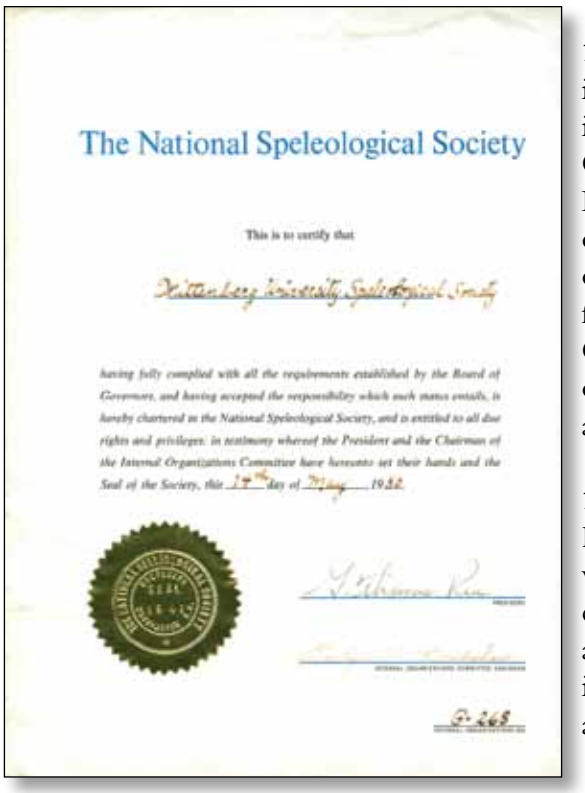
Caleb Heimlich (WUSS #0539, NSS #55745)
and
Kevin M. Kissell (WUSS #0530, NSS #54578)

1977 – The Cave Club was formed. Jeff Marion (WUSS #0002) was elected the first president. Much caving for fun was initiated with trips to Ohio and Indiana.

1978 – Cave Club surveyed it's first cave, Dry Cave, Highland County, Ohio. This was soon followed by the survey of Paint Creek Cave and Thompson Cave, both in Miami County, Ohio.

1979 – The Cave Club added 14 new members and in February surveyed Spider Cave, Greene County, Ohio and Keith's Fracture Cave, Clark County, Ohio in December.

1980 – Wittenberg University Speleological Society received its National Speleological Society (NSS) Charter on May 14th and with it, it's Internal Organization Number of G-268. Michael Flynn was elected first president of the Wittenberg University Speleological Society Student Grotto. WUSS garnered 15 new members and was awarded a budget of $670.10 by the Wittenberg Student Senate. A grant from the Ohio Department of Natural Resources helped to support the survey of some 40 caves during the summer by Mike Flynn and Horton H. Hobbs III.


The National Speleological Society

This is to certify that

Wittenberg University Speleological Society

having fully complied with all the requirements established by the Board of Governors, and having accepted the responsibility which such status entails, is hereby chartered as the National Speleological Society, and is entitled to all due rights and privileges. In testimony whereof the President and the Chairman of the Internal Organizations Committee have hereunto set their hands and the Seal of the Society, this 14th day of May 1980

G-268

1981 – Laurel Cave, Carter County, Kentucky was the first WUSS collective effort to survey a sizable cave and produce a map. Other caves surveyed (entirely or in part) were Bat and Saltpetre caves in Carter County, Kentucky and Bartlett's, Buck Creek Blowing I and II, Simpson's, Charleston Falls, Crevice, Dry Bone, Freeland's, Hackleshin, Hanna, Hogwaller, and Seven Cave area caves in southern Ohio. This was also the first year for *Pholeos*.

1982 – WUSS operated with a budget of $1500.00 for a productive year of sport caving and survey. Ongoing projects in the Seven Caves area in Highland County, Ohio continued as well as surveys for Bat, Saltpetre, and various small caves in Carter County, Kentucky.

1983 – Freeland's, Hawk, Hole-in-the-Wall, Fools Rappel caves, in Ohio and the Saltpetre-Moon Cave System, Bat and X caves in Kentucky were in various stages of completion. A new species of aquatic isopod was described from Fern Cave in Adams County, Ohio by Tom Bowman of the Smithsonian Institution and Horton H. Hobbs III.

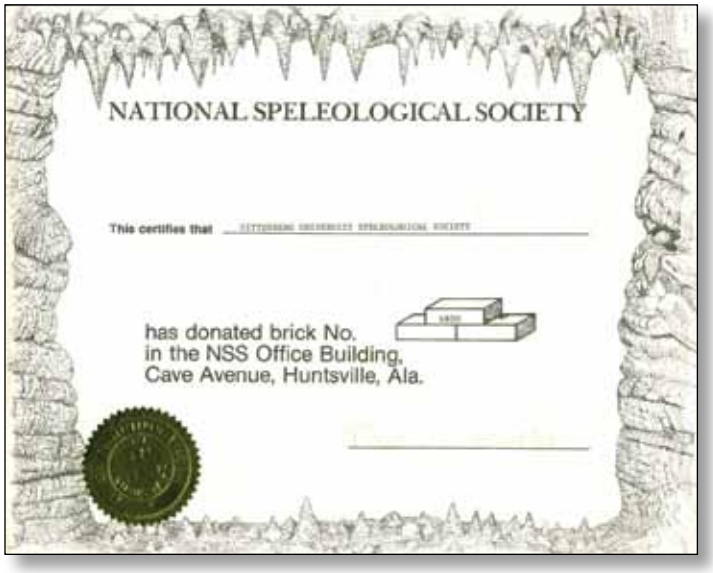
1984 – The surveys of Cedar Fork, X, and Lost Comb caves were completed and work continued on Bat Cave. The long awaited map for Saltpetre Cave in Carter County, Kentucky appeared in *Pholeos*, 4(1).

1985 – The fifth year of the grotto's existence saw a renewal of enthusiasm with 28 new members. Work began on the drafting of the Ohio Cave Protection bill and several Ohio and Kentucky caves were surveyed [see *Pholeos*, 5(2) and 6(1&2)]. Included in this was the map of Freeland's Cave in Adams County, Ohio, the longest surveyed cave in the state.

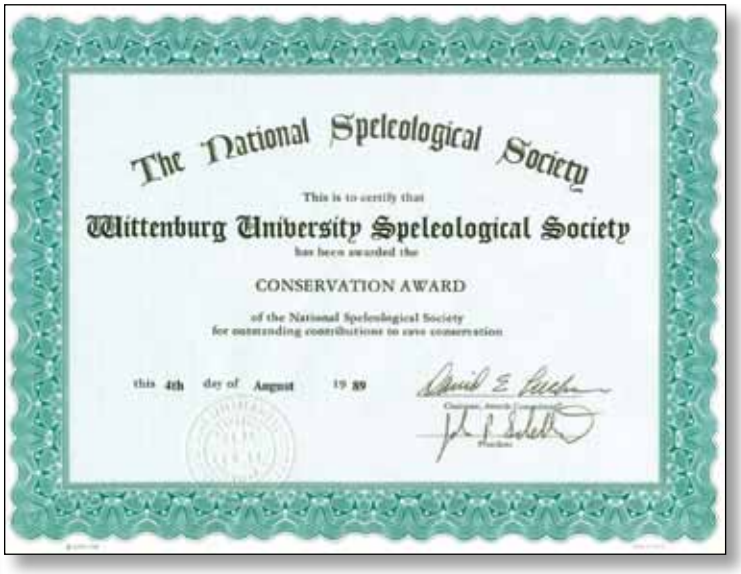
1986 – A long term effort was initiated in April to study the fauna of Shelta Cave in Huntsville, Alabama. With the financial aid of a grant from the Ohio Department of Natural Resources, 11 caves in six counties in Ohio were surveyed. In addition, much effort was put into the Ohio Cave Protection bill.

1987 – WUSS made a trip to Ellison's Cave in Walker County, Georgia. Both pits were dropped, but due to a rock collapse not everyone was able to make the through trip. Progress was made in the survey of Ohio caves including two completed surveys of caves in Perry and Wyandot counties.

1988 – In February WUSS hosted the NSS Board of Governors and the National Speleological Foundation meetings on campus. Also in February, six members of WUSS accompanied Ronald Reagan Jr. to northern Alabama to do a spot for ABC's Good Morning America which aired the 16th of February. The Ohio Cave Protection Act, authored by WUSSes was passed by the Ohio House and the Senate. The survey of Bat Cave continued as well as the survey of Zane Caverns in Logan County, Ohio and selected caves in Boone National Forest in Kentucky.



1989 – WUSS received the NSS Conservation Award for its outstanding contributions to cave conservation at the NSS annual meetings in Sewanee, Tennessee. The first of three expeditions to Costa Rica by various WUSSes occurred in late December. The survey of Bat Cave in Kentucky was finally completed and the description and map appeared in *Pholeos*, 9(2). The Zane Caverns survey was also finished and appeared in *Pholeos*, 10(1).



1990 – Surveys of two caves in Kentucky were completed: Ace Bowen Cave in Powell County and Well Cave in Menifee County.

1991 – In February survey work began on Canyon Cave and Adams Creek Cave in Carter County, Kentucky. Manuscripts summarizing anthropogenic impacts on karst systems were published by Kevin Simon (WUSS #0221) and Scott Engel (WUSS #0186).

1992 – A two year study funded by the National Park Service into assessing the ecological resources of caves in the Russell Cave National Monument, Alabama was initiated. Nine grotto members contributed to the completion of this study. Eleven grotto members were active in a three year study funded by the U.S. Department of Agriculture examining the biota and general ecological resources of twenty-eight caves within the boundaries of the Hoosier National Forest in southern Indiana. Work continued on the survey of Canyon Cave in Kentucky.

1993 – Jeff Lapp (WUSS #0227) published his study on amphipods in Bat Cave, Carter County, Kentucky and Dawn Fuller (WUSS #0269) became the first Life Member of WUSS.

1994 – WUSS had an amazing recruitment year with 43 new members, the most of any year to date! In addition, seventeen members of WUSS helped in a variety of ways with a two year study of five species of cave-adapted organisms from five caves in southern Ohio. Kevin Simon received The James Mitchell Award for Best Student Paper presented at the NSS Convention in Bracketville, Texas.

1995 – WUSS celebrated it's 15th anniversary with a banquet at the Shouvlin Center on Wittenberg's campus. Howard Kronk, Terry Madigan, and Bill Stitzel were presented with the Distinguished Service Award and Horton H. Hobbs III was given the Lifetime Achievement Award. Efforts continued on the survey of Canyon Cave, Carter County, Kentucky.

1996 – Omohundro and Silvermine caves in Bath and Carter counties, Kentucky, respectively, were surveyed and their descriptions and maps appeared in *Pholeos*, 16(1&2). Annette Summers Engel received The James Mitchell Award for Best Student Paper presented at the NSS Convention.

1997 – WUSSes Horton H. Hobbs III, Megan Porter, and Kevin Simon presented research papers at the Karst Waters Institute Conference: Conservation and Protection of the Biota of Karst in Nashville, Tennessee. In August, Annette Summers Engel, Scott Engel, Horton H. Hobbs III, and Megan Porter gave papers summarizing their research in caves at the 12th annual International Congress of Speleology in La Chaux-de-Fonds, Switzerland.

1998 – A third Wittenberg student and WUSS member, Megan Porter, received The James Mitchell award for Best Student Paper presented at the NSS Convention. Many WUSSes participated in the Ohio Valley Region of the NSS sponsored karst conservation project at Freeland's Caves sinkhole in Adams County, Ohio. Small caves in Carter County, Kentucky continue to be surveyed and five WUSSes traveled to Andros Island, Bahamas to research blue holes, the results of which were published in *Pholeos*, 18(1).

1999 – The Rose Cave project in Indiana was continued by several WUSSes and in April WUSSes, along with other grottos, joined together to complete the cleanup of Freeland's Cave as part of the Ohio Valley Region's continued project. WUSS also participated in another cleanup in Horse Cave, Kentucky, pulling several tons of garbage from Santa's Sink in collaboration with the ACCA (American Cave Conservation Association).

2000 – WUSS celebrated it's 20th anniversary on the Wittenberg campus with over 60 past and present WUSSes in attendance. In addition, resurvey of Saltpetre Cave in Carter County, Kentucky was initiated during the summer. Surveys of New Property Pit and Surprise Dome Pit, both in Carter County, Kentucky, were completed and published in *Pholeos* 19(1&2).

2001 – A survey of Copperhead Arch Cave, Carter County, Kentucky was completed in January by Robbie Payn (WUSS #0362), Horton H. Hobbs III (WUSS #0001), Matt Hazelton (WUSS #0449), and Matt Beversdorf (WUSS #0358).

2002 – Members of WUSS spent part of winter break caving in Carter County in northeastern Kentucky. Using global positioning system (GPS), they located more than 20 known caves and surveyed 365 meters (1,200 feet) of a cave. They also discovered two new caves and logged the locations' GPS data. They spent time in southern Indiana where club member Matt Hazelton (WUSS #0449) studied a population of blind white crayfish.

2003 – During the 2003 NSS Convention in California, two alumnae of Wittenberg and WUSS (both Ph.D. students) received NSS Fellow Awards: Annette Summers Engel (WUSS #0244, NSS #31319) at the Department of Geological Sciences, University of Texas at Austin and Megan Porter (WUSS #0262, NSS #38171) at the Department of Zoology, Brigham Young University in Provo Utah.

2004 – Surveys of KBH Cave, Sinus Cave, and Uvala Cave, all in Carter County, Kentucky were completed and published in *Pholeos*, 23(1&2). Trips were made to Sloan's Valley Cave, Rockcastle County, Kentucky and Red River Gorge, Kentucky. Some work was done on the ongoing survey of Canyon Cave, Carter County,

Kentucky. A WUSS member, Erick Twaite (WUSS #0541), took first place in the squeezebox competition at the annual Crawl-a-thon at Carter Caves State Resort Park, Kentucky, a feat he would repeat the following year.

2005 – WUSSes celebrated their 25th anniversary with a three day event, held on Wittenberg campus, in April 2005. Forty past and present WUSSes enjoyed a sunny weekend of partying, speakers, caving, and fun. During the 2005 NSS Convention, Bill Stitzel (WUSS #0132) was awarded the title of Fellow of the NSS, Lindsay Walker (McCullough) (WUSS #0469) received The James Mitchell award for Best Student paper presented, Vittoria Curl (WUSS #0135) received an Honorable Mention in the 3D category of the Fine Arts Salon, and Pholoes, 22(1&2) received an Award of Merit for the photographic section of the Cover Art Salon. During the summer, nine WUSSes received a grant from the university to travel to Japan. The WUSSes spent 16 days traveling around Honshu Island, caving, climbing Mt. Fuji, and taking in the Japanese culture. Three WUSSes and a member of the Cleveland Grotto ventured down to the TAG area and bounced Fantastic Pit, Ellison's Cave, Walker County, Georgia. During the same weekend they rappelled and climbed 400 meters (1,300 feet) and visited numerous pits and caves in the area. Five WUSSes, Horton H. Hobbs III (WUSS #0001), Bill Stitzel (WUSS #0132), Michele Maxson (WUSS #0515), Caleb Heimlich (WUSS #0544), and Kevin Kissell (WUSS #0530) assisted Wittenberg Geology professor Dr. Michael Zaleha with a project to help detect subsurface voids using electrical resistivity ground imaging; the results were published in *Pholeos*, 23(1&2).

WUSS in the Last Five Years...

Kevin M. Kissell (WUSS #0530, NSS #54578)

2006 – Survey work in Carter Caves State Resort Park continued with three small pits: Stalactite Pit, Mossy Pit, and Haunted Pit, as well as Bio Cave, all were published in *Pholeos*, 24(1,2). In the same issue were detailed accounts of the group's recent adventures in Japan. Four WUSSes ventured back down to the TAG area and again bounced Fantastic Pit, Ellison's Cave, Walker County, Georgia. At the annual Crawl-a-thon at Carter Cave State Resort Park, Carter County, Kentucky, a WUSS member, Rachel Horowitz (WUSS #0531) took first place in the squeezebox competition with a run of 6 ¼ inches in under one minute. Kate Ferguson (WUSS #0544) completed a study on flora and fungi around cave entrances in Carter Caves State Resort Park, Carter County, Kentucky, results of which are published in *Pholeos*, 25(1&2). A few WUSSes joined forces with the Indiana University Caving Club to complete a survey of Buckner's Cave in Indiana for the 2007 NSS Convention Guidebook. The resurvey of Lake Cave, Carter County, Kentucky was initiated to test a new method of cave survey using a PDA and laser rangefinder rather than a book and tape and the survey of Hidden Cave, also in Carter, was initiated. The movie "The Cave" came out in theaters and WUSS donned full caving gear and headed to the local cinema for an unforgettable evening of terror! Three WUSSes participated in a pit and cave cleanup near Redmond Creek Cave, Kentucky and, as a reward, were allowed to spend the night sleeping in the cave.

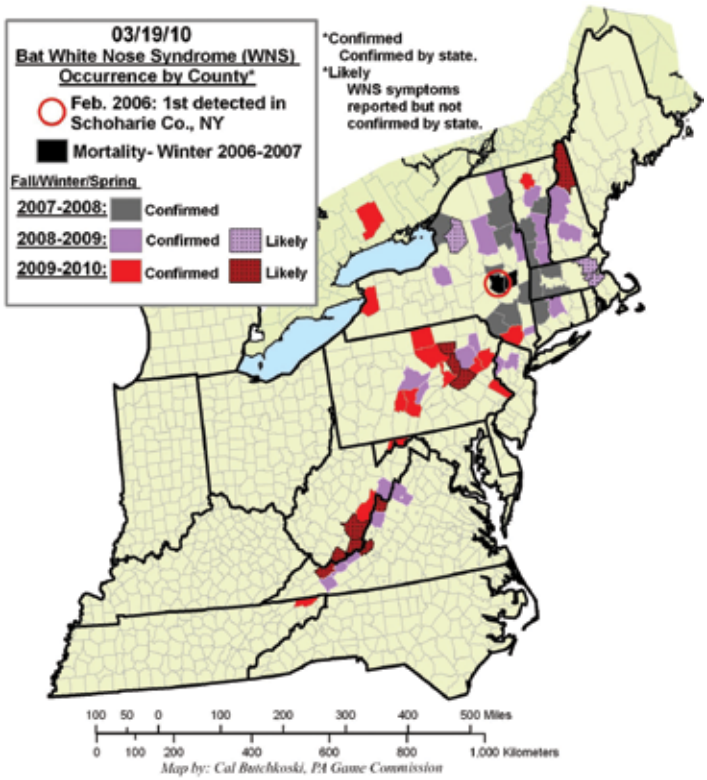
2007 – In January and February survey work at Carter Caves State Resort Park continued with additional work on Hidden Cave, two more pits, Hillside and Stacy's, were completed and the survey of the Boundary Cave System was initiated with the survey of Gnawbone Pit. Various other small caves in the park were surveyed and published in a range of *Pholeos*. *Pholeos*, 25(1,2) was released in May and was presented in full color, a first in the club's history. The summer brought an exciting venture by way of a grant from the Ohio Department of Natural Resources to study caves and karst regions of Ohio. The grant, lead by a fellow WUSS, Erin Hazelton (WUSS #0397) provided funds for WUSSes to spend thirty days in the field sampling 89 caves, eight of which were new, mostly in the southwestern part of the state, as well as up on Lake Erie, and surveying 1100 meters (3608.9 feet) of passage. A large group of WUSSes headed to the NSS Convention in Marengo, Indiana for a week of caving-related shenanigans, as well as a lovely banquet held, appropriately, underground. This turned out to be quite lucky since a freak storm appeared during the banquet and nearly leveled the entire convention campground; no one was seriously hurt but a fair number of tents were not so lucky. The sudden appearance of White Nose Syndrome (WNS), a devastating fungus that is wreaking havoc on the bat populations of the northeastern U.S., caused quite a stir in the caving community. On a sad note, two obtuse individuals ventured into Laurel Cave, Carter County, Kentucky and killed over one hundred hibernating bats in October. Over Christmas break, four WUSSes headed over to Gory Hole for some classic pit dropping and hanging out with our friends from the Indiana University Caving Club.

2008 – As always the year started out with survey in Carter Caves State Resort Park, Kentucky. The work on the Cascade Cave System continued as did various other small caves in the park. During Crawl-a-thon, Dani Carey (WUSS #0551) pushed a small lead from Volcano Cave and found a connection to the rest of the Boundary Cave System. Also during Crawl-a-thon, four WUSSes gave presentations on their respective research projects going on within the park. The Ohio Caves Bioinventory, funded by the Ohio Department of Natural Resources, continued during the summer months. WUSSes spent 37 days in the field sampling 100 caves, 20 of which were new. They also surveyed 24 caves for a total of 499.56 meters (1638.9 feet) of

passage. After the horrific bat slaying in Laurel Cave in 2007, it was decided that a bat friendly gate needed to be erected at the entrances to the cave. WUSSes joined forces with members of other grottos to accomplish this during a weekend in June. The annual pilgrimage to the Old Timer's Reunion brought WUSS its first win at the Doo-Dah Parade, thanks to a pirate based theme. WUSS members spent many weekends during the summer constructing a pirate ship around a golf cart and various other buccaneer-inspired items; a complete account of the adventure can be found in *Pholeos*, 27(1,2). Fellow WUSS, Kate Ferguson (WUSS #0544) worked in Cascade Cave, Carter County, Kentucky collecting soil samples for her senior thesis project, results of the study will be published in a future edition of *Pholeos*. The year was rounded out with trips to Sloan's Valley Cave, Rockcastle County, Kentucky and Buddha Cave in Indiana.

2009 – The unceasing spread of White Nose Syndrome severely limited our caving opportunities since all caves on national forest land, as well as those in Carter Caves State Resort Park, were closed. Despite this, work on the Ohio Caves Bioinventory continued throughout the summer with 26 days in the field, during which 80 caves were sampled, 41 of which were newly discovered. The crew also surveyed eleven caves for a total of 633.9 meters (2079.19 feet) of passage. In September, WUSS again took first place in the Doo-Dah Parade at the 60th annual Old Timer's Reunion in West Virginia. This time, WUSS used a five meter (16 foot) tall puppet of a caver girl and a eight meter (25 foot) long puppet of Bat Boy, both made entirely out of PVC pipe and bed sheets, the exploits of which can be found in this issue of *Pholeos* on pages 21-23. Since caving was limited we focused on above ground activities in the fall including, a canoe trip in Mad River, a Hocking Hills hiking trip, lots of vertical clinics and a sinkhole cleanup in Logan County, Ohio, co-sponsored by WUSS, Ohio Department of Natural Resources (ODNR) and the Ohio Valley Region (OVR). WUSS also took a large group of new WUSSes down to Sloan's Valley Cave, Rockcastle County, Kentucky for a fantastic intro trip experience. The year ended with four WUSSes, Horton H. Hobbs III (WUSS #0001), Kate Ferguson (WUSS #0544), Linda Oxenrider (WUSS #0535) and Kevin Kissell (WUSS #0530) heading down to Cumberland Caverns in
Tennessee for their annual Christmas Party in a cave, an adventure WUSSes are sure to repeat in the future.

2010 – WUSS celebrates its 30th anniversary during the weekend of the 9th of April. Crawl-a-thon at Carter Caves State Resort Park, Carter County, Kentucky was again cancelled this year, due to White Nose Syndrome. Instead the park held the Winter Adventure Weekend where members of WUSS and the Dayton Underground Grotto (DUG) supervised a vertical clinic, known as Up for Idiots, with great success. In February, the survey of the Cascade Cave System, Carter County, Kentucky continued and nears completion. For the first time in the club's history, three separate volumes of *Pholeos* were published in the same year.



Update on WUSS Student Research Resulting in Publications (2005-2010)

Horton H. Hobbs III (WUSS #0001, NSS #12386 HM, CM, SC, FE)
and
Kevin M. Kissell (WUSS #0530, NSS #54578 RE)

Adams, Kathleen. 2009. Inadequacies of cave protection laws. Pholeos, 27 (1,2):16-23.

Arthur, Megan. 2007. The meaningfulness of microbes. Pholeos, 25 (1):14-16.

Bargar, Polly A. 2007. A consideration of possible biological components connected to the formation of the speleothem, moonmilk. Pholeos, 26 (1,2):11-13.

Bargar, Polly. 2009. Logan county sinkholes available to WUSS for research and clean up. Pholeos, 27 (1,2):46-48.

Beversdorf, Matthew A. and Elizabeth M. Hagen. 2010. A description of Rose Cave, Martin County, Indiana. Pholeos, 30 (1,2):34-37.

Carey, Danielle Kevin M. Gribbins, Horton H. Hobbs III, Lauren Butch, Justin L. Rheubert, and Erik Poldemann. 2008. A progress report of a study of the reproductive cycle of the cave-dwelling crickets, *Hadenoecus cumberlandicus* and *Ceuthophilus stygius* (Orthoptera, Rhaphidophoridae), in northeastern Kentucky. Pholeos, 26(1,2):6-10.

Carey, Danielle B, Kevin M. Gribbins, Matthew H. Collier, and Horton H. Hobbs III. 2009. A histological analysis of the oogenic cycle in a parthenogenic species of cave cricket, *Hadenoecus cumberlandicus*. The Ohio Journal of Science, 109(1):A-13 (Abstract).

Condon, Michael R., Travis J. Croxall, Brady S. Christensen, Jay A. Yoder, and Horton H. Hobbs III. 2009. Aggregation in cave crickets by a pheromone (propionic acid) present in feces by experiments conducted on cave walls. Proceedings of the Kentucky Academy of Science.

Croxall, Travis J., Brady S. Christensen, Jay A. Yoder, and Horton H. Hobbs III. 2009. Cave orb weaver spiders as a possible source of fungal pathogens to cave crickets in a small northeastern Kentucky cave. Proceedings of the Kentucky Academy of Science

Dancer, Courtney. 2006. Adaptations and evolution of the cave fish family *Amblyopsidae.* Pholeos, 24(1,2):17-22.

Ferguson, Katherine. 2007. Flora and fungi of selected vertical and horizontal cave entrances in Carter Caves State Resort Park, Kentucky. Pholeos, 25 (1):3-6.

Ferguson, Katherine G. and Horton H. Hobbs III. 2007. Plant life of selected vertical and horizontal cave entrances in Carter Caves State Resort Park, Carter County, KY. Ohio Journal of Science, 107(1):A-7.

Ferguson, Katherine. 2009. Skylight Cave, Carter Caves State Resort Park, Kentucky. Pholeos, 27 (1,2):37-39.

Ferguson, Katherine. 2010. Skyway Cave, Ottawa County, Ohio. Pholeos, 29 (1,2):25-28.

Hall, Tyler. 2009. Importance of bats in the cave ecosystem. Pholeos, 27 (1,2):11-15.

Hazelton, Erin A. and Horton H. Hobbs III. 2009. Biodiversity of Ohio's carbonate and sandstone caves. The Ohio Journal of Science, 109(1)A-19 – A-20 (Abstract).

Hazelton, Erin. 2008. Ohio Caves Revisited. Pholeos, 26 (1,2):3-5.

Hazelton, Matthew, Justin Estep, and Kristi Krunlauf. 2006. Bio Cave, Carter Caves State Resort Park, Carter County, Kentucky. Pholeos, 24 (1,2):33-34.

Heimlich, Caleb, Jared Embree, Katherine Ferguson, Rachel Horowitz, Kevin Kissell, and Aaron Taylor. 2006. Haunted (Spook) Pit, Carter County, Kentucky. Pholeos, 24(1,2):29-32.

Heimlich, Caleb, Aaron Taylor, and Christy Taylor. 2007. Hillside Pit, Carter Caves State Resort Park, Kentucky. Pholeos, 25 (1):22-23.

Heimlich, Caleb and Kevin Kissell. 2009. Smoky Bridge Cave, Carter Caves State Resort Park, Kentucky. Pholeos, 27 (1,2):40-42.

Heimlich, Caleb and Kevin Kissell. 2010. Cliff Cave, Carter Caves State Resort Park, Kentucky. Pholeos, 29 (1,2):22-24.

Hobbs, Horton H. III. 2006. Reflections above and below Honshu, Japan. Pholeos, 24(1,2):6-15.

Hobbs, Horton H. III and Erin A. Hazelton. 2008. Obligate biodiversity of Ohio's carbonate caves. The Ohio Journal of Science, 108(1):A22-23 (Abstract).

Hobbs, Horton H. III and Erin A. Hazelton. 2008. The limestone and dolomite cave bioinventory project. Southeastern Biology, 55(3):303-304 (Abstract).

Hobbs, Horton H. III and Erin A. Hazelton. 2009. Aquatic crustaceans of Ohio's caves and springs. North American Benthological Society, Grand Rapids, Michigan, Program, http://nabs.confex.com/nabs/2009/webprogram/Paper4308.html (Abstract).

Hobbs, Horton H. III and Erin A. Hazelton. 2010. A pictorial preliminary assessment of the cave fauna of Ohio. Pholeos, 28(1,2):4-32.

Hobbs, Horton H. III and Kevin M. Kissell. 2010. A description of Sheriden Cave, Wyandot County, Ohio. Pholeos, 29(1,2):17-21.

Kissell, Kevin, Caleb Heimlich, and Rachel Horowitz. 2006. Mossy Pit, Carter Caves State Resort Park, Kentucky. Pholeos, 24 (1,2):25-28.

Kissell, Kevin, Caleb Heimlich, and Rachel Horowitz. 2006. Stalactite Pit, Carter Caves State Resort Park, Kentucky. Pholeos, 24 (1,2):23-25.

Kissell, Kevin. 2007. The Wave of the Future Part 1: Surveying with a PDA. Pholeos, 25 (1):17-21.

Kissell, Kevin, Polly Bargar, Kate Ferguson, Linda Oxenrider, Aaron Taylor, and Christy Taylor. 2007. Lake Cave, Carter Caves State Resort Park, Kentucky. Pholeos, 25 (1):24-28.

Kissell, Kevin. Kate Ferguson, and Bill Stitzel. 2007. Stacy's Pit, Carter Caves State Resort Park, Kentucky. Pholeos, 25 (1):29.

Kissell, Kevin. 2009. Wave of the Future Part 2: Cartography by Computer. Pholeos, 27 (1,2):24-32.

Kissell, Kevin, Kate Ferguson, Holly Kellar, Horton Hobbs III, and Bill Stitzel. 2009. Blackbeard Cave, Carter Caves State Resort Park, Kentucky. Pholeos, 27(1,2):43-45.

Kissell, Kevin. 2010. Rofkar's Cave I & II, Ottawa County, Ohio. Pholeos, 30 (1,2):38-41.

Morrison, Adam. 2008. Adaptive troglomorphic evolution. Pholeos, 26 (1,2):14-17.

Potter, Kayla. 2010. A brief introduction to the endangered aquatic species of the Edwards Aquifer. Pholeos, 30 (1,2):24-29.

Silvis, Alexander and Horton H. Hobbs III. 2008. Spatial inventory of karst features in Carter Caves State Resort Park, Carter County, Kentucky using integrated GPS and GIS technologies. The Ohio Journal of Science, 108(1):A-23 (Abstract).

Taylor, Aaron, Kristen Baughman, Jared Embree, Kate Ferguson, and Kevin Kissell. 2009. Your Mom's Pit, Carter Caves State Resort Park, Kentucky. Pholeos, 27 (1,2):33-36.

Walker, Lindsay and Horton H. Hobbs III. 2007. Preliminary description of a small karst system in Carter County, Kentucky. Pholeos. 25(1):7-13, Back Cover.

Wharton, Stacey R. and Horton H. Hobbs III. 2006. Development of a hyperlinked database for the protection and management of northeastern Kentucky karst resources. Ohio Journal of Science, 106(1):A-19 (Abstract).

Yoder, Jay A., Brady S. Christensen, Travis J. Croxall, Justin L. Tank, and Horton H. Hobbs III. 2009. The pheromone of the cave cricket, *Hadenoecus cumberlandicus*, causes cricket aggregation but does not attract the co-distributed predatory spider, *Meta ovalis*. Journal of Insect Science.

Yoder, Jay A., Joshua B. Benoit, Brady S. Christensen, Travis J. Croxall, and Horton H. Hobbs III. 2009. Entomopathogenic fungi by the Cave Orb Weaver Spider, *Meta ovalis* (Araneae, Tetragnathidae), with implications for mycoflora transfer to cave crickets, USA. Journal of Cave and Karst Studies, 71(2):116-120.

WUSS Honors and Awards

LIFE MEMBERS OF WITTENBERG UNIVERSITY SPELEOLOGICAL SOCIETY:

1. Dawn Fuller Kronk (WUSS #0269)
2. Victor Fazio (WUSS #0045)
3. Howard Kronk (WUSS #0133)
4. Don Conover (WUSS #0356)
5. Bill Stitzel (WUSS #0132)
6. Rob Payn (WUSS #0362)
7. Naomi Mitchell Bentivoglio (WUSS #0116)
8. David Zimmerman (WUSS #0018)
9. Steve Kronk (WUSS #0136)
10. Scott Baile (WUSS #0168)
11. Rachael Beverly (WUSS #0191)
12. Connie Hand (WUSS #0541)
13. Susan Hobbs (WUSS #0201)

HONORARY MEMBER OF WITTENBERG UNIVERSITY SPELEOLOGICAL SOCIETY:

1. John Tierney (WUSS #0536)
2. Bill Stitzel (WUSS #0132)
3. Mike Goltzene (WUSS #0135)

DISTINGUISHED SERVICE AWARD:

1. Howard Kronk (WUSS #0133)
2. Terry Madigan (WUSS #0039)
3. Bill Stitzel (WUSS #0132)

APPRECIATION AWARD OF WITTENBERG UNIVERSITY SPELEOLOGICAL SOCIETY:

1. Mike Goltzene (WUSS #0135)
2. Bill Stitzel (WUSS #0132)

LIFETIME ACHIEVEMENT AWARD:

1. Horton H. Hobbs III (WUSS #0001)

History of Officers, 1978-2010

Year	President	Vice President	Secretary	Treasurer	Editor	Asst. Editor
1978-1979	Jeferey L. Marion	Kurt Whitford	Terrsea Tuel	Brab Bohn		
1980-1981	Michael Flynn	Steven Campbell	Helen Armstrong	Jane Bush	Steven Campbell	
1981-1982	Jane Bush	Lynn Morrill	Terry Madigan	William Simpson	Lynn Morrill	
1982-1983	Laura Tarulli	Victor Fazio Kathy Crowley	Marilyn Matevia	Terrence Madigan	Donna D'Angelo	
1983-1984	Donna D'Angelo	Terrence Madigan Anne Dolphin	Trish Simon Laura Tarulli	William Fruend III	Victor Fazio	(PR) John Carter
1984-1985	William Fruend III	Thomas Keller	Trish Simon	Robert Davenport	John Fray	
1985-1986	Marc Pender	Therese Herp	Trish Simon	Robert Davenport	William Fruend III	
1986-1987	Marc Pender	Robert Davenport	Teressa Keenan	Therese Herp	Martin Trent	Patrick McCarthy
1987-1988	Martin Trent	Teressa Keenan	Heidi Murray	Monika Palunas	Timothy Hopkin	Terri Ruben
1988-1989	Teressa Keenan	Timothy Hopkin	Celise Sternecker	Monika Palunas	Jonathon Proctor	Sheryl Rowold
1989-1990	Monika Palunas	Timothy Hopkin	Deborah Keiser	Jeffrey Luoma	Jonathon Proctor	
1990-1991	Scott Engel	Jeff Luoma	Rachel Beverly	Clarie Sandt	Julie Thorp	Tracy Pollard
1991-1992	Scott Engel	Chris Frost	Jessica Hoane	Kristin Ferry	Julie Thorp	Claire Sandt
1992-1993	Julie Thorp	Annette Summers	Anne Huddle Ellen Divoky Toby Dogwiler	Jessica Hoane	Jason Bauserman	
1993-1994	Annette Summers	Toby Dogwiler	Anne Huddle Gregg Savage	Anne Huddle	Jason Bauserman	
1994-1995	Annette Summers	Toby Dogwiler	Jillian Benjamin	Megan Porter	Gregg Savage	
1995-1996	Toby Dogwiler	Megan Porter	Sarah Maurer	Dave Effron		
1996-1997	Dave Effron	Sarah Maurer	Andy Scherer	Yuriy Fedkiw	Jillian Benjamin	Lee Ott
1997-1998	Andrew Burrow Matt Beversdorf	Erin Athy	Sara Anderson Jason Moon	Scott Maurer	Dave Effron	
1998-1999	Matt Beversdorf	Beth Hagen	Sara Anderson	Jay Cross	Jason Moon	
1999-2000	Beth Hagen	Erin Athy Kristan Baughman	Jared Embree Jay Cross	Matt Hazelton Laura Davis	Jason Moon	Amy Larson
2000-2001	Beth Hagen	Matt Hazelton	Kristen Baughman Sara O'Donnell	Lindsay McCullough	Jay Cross	
2001-2002	Matt Hazelton	Lindsay McCullough	Kristen Baughman Ben Grostic	Steve Weldon	Sara O'Donnell	
2002-2003	Lindsay McCullough	Kelly Bezilla	Shannon Hill Michele Maxson	Steve Weldon	Brian Welch	
2003-2004	Bryan Welch	Vitoria Curl	Michele Maxson	David Wilson	J. P. Simmons	
2004-2005	Michele Maxson	Kelly Bezilla	Ashley Hanson	Kevin Kissell	Caleb Heimlich	
2005-2006	Kevin Kissell	Erick Twaite	Rachel Horowitz	Rebecca Stewart	Emmy Fink	
2006-2007	Kevin Kissell	Katy Nichols	Rachel Horowitz	Kate Ferguson	Emmy Fink	
2007-2008	Kate Ferguson	Danielle Carey	Holly Kellar	Kerry Siddens	Erick Twaite	
2008-2009	Kate Ferguson	Holly Kellar	Travis Croxall	Danielle Carey	Kevin Kissell	
2009-2010	Danielle Carey Holly Kellar	John Mohr	Travis Croxall	Kevin Kissell		

Caves Surveyed by WUSS

1978 - 2010

(THC: Total Horizontal Cave TVC: Total Vertical Cave)

Cave	Issue Published	County	State	Date Surveyed	THC (m)	TVC (m)
Ace Bowen Cave	Vol. 10(2)	Powell Co.	KY	21-Oct-1989	300.7	
Adams Creek Cave	Vol. 12(1)	Carter Co.	KY	1991	513.0	
Alpha Cave	Vol. 3(1)	Highland Co.	OH	10-Apr-1982	10.0	
Alpha Pit	Vol. 5(1)	Adams Co.	OH	5-Aug-1984		6.5
Alpha Pit		Carter Co.	KY	Sep-1986	6.8	15.9
Bacon Flat Arch & Pit		Adams Co.	OH	7-Jun-07	6.7	3.5
Bagaria Cave		Geauga Co.	OH	30-Jun-2009	33.1	1.7
Bainbridge Cave		Geauga Co.	OH	30-Jun-2009	27.7	2.1
Balcony Cave		Adams Co.	OH	16-Jun-07	31.3	
Bartlett's Cave	Vol. 3(2)	Adams Co.	OH	1-Mar-1981	25.0	
Bat Cave	Vol. 9(2)	Carter Co.	KY	1983-1989	3,681.0	
Bear Cave	Vol. 3(1)	Highland Co.	OH	27-Apr-1982	61.0	
Bell Cave	Vol. 7(1)	Seneca Co.	OH	12-Aug-1986	35.0	
Bio Cave	Vol. 24(1&2)	Carter Co.	KY	21-Jan-2006	43.6	
Black Crystal Cave	Vol. 7(1)	Erie Co.	OH	14-Aug-1986	10.0	
Black Run Cave	Vol. 1(1&2)	Adams Co.	OH	3-Jul-1980	120.0	
Blackbeard Cave	Vol. 27(1&2)	Carter Co.	KY	4-Jan-08	21.1	
Bodylength Cave		Carter Co.	KY	12-Jan-08	4.2	
Bottleneck Cave		Summit Co.	OH	17-Jun-2009	4.3	3.6
Buck Creek Blowing Cave I	Vol. 3(2)	Clark Co.	OH	21-Feb-1981	7.5	
Buck Creek Blowing Cave II	Vol. 3(2)	Clark Co.	OH	21-Feb-1981	6.0	
Buckskin Cave I	Vol. 1(1&2)	Ross Co.	OH	26-Jun-1980	83.0	
Buckskin Cave II	Vol. 2(2)	Ross Co.	OH	26-Jun-1980	45.0	
Canyon Cave		Carter Co.	KY	1991-1997	3,258.0	
Carcass Pit	Vol. 5(1)	Adams Co.	OH	5-Aug-1984		5.0
Card's Cave	Vol. 9(1)	Geauga Co.	OH		42.7	
Carrot Crack Cave		Summit Co.	OH	8-Jul-2008		
Cascade Cave		Carter Co.	KY		3,398.6	21.3
Cave Hill Cave	Vol. 21(1&2)	Carter Co.	KY	17-Jun-1995	165.0	
Cave of the Springs	Vol. 3(1)	Highland Co.	OH	30-Dec-1981	246.0	
Cedar Forest Cave I		Ottawa Co.	OH	8-Aug-07	133.5	
Cedar Forest Cave II		Ottawa Co.	OH	23-Jun-2008	35.6	2.9
Cedar Forest Cave III		Ottawa Co.	OH	9-Aug-07	71.7	
Cedar Forest Cave IV		Ottawa Co.	OH	20-Jun-2008	16.8	2.5
Cedar Fork Cave	Vol. 4(2)	Adams Co.	OH	15-Jan-1984	210.0	
Charelston Falls Cave	Vol. 3(2)	Miami Co.	OH	10-Jan-1981	25.0	
Charlie-Charlie Cave	Vol. 7(1)	Brown Co.	OH	23-Jul-1986	5.0	
Chesterland Cave		Geauga Co.	OH	22-Jul-2009	140.3	2.0
Chicken Cave	Vol. 6(2)	Hamilton Co.	OH	9-Feb-1986	13.2	
Cistern Cave		Summit Co.	OH	8-Jul-2008		

Cliff Cave	Vol. 29 (1&2)	Carter Co.	KY	3-Feb-07	11.7	
Cliff Cave	Vol. 3(1)	Highland Co.	OH	10-Apr-1982	11.0	
Cobble Crawl		Carter Co.	KY	23-Aug-1986	262.9	
Constipation Cave	Vol. 18(1)	Carter Co.	KY	12-Sep-1998	22.6	
Contact Rat Cave		Carter Co.	KY	24-Feb-07	133.1	
Cool James Cave	Vol. 10(2)	Carter Co.	KY	Jun-1990	743.0	
Coon-in-the-Crack-Cave I	Vol. 8(2)	Carter Co.	KY	Aug-1987	212.0	
Coon-in-the-Crack-Cave II	Vol. 8(2)	Carter Co.	KY	Aug-1987	127.4	
Copperhead Arch Cave		Carter Co.	KY	13-Jan-2001	101.1	
Crevice Cave	Vol. 15(1)	Carter Co.	KY	22-Feb-1994	22.1	
Crumbling Rock Arch Cave		Adams Co.	OH	21-Jun-07	4.9	
Crystal Rock Cave	Vol. 7(1)	Erie Co.	OH	14-Aug-1986	94.0	
Dancing Cave	Vol. 3(1)	Highland Co.	OH	27-Feb-1982	66.0	
Dare Cave	Vol. 3(1)	Highland Co.	OH	4-May-1982	18.0	
Dart's Cave	Vol. 3(2)	Geauga Co.	OH	1982	28.0	
Dead Air Cave		Carter Co.	KY	19-Sep-1986	110.0	
Dead Cat Cave	Vol. 7(1)	Erie Co.	OH	14-Aug-1986	5.0	
Devil's Den Cave	Vol. 2(1)	Adams Co.	OH	10-Jun-1980	130.0	
Devil's Ice Box	Vol. 3(1)	Highland Co.	OH	10-May-1982	9.0	
Doan Brook Cave	Vol. 9(1)	Cuyahoga Co.	OH		15.2	
Dry Bone Cave	Vol. 4(1)	Pike Co.	OH	14-May-1982	42.0	
Dry Cave	Vol. 1(1&2)	Highland Co.	OH	1-Apr-1978	70.0	
Ellison's Cave	Vol. 3(1)	Highland Co.	OH	9-May-1982	9.0	
Extension Cave	Vol. 3(2)	Geauga Co.	OH	1982	29.0	
Fairy Grotto	Vol. 3(1)	Highland Co.	OH	27-Jun-1982	9.0	
Fern Cave	Vol. 1(1&2)	Adams Co.	OH	6-Jun-1980	18.0	
Ferncliff Cave	Vol. 3(2)	Clark Co.	OH	6-Jun-1980	11.0	
Fool's Rappell Cave	Vol. 3(2)	Highland Co.	OH	24-Apr-1983	7.0	
Fox Den	Vol. 7(1)	Erie Co.	OH	14-Aug-1986	7.0	
Fredritz Pit	Vol. 1(1&2)	Wyandot Co.	OH	10-Jul-1980	10.0	10.0
Freeland's Cave	Vol. 6(1)	Adams Co.	OH	Nov-1985	708.0	
Frost Cave	Vol. 1(1&2)	Pike Co.	OH	24-Jun-1980	180.0	
Funnel Cave	Vol. 3(1)	Highland Co.	OH	9-May-1982	31.0	
Fuzzy Coon Cave	Vol. 9(2)	Menifee Co.	KY	5-Nov-1988	118.0	
Gallery Cave		Summit Co.	OH	17-Jun-2009	22.0	7.2
Gator Cave	Vol. 3(1)	Highland Co.	OH	10-Apr-1982	14.0	
Geaudrow Bridge Cave 01		Summit Co.	OH	8-Jul-2008	6.3	0.3
Geaudrow Cave 01		Summit Co.	OH	8-Jul-2008	38.9	8.1
Giant Cricket Cavern	Vol. 7(1)	Highland Co.	OH	6-Aug-1986	9.5	
Great Cheddar Cave	Vol. 9(1)	Portage Co.	OH		30.0	
Green Trail Cave	Vol. 18(1)	Carter Co.	KY	12-Sep-1998	20.8	
Green Trail Chasm	Vol. 6(2)	Carter Co.	KY	4-Oct-1985	10.0	23.0
Hackleshin Cave	Vol. 4(1)	Pike Co.	OH	15-May-1982	83.0	
Hall of the Mountain King		Summit Co.	OH	16-Jun-2009	86.4	13.3
Hannah Cave	Vol. 3(2)	Pike Co.	OH	8-May-1982	33.2	
Harassment Cave	Vol. 15(1)	Carter Co.	KY	19-Feb-1994	32.3	
Haunted Pit	Vol. 24(1&2)	Carter Co.	KY	Jan-Feb 2006	44.2	13.1

Hawk Cave	Vol. 3(2)	Adams Co.	OH	13-Feb-1982	15.0	
Hendricks Cave	Vol. 8(1)	Wyandot Co.	OH	11-Apr-1987	56.6	6.3
Hidden Cave	Vol. 3(1)	Highland Co.	OH	10-Apr-1982	4.0	
Hillside Pit	Vol. 25(1)	Carter Co.	KY	13-Jan-07	3.0	7.9
Hogwaller Cave	Vol. 4(1)	Pike Co.	OH	16-May-1982	82.7	
Hole-In-The-Wall Cave	Vol. 3(2)	Highland Co.	OH	24-Apr-1983	2.3	
Horn Hollow Cave System	Vol. 5(2)	Carter Co.	KY	Jan-1985	601.0	
Hot Dog Cave	Vol. 9(1)	Carter Co.	KY	16-Jul-1988	45.3	
Hourglass Cave		Carter Co.	KY	3-Feb-07	3.4	
Ice Box Cave	Vol. 9(1)	Summit Co.	OH		22.9	
Indian Trail Caverns	Vol. 2(2)	Wyandot Co.	OH	11-Jul-1980	182.0	
John Brown Cave 01		Ottawa Co.	OH	24-Jun-2008	65.8	3.9
John Brown Cave 02 & 03		Ottawa Co.	OH	23-Jun-2008	28.1	4.7
KBH Cave	Vol. 23(1)	Carter Co.	KY	26-Nov-2004	50.6	
Keith's Fracture Cave	Vol. 1(1&2)	Clark Co.	OH	10-Dec-1979	12.0	
Kessler's Cave	Vol. 1(1&2)	Highland Co.	OH	1-Jul-1980	128.0	
Kindt's I Cave	Vol. 1(1&2)	Ottawa Co.	OH	14-Jul-1980	164.0	
Kindt's II Cave		Ottawa Co.	OH	2-Aug-07	144.4	
Kun's Cave		Erie Co.	OH	27-Jun-2008	12.5	1.4
Lake Cave	Vol. 7(2)	Carter Co.	KY	1986	180.0	
Lake Cave Redo	Vol. 25(1)	Carter Co.	KY	Sept-Nov 2006	180.1	2.8
Larcomb Cave		Ottawa Co.	OH	19-Jun-2008	40.2	2.8
Laurel Cave	Vol. 2(1)	Carter Co.	KY	23-Jan-1981	1,091.0	
Leaning Cave	Vol. 3(2)	Geauga Co.	OH	1982	9.3	
Librescu Shelter Cave		Adams Co.	OH	16-Jun-07	12.8	
Lil Arch Cave		Carter Co.	KY	12-Jan-08	11.7	
Lion's Den	Vol. 7(1)	Pike Co.	OH	7-Aug-1986	5.1	
Liverwurst Cave	Vol. 7(1)	Adams Co.	OH	5-Aug-1986	6.5	
Long Rockhouse Cave	Vol. 14(1&2)	Cumberland Co.	TN	26-Mar-1992	55.0	
Loop Cave	Vol. 15(1)	Adams Co.	OH	8-Aug-1994	15.9	
Loop Cave	Vol. 7(2)	Carter Co.	KY	1986	12.6	
Lost Canyon		Carter Co.	KY	2000	22.6	
Lost Comb Cave	Vol. 4(2)	Adams Co.	OH	8-Jan-1984	41.0	
Lost Pack Cave	Vol. 3(2)	Adams Co.	OH	12-Jun-1980	10.0	
Marble Cave	Vol. 3(1)	Highland Co.	OH	10-Apr-1982	33.0	
McAllister's Pit		Adams Co.	OH	18-Jun-07	7.4	4.0
McKimie Cave	Vol. 3(1)	Highland Co.	OH	27-Feb-1982	70.8	
Mcousta Cave	Vol. 6(2)	Preble Co.	OH	26-Aug-1985	8.5	
McQuiston Cave		Preble Co.	OH	2-Jul-2008		
Merrit Hollow Cave	Vol. 5(1)	Adams Co.	OH	4-Aug-1984	10.0	
Miami River Cave	Vol. 1(1&2)	Shelby Co.	OH	10-Jan-1981	54.0	
Morrison's Cave	Vol. 1(1&2)	Adams Co.	OH	2-Jul-1980	110.0	
Mosquito Cave		Franklin Co,	OH	11-Jun-2008	11.0	1.9
Mossy Pit	Vol. 24(1&2)	Carter Co.	KY	21-Jan-2006	3.7	7.3
Natural Bridge Cave	Vol. 10(1)	Powell Co.	KY			
New Property Pit		Carter Co.	KY	2000	71.0	
North Indian Run Cave		Franklin Co,	OH	11-Jun-2008	4.2	0.3

North Ledges Cave		Summit Co.	OH	17-Jun-2009	99.9	8.5
Old Homestead Affluent Cave		Carter Co.	KY		61.5	
Omohundro Cave	Vol. 16(1&2)	Bath Co.	KY	10-Feb-1996	375.0	9.3
One-Shot Cave	Vol. 3(1)	Highland Co.	OH	9-May-1982	6.0	
Oscar Hole	Vol. 15(1)	Ross Co.	OH	8-Aug-1994	16.1	
Panther Cave	Vol. 9(1)	Medina Co.	OH		58.0	
Paradise Cave		Ottawa Co.	OH	6-Aug-07	195.0	
Parker Cave		Ottawa Co.	OH	2-Aug-07	19.2	
Peewee Cave	Vol. 7(2)	Carter Co.	KY	1986	6.1	
Perry's Cave		Ottawa Co.	OH	3-Aug-07	382.6	
Phantom Cave	Vol. 3(1)	Highland Co.	OH	10-Dec-1981	74.0	
Pillar Cave	Vol. 6(1)	Carter Co.	KY	1986	23.0	
Porpoise Rock Cave		Summit Co.	OH	18-Jun-2009	32.2	6.2
Posey's Cave		Ross Co.	OH	3-Jun-07	5.6	
Preston Cave I	Vol. 2(1)	Adams Co.	OH	11-Jun-1980	14.0	
Preston Cave II	Vol. 2(1)	Adams Co.	OH	11-Jun-1980	15.0	
Preston Cave II	Vol. 2(1)	Adams Co.	OH	11-Jun-1980	43.0	
Pseudo Cave	Vol. 3(1)	Highland Co.	OH	10-Apr-1982	13.0	
Racoon Cave	Vol. 3(1)	Highland Co.	OH	10-Apr-1982	9.0	
Rat Cave	Vol. 6(2)	Carter Co.	KY	1986	126.7	
Rattlesnake Cave		Franklin Co,	OH	11-Jun-2008	2.7	1.4
Reif's Cave	Vol. 1(1&2)	Ross Co.	OH	27-Jun-1980	145.0	
Reluctant Cave		Summit Co.	OH	8-Jul-2008	3.3	1.0
Rhododendron Pit	Vol. 5(1)	Carter Co.	KY	5-Feb-1984	15.0	
Roadside Arch Cave		Adams Co.	OH	17-Jun-07	5.8	
Roadside Cave	Vol. 15(1)	Adams Co.	OH	8-Aug-1994	10.7	
Robber's Cave	Vol. 9(1)	Geauga Co.	OH		30.5	
Robinson's Cave	Vol. 8(1)	Perry Co.	OH	9-Jul-1987	18.3	
Rofkar's Cave I	Vol. 30(1)	Ottawa Co.	OH	17-May-2009	55.8	6.3
Rofkar's Cave II	Vol. 30(1)	Ottawa Co.	OH	17-May-2009	39.3	6.8
Rose Cave	Vol. 30(1)	Martin Co.	IN	1995-1997	1,363.0	8.1
Saltpetre-Moon Cave System	Vol. 4(1)	Carter Co.	KY	Jan-1983	3,005.0	
Sausage Cave		Adams Co.	OH	7-Jun-07	4.7	
Scott Hollow Cave	Vol. 15(1)	Carter Co.	KY	19-Feb-1994	77.0	
Sheriden Cave	Vol. 29 (1&2)	Wyandot Co.	OH	25-Jul-2008	57.1	11.0
Short Stack Cave		Adams Co.	OH	7-Jun-07	5.9	
Silvermine Cave	Vol. 16(1&2)	Carter Co.	KY	24-Feb-1996	253.0	8.9
Simpson's Cave	Vol. 2(2)	Clark Co.	OH	14-Feb-1981	16.5	
Sinus Cave	Vol. 23(1)	Carter Co.	KY	26-Nov-2004	89.9	
Skull Cave	Vol. 1(1&2)	Ross Co.	OH	21-Jul-1980	54.0	
Skunk Cave		Erie Co.	OH	26-Jun-2008	4.9	1.0
Skylight Cave	Vol. 27(1&2)	Carter Co.	KY	4-Jan-08	27.9	
Skyway Cave	Vol. 29 (1&2)	Ottawa Co.	OH	24-Jun-2008	36.4	2.9
Smokey Bridge Cave	Vol. 27(1&2)	Carter Co.	KY	4-Feb-07	57.2	
Snow Cave		Franklin Co,	OH	11-Jun-2008	7.6	3.0
South Gorge Cave	Vol. 3(2)	Geauga Co.	OH	1982	8.8	
South Indian Run Cave		Franklin Co,	OH	11-Jun-2008	11.9	0.4

Spider Cave	Vol. 3(2)	Greene Co.	OH	3-Feb-1979	9.9	
Spider Cave	Vol. 7(1)	Highland Co.	OH	6-Aug-1986	7.0	
Spider Hole	Vol. 15(1)	Carter Co.	KY	22-Feb-1994	18.6	
Stacy's Pit	Vol. 25(1)	Carter Co.	KY	13-Jan-07	2.0	6.1
Stalactite Pit	Vol. 24(1&2)	Carter Co.	KY	21-Jan-2006	1.5	5.9
Sullivant's Cave	Vol. 15(1)	Adams Co.	OH	8-Aug-1994	6.8	
Super Sink Cave		Adams Co.	OH	17-Jun-07	20.4	
Surprise Dome Pit		Carter Co.	KY	10-Sep-2000	16.1	
Tall Stack Cave		Adams Co.	OH	7-Jun-07	9.3	
Tanglewood Cave	Vol. 7(1)	Brown Co.	OH	23-Jul-1986	34.0	
Tepee Grotto	Vol. 3(1)	Highland Co.	OH	10-Apr-1982	10.0	
The Devil's Den Fracture System	Vol. 9(1)	Portage Co.	OH		352.0	
Thirty-Foot Pit	Vol. 5(1)	Adams Co.	OH	4-Aug-1984	15.0	
Thompson Cave	Vol. 1(1&2)	Miami Co.	OH	16-Apr-1978	15.0	
Tinker's Cave	Vol. 6(1)	Hocking Co.	OH	1986	20.0	
Triangle Cave (AKA Peewee Cave)		Carter Co.	KY	3-Feb-07	6.8	
Trimmer's Cave	Vol. 2(1)	Ross Co.	OH	21-Jul-1980	38.0	
Tunnel Cave	Vol. 3(1)	Highland Co.	OH	4-May-1982	6.0	
Turkey Feather Cave		Summit Co.	OH	17-Jun-2009	55.8	5.6
Two Tree Cave		Ottawa Co.	OH			
Underground River Cave	Vol. 1(1&2)	Wyandot Co.	OH	10-Jul-1980	31.0	19.0
Uvala Cave	Vol. 23(1)	Carter Co.	KY	26-Nov-2004	20.2	
Via Cave	Vol. 2(2)	Miami Co.	OH	7-Apr-1978	25.0	
Victory Cave		Ottawa Co.	OH	21-Jun-2008	96.1	15.1
Volcano Cave		Carter Co.	KY	1/19/08-1/26/08	155.1	7.6
Vron Cave		Deleware Co.	OH	30-Jul-2008		
Waffle Cave		Adams Co.	OH	7-Jun-07	5.0	
Wall Crawl Cave		Carter Co.	KY	3-Feb-07	11.4	
Waste of Time Cave		Carter Co.	KY	3-Feb-07	7.1	
Well Cave	Vol. 11(2)	Menifee Co.	KY	19-Aug-1990	894.0	
Wet Crevice Cave		Carter Co.	KY	20-Sep-1986	158.2	
Wild Columbine Cave		Adams Co.	OH	16-Jun-07	20.1	
Witches Cave	Vol. 3(1)	Highland Co.	OH	10-Dec-1981	55.5	
X Cave	Vol. 4(2)	Carter Co.	KY	10-Feb-1984	343.4	
Your Mom's Pit	Vol. 27(1&2)	Carter Co.	KY	12-Jan-2008	1.0	6.1
Zane Caverns	Vol. 10(1)	Logan Co.	OH	Dec-1989	466.0	

Total:	*30,260.47*	*Meters*
	99,279.76	*Feet*
	18.76	*Miles*

Groups and Events With Whom WUSSes Have Caved

Grottos

Bexar Grotto
Bloomington Indiana Grotto
Cave Research Foundation
Cavers Go Deeper
Central Indiana Grotto
Central Ohio Grotto
Clayton County Grotto
Cleveland Grotto
Dayton Underground Grotto
Flittermouse Grotto
Germany Valley Karst Group
Greater Cincinnati Grotto
Indiana University Caving Club
Kutztown Section
Miami Valley Grotto
Northern Indiana Grotto
NSS Convention Field Trips
NSS Digging Section
Ohio Cavers and Climbers
Pine Mountain Grotto
San Francisco Bay Chapter
Standing Stone Grotto

Stonewall Cavers
Timpanogos Grotto
University of Cincinnati Caving Club
Upper Cumberland Grotto
VPI
Wisconsin

Events

American Cave and Conservation Association
Crawl-a-thon
Karst-o-rama
Mammoth Cave Restoration
NCRC Training Clinic
Ohio Valley Region Clean-ups
Old Timer's Reunion
Randy Candy
Speleofest
TAG Fall Cave-in
West Virginia Association
Winter Adventure Weekend at Carter Caves
Young Timer's Reunion

Countries Caved in by WUSSes

AUSTRALIA
- New Wales
- South Australia
- Tasmania

AUSTRIA
BAHAMAS
- Andros Island
- San Salvador Island

BARBADOS
BELGIUM
BELIZE
BERMUDA
BOSNIA-HERZEGOVINA
CANADA
- Alberta
- British Columbia

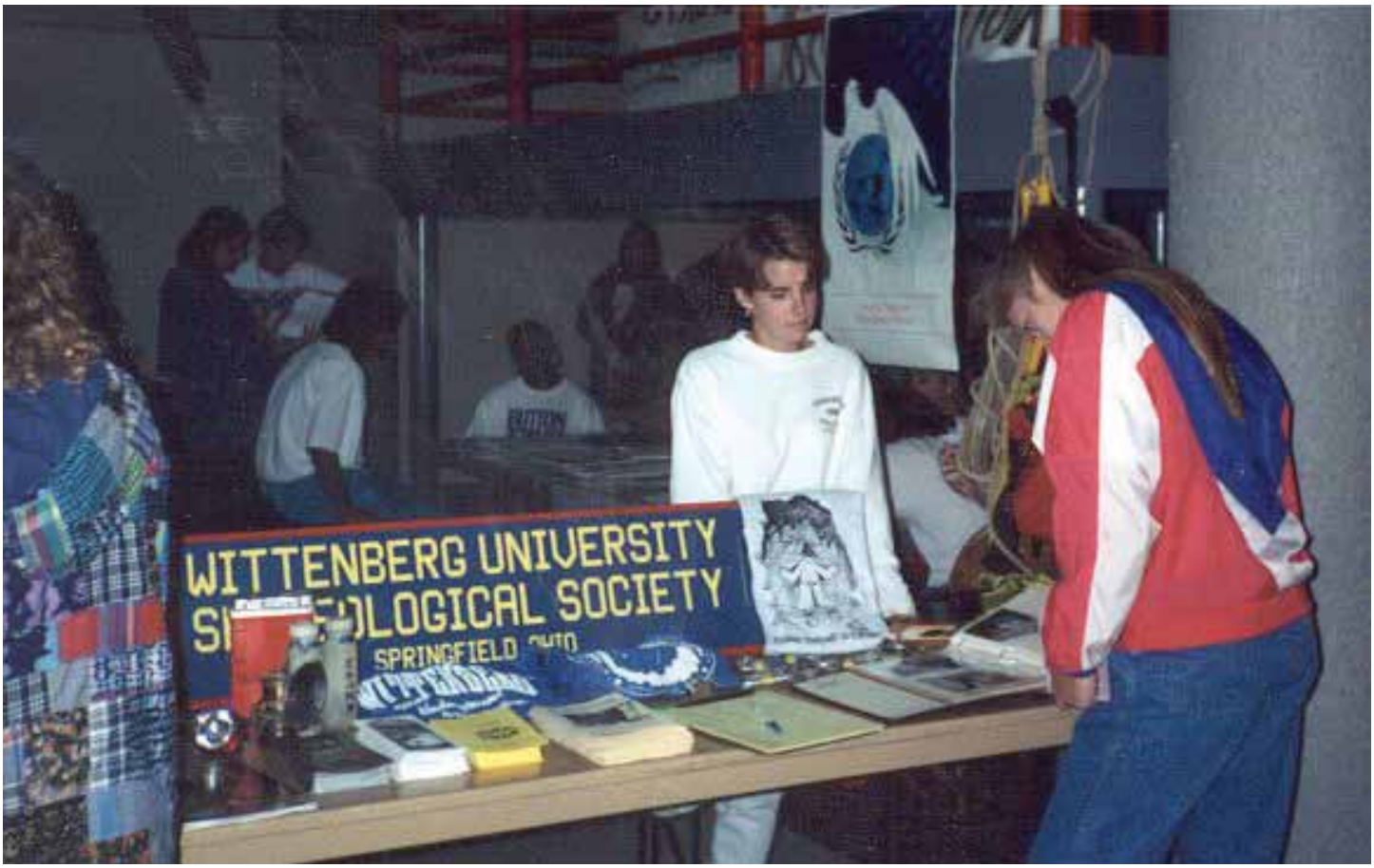
NEW BRUNSWICK
COSTA RICA
CROATIA
DOMINICA
ENGLAND
FRANCE
GERMANY
GUAM
ITALY
JAPAN
MALAYSIA
MEXICO
NEW ZEALAND
PORTUGAL
PUERTO RICO (MONA)
ROMANIA
SLOVENIA
SPAIN
SWITZERLAND
UNITED STATES
- Alabama
- Arizona
- Arkansas
- California
- Colorado
- Connecticut
- Florida
- Georgia
- Hawaii (Hawaiian Islands)
- Idaho
- Illinois
- Indiana
- Iowa
- Kentucky
- Maine
- Maryland
- Michigan
- Minnesota
- Mississippi
- Missouri
- Montana
- New Hampshire
- New Mexico
- New York
- North Carolina
- Ohio
- Oklahoma
- Oregon
- Pennsylvania
- South Dakota
- Tennessee
- Texas
- Utah
- Virginia
- Washington
- West Virginia
- Wisconsin
- Wyoming

Pholeos Awards from NSS Conventions and the International Congress of Speleology

HONORABLE MENTION
(Photographic category):
1990 – *Pholeos*, 9(1)
1991 – *Pholeos*, 10(1)
1995 – *Pholeos*, 14(1,2)
2009 – *Pholeos*, 25(1)

MERIT AWARD (Photographic category):
1988 – *Pholeos*, 7(2)
1988 – *Pholeos*, 8(1)
1990 – *Pholeos*, 9(2)
1991 – *Pholeos*, 11(1)
2004 – *Pholeos*, 22(1,2)

MERIT AWARD (Layout category)
2004 – *Pholeos*, 22(1,2)



Giant Bat Boy Discovered In Ohio, Scientists Baffled!

Jared Embree (WUSS #0440)

In a strange turn of events, life has once again been found to imitate art. What was once thought to be a fictional creature, the parent of the Bat Boy created by former *Weekly World News* editor Dick Kulpa has been discovered in the wilds between Springfield and Dayton, Ohio. Although the creature depicted in "The Paper" was once thought to be the result of cross breeding between a member of the genus *Pteropus* and a *Homo sapien*, it is now clear that he is a juvenile of a much larger and until now un-catalogued species.

The Giant Bat Boy (*Gigantihuginormous batty boyicus*) is thought to belong to the Megachiroptera sub-order, and is the largest bat discovered to date. With a wingspan of approximately 10 meters, and no known natural predators, it remains unclear why more have not been sighted previously. At the time of this article's publication, theories are running rampant in a way reminiscent of sciences previous attempts to describe the extinction of the dinosaurs, and to quantify the attempts necessary to reach the center of a tootsie pop. Some experts even question the existence of the Giant Bat Boy, but for those of us who have seen the great beast with our own eyes it is undoubtedly a reality.

Figure 1 *– Before the Giant Bat Boy is exhibited, it must be well fed, this caver is happy to volunteer for such a noble service. Photo by H. H. Hobbs.*

The first public exhibition was at The Old Timer's Reunion in the late summer of 2009 (Figure 1). The decision was in no small part made with the public safety in mind. Attendees of the OTR conference are unique in the scientific community, particularly in their ability to observe the strange and terrifying with an almost preternatural calm. They remain unafraid in the presence of horrors that would fade the hair and twist the spines of lesser academics, their commitment to the advancement of their respective fields allowing them to call upon untold reserves of courage and fortitude. It was in their presence that the great bat was first brought out into the light of day.

The day started like any other day at OTR, with a combination of academic debate and introspective tai chi, followed by coffee and doughnuts, before the daily workshops began. However, as the early morning fog began to lift, several of us were called to assist near the front gate. A woman we had never met before was requesting volunteer handlers for the presentation of a recent discovery (Figure 2). She was herself more than 4 meters tall, but we were uninterested in her abnormalities once we saw the Giant Bat Boy. We were told few details about the animal itself, but she did

grace us with a few presumptions. She reasoned that, much like flightless birds on isolated islands, the great bat had adapted to its surroundings in part by walking to avoid collisions with passing aircraft, and that this modern day bat descended from a 20 million year old Australian species. Unlike their modern relatives, the ancient bats had plenty of predators, she said, including marsupial lions and carnivorous kangaroos, but the Giant Bat Boy would have easily escaped capture. "He's very agile on the ground, and reasonably aggressive," she said. She also expressed concern that local farmers may have attacked the "poor thing out of fear" pointing to the scars that criss cross his body and for a moment we could see her intense emotional connection to him.

As the presentation progressed we could hear the shouts of the crowd. We moved slowly through the camp to a chorus of "Oh my" and "Wow" and "Run, Save yourselves!" Only our years of training at bat handling and our steely reserve as WUSSes kept our hands steady through the entire procession (Figure 3). Looking back on that day, it's clear that we became like brothers and sisters, sharing a bond that transcended our allegiance to our grotto and became something more akin to the connection between combat veterans or people who have worked fast food together. Although some criticize the mysterious tall researcher and her methods, we were proud to do our part

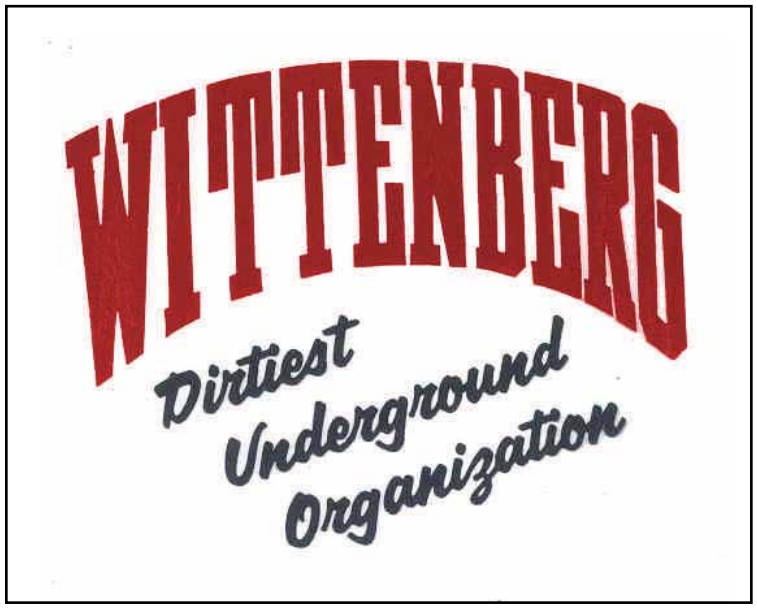
Figure 2 *– The mysterious women exhibiting the new species is seen here, slightly out of frame, she holds a sign warning onlookers: "Don't Feed the Bat!" Photo by B. Stitzel.*

Figure 3 *– WUSSes BJ Burke and Aaron Taylor struggle to control the giant winged mammal as it stretches its massive wings in the hope of escape. Photo by B. Stitzel.*

Figure 4 – *The extraordinarily tall research is seen here, her new muse following close behind. Photo by H. H. Hobbs.*

(Figure 4). Some say that her methods were unconventional, even unethical, pointing to her earlier inventions of aphrodisiac floss and bacon ice cream, but we knew her simply to be misunderstood. Additional research is currently underway to determine the true origins of this magnificent mammal and what can be done to preserve it for the enlightenment of future generations. Efforts are also underway to explore the feasibility of using Bat Boy saliva for everything from cosmetic research to a forth flavor of hot sauce for the Taco Bell Corporation.

The Giant Bat Boy currently resides in a hibernaculum in Ohio, but as its natural habitats around the world are threatened, Giant Bat Boys may be forced into new environments. If a Giant Bat Boy is found in your area, it's best to move to a new area.



A Brief Introduction to the Endangered Aquatic Species of the Edwards Aquifer

Kayla Potter
(WUSS #0562)

Abstract

The Edwards Aquifer system of central Texas is one of the most productive aquifer systems in the United States. Home to more than 40 known species, this dynamic ecosystem is also the habitat for six aquatic species federally listed as endangered. These six species face extreme challenges for continued survival and will likely be extirpated if continued progress in current preservation efforts is not made. Aquifer over pumping, contaminated farm runoff, and climatic change all work against habitat preservation for the Edwards Aquifer species. However, despite mounting odds, progress towards more environmentally friendly water usage has been made.

The Edwards Aquifer system (Figure 1) of central Texas has been described as the "most diverse subterranean aquatic ecosystem in the world" (Longley 1981). The habitat of more than 40 known subterranean aquatic species (Eckhardt 2009), the vast majority of them endemic, the Edwards aquifer is home to a wide variety of crustaceans, snails, fishes, and plants. Of those 40 species, six aquatic cavernicole species, one aquatic plant species, and nine karst-dwelling cavernicole species have been federally listed as endangered, while one aquatic species is currently listed as threatened (Eckhardt 2009). The focus of this article shall be the endangered aquatic cavernicole species of the Edwards Aquifer and the specific threats they face as inhabitants of this system.

The Edwards aquifer, or more formally, the Edwards Balcones Fault zone (Crowe and Sharp 1997), is a classic karst feature in that it is composed primarily of Cretaceous-aged limestone (Clark 2003) of the Person, Kainer, and Georgetown formations (Crowe and Sharp 1997), with the limestone itself being "porous, honeycombed, and cavernous" (Longley 1981). Nearly 112 km in length and ranging in width from eight to 64 km, this is one of the most productive artesian aquifer systems in the United States. An incredibly important system, the Edwards Aquifer provides nearly two million people with drinking water, needing little treatment (Robbins 2006) and provides water for the vast agricultural, industrial, and recreational needs of the surrounding area. The system is distinguished by two major features: the recharge area, where approximately 812 hm^3 of water enter the system, and the artesian zone, through which 825 hm^3 of water are discharged annually (Chen et al. 2001). The total amount of water held within the system remains unknown (Longley 1981). Generally, water enters the system and flows southward from the Edwards Plateau region and then moves east and northeast towards the Comal and Hueco artesian spring areas where the majority of the endangered species of the system may be found (Longley 1981).

As with any ecosystem, energy input is required to sustain life. Given the extreme conditions of the Edwards Aquifer ecosystem, several suggestions have been proposed as to the energy source that support inhabitants. In addition to organic material brought in through recharge, Longley (1981) puts forward the proposition that "saprophytic fungi grow on the fossil organic matter or on bacteria that utilize the organic matter" found in the system. These fungi then serve as the 'first link' in the food chain and provide an energy source for the smallest invertebrates found

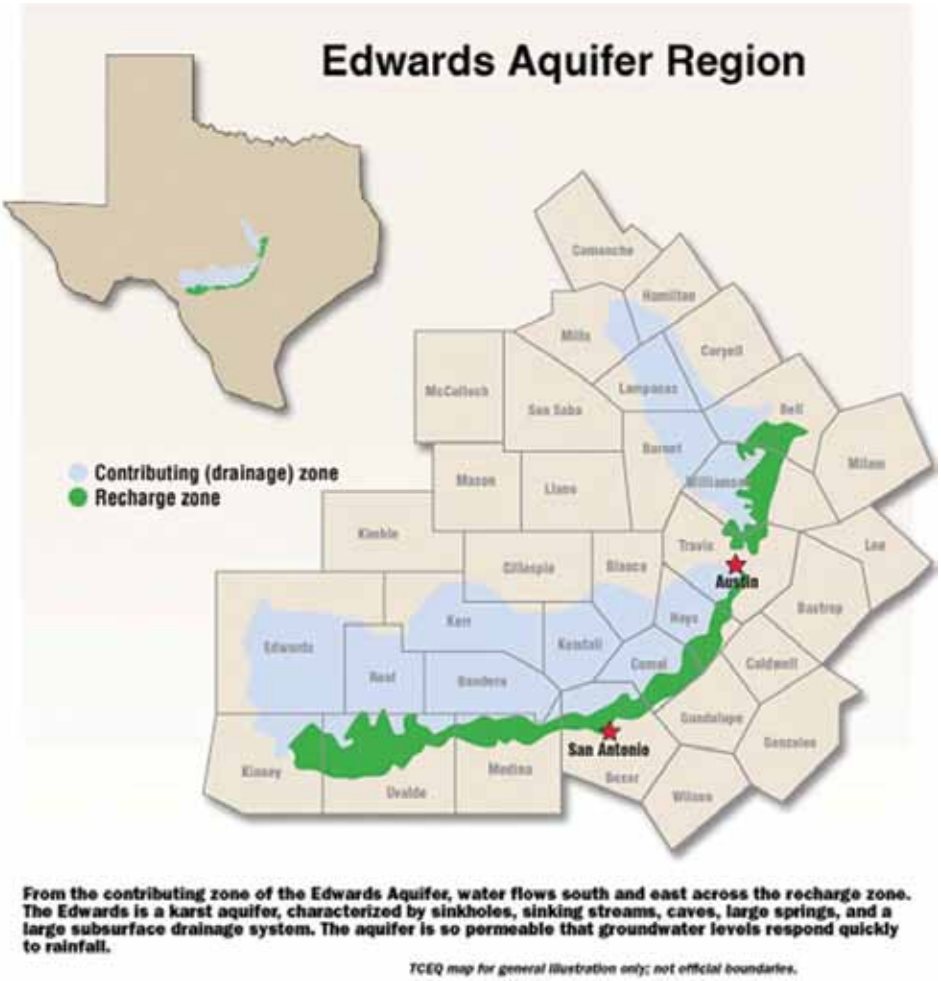


Figure 1. *The Edwards Aquifer System of Texas Photo courtesy of http://www.utsa.edu/hydrogis/Water.html*

within the system, which are then consumed by larger organisms, and so on. Poulson and Lavoie (2000) go further to suggest that the energy supply for the system centers around petroleum deposits. Petroleum, then, supports fungal decomposers to begin the food chain for organisms that have little to no contact with the surface.

The Edwards Aquifer is home to a multitude of species, terrestrial and aquatic, cavernicolous and non-cavernicolous. What follows is a brief description of the six aquatic endangered species that make this system their home.

The Texas Blind Salamander (*Eurycea rathbuni*) is perhaps the most well-known of the endangered species of the Edwards Aquifer system. As a highly adapted cavernicole, *E. rathbuni* (Figure 2) lacks eyes and is entirely pigmentless, with attenuated appendages, blood red external gills, and other paedomorphic features maintained throughout adulthood. Adults typically average 90 – 135 mm in length and longevity has been recorded at 10+ years (Chippindale 2009). A strictly aquatic species, *E. rathbuni* inhabits the subterranean waters of the Edwards Aquifer system. Chippindale (2009) notes the population centers mostly around the caverns of San Marcos pool, but recognizes that accurate population size is difficult to assess. Individuals of the population can be reliably observed through tiny cave openings into the aquifer, and may be active near the surface during flooding (Chippindale 2009). *E. rathbuni* requires clean water at a relatively constant temperature near 21° C and is likely active year-round. The Texas Blind Salamander represents the top of the food chain and has been observed to consume snails, shrimp, and small amphipods while laterally

Figure 2. *Texas Blind Salamander* (Eurycea rathbuni) *Photo courtesy of http://www.tpwd.state.tx.us/publications/pwd-pubs/media/pwd_bk_w7000_0013_edwards_aquifer_species.pdf*

probing cavern floors with side-to-side head motions (Anon. 2009). Reproduction is aquatic, yet little is known about reproductive habits, locations, or clutch size (Chippindale 2009).

Peck's Cave Amphipod (*Stygobromus pecki*) is another highly specialized cavernicole endemic to the Edwards Aquifer system. A small crustacean, lacking both pigments and eyes, *S. pecki* (Figure 3) is found nearly exclusively in the Comal Springs area of the aquifer system (Anon. 2009). Individuals typically linger in interstitial spaces between gravel, rocks, and debris directly in or near the springs themselves. Gibson et al. (2008) note that because most specimens have been collected near the artesian well of Comal Springs, *S. pecki* likely resides in deep portions of the aquifer system and occupies a deeper groundwater niche. Likely a phreatic species, *S. pecki* is unadapted to conditions in downstream gravel beds away from the spring opening (Gibson et al. 2008). As with many of

Figure 3. *Peck's Cave Amphipod* (Stygobromus pecki) *Photo courtesy of http://www.tpwd.state.tx.us/publications/pwd-pubs/media/pwd_bk_w7000_0013_edwards_aquifer_species.pdf*

the endangered species of the Edwards Aquifer, little is known of the reproductive patterns, life history, or feeding habits of the Peck's Cave Amphipod (Anon. 2009).

The Fountain Darter (*Etheostoma fonticola*) is another endangered species found only in Comal River headwaters and its association with Edwards Aquifer spring water. *E. fonticola* (Figure 4) measures approximately two to five centimeters in length. The reddish-brown species prefers vegetated stream floor habitats near aquatic plant roots (Anon. 2009) with constant temperatures around 24°C (McDonald et al. 2007). *E. fonticola* feeds on small copepods and mayfly larvae and is especially susceptible to infestations of *Centrocestus formosanus*, a non-native trematode species originating in Southeast Asia. This trematode species, which also currently affects commercially viable fish species, enters the gills of individuals, disrupting respiration and forcing the fish to rise to the surface, where individuals are susceptible to increased

Figure 4. *Fountain Darter* (Etheostoma fonticola) *Photo courtesy of http://www.tpwd.state.tx.us/publications/pwd-pubs/media/pwd_bk_w7000_0013_edwards_aquifer_species.pdf*

predation, and ultimately population decreases. (McDonald et al. 2007).

One of the rarest creatures of the Aquifer system, the San Marcos Gambusia (*Gambusia georgei*) is a small fish generally 25-40 mm in length (Hassan-Williams and Bonner ND). Distribution of *G. georgei* (Figure 5) is extremely restricted, limited to the headwaters of the San Marcos River (Edwards et al. 2002). The species prefers shallow, quiet waters (Anon. 2009) and muddy, not silty substrates in partially shaded areas (Edwards et al. 2002) with little vegetation (Hassan-Williams and Bonner ND). Diet includes insect larvae and other small invertebrates. Little is known of the reproductive habits of the San Marcos Gambusia, but Edwards et al. (2002) note that the species is able to hybridize successfully with the closely related *Gambusia affinis* with few repercussions to offspring. Population estimates for *G. georgei* in 1969 were less than 1,000 individuals (Hassan-Williams and

Bonner ND). Listed as an endangered species, chances of recovery are remote and this species is likely already extinct (Edwards et al. 2002).

Figure 5. *San Marcos Gambusia* (Gambusia georgei) *Photo courtesy of http://www.tpwd.state.tx.us/publications/pwd-pubs/media/pwd_bk_w7000_0013_edwards_aquifer_species.pdf*

Figure 6. *Comal Springs Riffle Beetle* (Heterelmis comalensis) *Photo courtesy of http://www.tpwd.state.tx.us/publications/pwd-pubs/media/pwd_bk_w7000_0013_edwards_aquifer_species.pdf*

The Comal Springs Riffle Beetle (*Heterelmis comalensis*) is known primarily in direct connection to the Comal Springs area and is highly dependent on the constant and narrow range of habitat associated with spring flow out of the aquifer. Individuals are only present in headwater springs from the aquifer (Bosse et al. 1988). Adults (Figure 6) are two millimeters in length and reddish-brown in color. Individuals are reproductively active year round, thus generations often overlap (Anon. 2009) with greatest population densities occurring from February to April (Bosse et al. 1988). *H. comalensis* feeds on microorganisms present within the spring outflows and other debris associated with spring substrates (Anon. 2009).

The Comal Springs Dryopid Beetle (*Stygoparnus comalensis*) is slightly larger than the Riffle Beetle, approximately 3-4 mm, and is the same reddish-brown color. However, *S. comalensis* (Figure 7) is more adapted to cave life since neither juveniles nor adults have eyes (Anon. 2009). Individuals are found only in the Edwards Aquifer and the habitat immediately surrounding Comal Springs (Anon. 2009). Specific habitats are unknown due to the small size and sampling difficulty of its habitat. Most individuals have been recovered near a stalactite covered bluff dripping directly into the spring. This location provides a damp terrestrial environment for larvae and a fully aquatic area for adults and microbial growth associated with organic debris within the bluff area likely provide the species food source (Gibson et al. 2008). *S. comalensis* individuals constitute a valuable food source for several economically important shrimp, crab, and fish species of the area. Little to nothing is known of the life history or reproductive habits of the species due to small population size (Gibson et al. 2008).

Despite its vast size, the Edwards Aquifer faces critical threats. Increased human activity at the surface continues to contribute to the decline of its endangered species. The Comal Springs area, home to the majority of the Aquifer's endangered species, is fed directly by the aquifer, and the two are intimately linked. The majority of these species depend on relatively constant water temperatures and water flows (Anon. 2009) and these constancies continue to be disrupted by human activity. Ground water contamination continues to increase. Mahler et al. (2008) note a "high degree of surface-water and ground-water connections" in karst systems. Consequently, contaminant runoff is "rapidly transported throughout the aquifer." Eighty five percent of the recharge for the Edwards Aquifer originates in six creeks in regions heavily used for a

Figure 7. *Comal Springs Dryopid Beetle* (Stygoparnus comalensis) *Photo courtesy of http://www.tpwd.state.tx.us/publications/pwdpubs/media/pwd_bk_w7000_0013_edwards_aquifer_species.pdf*

wide variety of residential, commercial, and agricultural purposes (Mahler et al. 2008). Increasingly, pesticides, chlorinated solvents, and septic and sewage leakages are making their way into the habitats of these endangered species (Robbins 2006).

Climate change also negatively impacts endangered habitat areas. Chen et al. (2001) note that climate change will ultimately result in "reduced water availability" and "exacerbate regional water scarcity." Projected climate changes will result in reduced spring flows, less irrigation power, and regional welfare loss of up to $6.8 million per year (Chen et al. 2001).
The biggest threat to Edwards Aquifer endangered species remains over pumping due to regional population growth. Robbins (2006) notes that San Antonio's population is expected to double by the year 2050. Additionally, Longley (1981) states that "estimates of water use in the future indicate that discharge will exceed recharge and all of the springs will eventually dry." If this occurs, the species of the Comal Springs area will inevitably go extinct. The entire aquifer system will suffer. Chen et al. (2001) note that pumping must be reduced by 9-20% to protect endangered species at their current levels.

These species face challenges, yet there is hope that current changes and regulations will be adequate to protect these species from extinction. San Antonio's 50-Year Water Plan has already reduced water usage per capita by 82 gallons. Twice already the human inhabitants of the Aquifer recharge zone and environmental activists have voted down reservoir construction and commercial development proposals that would negatively impact the water supply and natural habitats of endangered species (Donahue 1998). Preservation efforts focus on controlling activities within the recharge zone and acquiring environmentally sensitive sites that may be set aside for protection (Robbins 2006). Gradually, citizens have begun to recognize their impact on this sensitive ecosystem and are taking steps to protect it. If change continues, then perhaps the endangered aquatic species of the Edwards Aquifer will survive for future generations.

Literature Cited

Anonymous. 2009. Texas Parks and Wildlife Division. http://www.tpwd.state.tx.us/publications/pwdpubs/media/pwd_bk_w7000_0013_edwards_aquifer_species.pdf.

Bosse, L., D.W. Tuff, and H.P. Brown. 1988. A new species of *Heterelmis* from Texas (*Coleoptera*: *Elimidae*). The Southwestern Naturalist. 33 (2): 199-203.

Chen, C., D. Gillig, and B.A. McCarl. 2001. Effects of climatic change on a water dependent regional economy: A study of the Texas Edwards Aquifer. Climatic Change, 49 (4): 307-409.

Chippindale, P. 2009. AmphibiaWeb. http://amphibiaweb.org/cgi/amphib_query?where-genus=Eurycea&where-species=rathbuni.

Clark, A. 2003. Geologic framework and hydrogeologic characteristics of the Edwards Aquifer, Uvalde County, Texas. Water Resources Investigations Report 03-4010 submitted to the U.S. Geological Survey.

Crowe, J.C., and J.M. Sharp, Jr. 1997. Hydrogeologic delineation of habitats for endangered species: The Comal Springs/River System. Environmental Geology (Berlin). 30 (1-2): 17-33.

Donahue, J.M. 1998. Water, Culture, & Power. Island Press, Washington, D.C., pp.187-208.

Eckhardt, G. 2009. The Edwards Aquifer Website. http://www.edwardsaquifer.net/species.html.

Edwards, R.J., C. Hubbs, and G.P. Garrett. 2002. Threatened fishes of the world: *Gambusia georgei* Hubbs & Peden, 1969 (Poeciliidae). Environmental Biology of Fishes. 65 (3): 358.

Gibson, J.R., S.J. Harden, and J.N. Fries. 2008. Survey and distribution of invertebrates from selected springs of the Edwards Aquifer in Comal and Hays counties, Texas. The Southwestern Naturalist. 53 (1): 74-84.

Hassan-Williams, C. and T.H. Bonner. ND. Texas State University-Department of Biology. http://www.bio.txstate.edu/~tbonner/txfishes/gambusia%20georgei.htm.

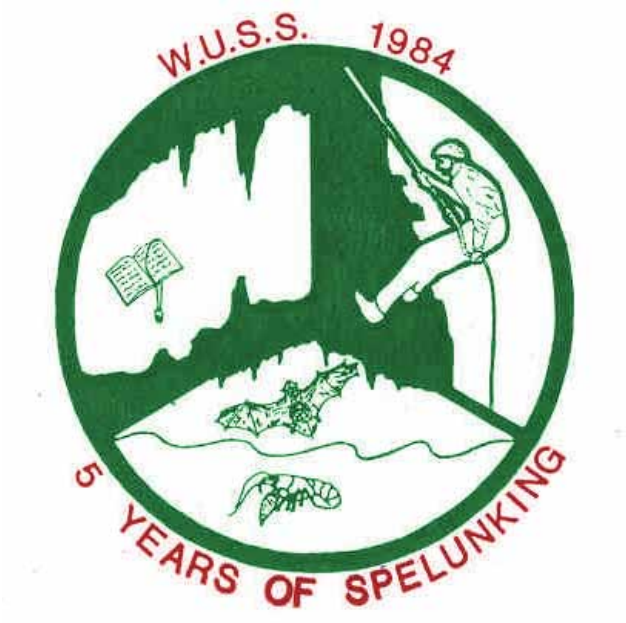
Longley, G. 1981. The Edwards Aquifer: Earth's most diverse groundwater ecosystem? International Journal of Speleology, 11 (1/2): 123-128.

Mahler, B.J., D. Valdes, M. Musgrove, and N. Massei. 2008. Nutrient dynamics as indicators of karst processes: Comparison of the Chalk aquifer (Normandy, France) and the Edwards Aquifer (Texas, USA). Journal of Contaminant Hydrology. 98 (1/2). 36-49.

McDonald, D.L., T.H. Bonner, E.L. Oborny, Jr. and T.M. Brandt. 2007. Effects of fluctuating temperatures and gill parasites on reproduction of the Fountain Darter, *Etheostoma fonticola*. Journal of Freshwater Ecology. 22 (2): 311-318.

Poulson, T.L. and K.H. Lavoie. 2000. Subterranean Ecosystems. Elsevier, Amsterdam, pp. 239-240.

Robbins, E. 2006. Teed off over the aquifer. Planning. 72 (2):32-37.



EverPower, USFW representatives clarify notice related to Buckeye Wind

Breanne Parcels
Staff Writer
***Urbana Daily Citizen* – 2 February 2010**

COLUMBUS - EverPower Renewables Development Director Michael Speerschneider and U.S. Fish and Wildlife Service spokeswoman Georgia Parham answered questions Monday related to Friday's posting of information in the Federal Register regarding a review of the Buckeye Wind project as it poses a potential threat to the endangered Indiana bat.

"This step lets people know EverPower is submitting a habitat conservation plan (HCP) and applying for an incidental take permit," Parham said. "This notice is a very preliminary stage. There will be at least two more opportunities for additional public comment. The clock starts ticking when they deliver a draft HCP. There has not been an application submitted yet."

Parham said the timeline will depend on if the USFW review determines the need for an environmental assessment (EA) or an environmental impact statement (EIS).

"An EA takes less time than an EIS," Parham said.

Speerschneider said the reason that EverPower submitted the figure of 100 turbines for Buckeye Wind, rather than the 70 under current consideration by the Ohio Power Siting Board, was future planning to comply with the National Environmental Policy Act.

"The approach we are taking for the NEPA process relate to the possibility that expansion could occur," he said. "The (Buckeye Wind) application addresses that on page 61, that we may someday want to utilize the full capacity of the transmission line we're tapping into. The information we obtain from this process will help determine if that's feasible. We don't have plans for where those extra 30 turbines would go, at this point. If we do decide to expand somewhere down the road, we would still have to go through the power siting board process again."

Speerschneider said while EverPower has not had experience in dealing with endangered species at the company's other project sites, Buckeye Wind's proximity to a colony of Indiana bats discovered by another developer was reported to USFW and the Ohio Department of Natural Resources.

"This isn't something we haven't been through before, even though we've been working closely with

ODNR and Fish and Wildlife for some time," he said. "We're expecting the HCP to be approved in a few months, somewhere in the middle of the year. We haven't finished a draft yet, but we expect the issuance of an incidental take permit to coincide with the conclusion of the NEPA process."

The project area submitted by EverPower to USFW is 80,370 acres in Goshen, Rush, Salem, Union, Urbana and Wayne Townships. About 500 acres would be disturbed by construction of turbines, access roads and other related facilities. Following restoration, the permanent operating footprint of the project would be approximately 100 acres.

The Indiana bat ranges through most of the eastern United States, hibernating in groups in caves and mines during the winter. Females form maternity colonies under the bark of large trees during the summer, where they raise their young. Indiana bats, like most bats in the eastern United States, are significant consumers of insects, including agricultural pests.

Indiana bats, listed as endangered in 1967, were among the first animals protected under the precursor to the current Endangered Species Act. Threats to the species include disturbance during hibernation, when bats may cluster in groups of up to 500 per square foot. Loss or modification of summer habitat used by maternity colonies is also a threat.

Comments for the Service's review of the Buckeye Wind project's impact on Indiana bats may be submitted by U.S. mail or hand-delivery to Ms. Megan Seymour, U.S. Fish and Wildlife Service, Ohio Field Office, 4625 Morse Rd., Suite 104, Columbus, OH 43230; by e-mail to EverPowerHCP@fws.gov; or fax to Seymour's attention at (614) 416-8994. Comments must be received by March 1, 2010.

For more information on endangered species, wind power, and Habitat Conservation Plans, visit the Service's Midwest Region Web site at www.fws.gov/midwest/endangered. For information regarding this specific project, visit the Web site at www.fws.gov/midwest/endangered/permits/hcp/buckeyewind/index.html.

Breanne Parcels can be reached at bparcels@urbanacitizen.com.

Editor's Note - This article has been reprinted with the express permission from the author and editor; it was published originally in the 2 February 2010 edition of the Urbana Daily Citizen located in Urbana, Ohio.

Sinkhole cleanup organized, Logan County, Ohio

Polly Bargar (WUSS #0555)

On 3 October 2009, roughly 25 volunteers from Dayton Underground Grotto (DUG), the Ohio Valley Region (OVR) and WUSS, as well as a couple of people local to the area, converged at the Dr. Jones sinkhole site north of Rushsylvania [for more information on the site, please consult *Pholeos* 27(1,2)] for a clean-up workday. Most of the time was spent at two sinks (#3 and #5) cleaning up and clearing out house debris, stones, concrete, fencing, twisted metal, and general household trash. Mr. Burkholder, the neighbor on the south fence line, generously provided his backhoe (Figure 1) for part of the afternoon and offered to help with any future workdays.

A lot of effort and brute strength were put into moving the rubble at sink #5. We hope this will greatly improve the sinkhole function, since this may become much more important in the future. In the months leading up to the workday, two new and rather dramatic sinks on the neighbor's land immediately north opened up unannounced. Contact with this neighbor was attempted for permission to trespass for taking pictures and coordinates; however no contact could be made at the time.

Sink #3 was slow work because it was the site of an active trash burn/dump. Much of the trash included broken glass, lumps of metals, moderately sized bones (at first expected to be animal carcasses) and carpet (Figure 2). It was the addition of the neighbor's backhoe that made the time in sorting and bagging go much quicker.

Figure 1 *– The backhoe works to pull out one of the large bails of barbed wire from sink #5. Photo by B. Stitzel.*

Thankfully no other surprises in the assortment of burrows were uncovered during the cleanup (Figure 3).

Sink #1 and #2 were also examined early in the day and determined to be set aside for another day. Perhaps one workday per sink, due to the composition of debris (e.g., several barbed wire rolls, agricultural parts, large stone), the dense thickets of underbrush and roots, and the

All the volunteers would like to extend our thanks to our ODNR-DNAP contact, the dumpster cost was significantly reduced due to a state agency discount and donations collected from the volunteers.

Figure 2 – *Volunteers work to remove small debris from sink #3. Photo by B. Stitzel.*

Figure 3 – *WUSSes pose with their hard earned trash souvenirs after a hard day's work. Photo by D. Carey.*

depth and steepness of the sites. Some prep work was accomplished at sink #1 before the backhoe use disappeared for the day and a little trash cleanup was also started. These sites are known to have drainage and some sort of formation beneath the surface.

The workday broke up about 5pm, when the sun began to fade and the damp settled in. About 10 people remained to eat pizza at the local pizza eatery in Rushsylvania and talk over the day and old times. It was generally agreed that another workday should be organized for 2010.

A Description of Rose Cave, Martin County, Indiana

Matthew A. Beversdorf (WUSS #0358, NSS #42333)
Elizabeth M. Hagen (WUSS #0400, NSS #36267)

The motivation for this survey of Rose Cave stemmed from the desire to complete two previous survey attempts. Carroll Ritter and Charles Walker made the first map of Rose Cave in 1971. This map included 614 meters (2015 feet) of survey. After a visit to Rose Cave in 1990, while using Ritter and Walker's map, T. Miller and S. Engler wrote a second description of the cave. Here, Miller and Engler (1990) stated that the earlier map was "poorly done," that its description rarely mentioned the stream that runs through much of the cave, and suggested that the cave was worth resurveying. Thus between 1995 and 2001, 57 members of the Wittenberg University Speleological Society (WUSS) resurveyed Rose Cave (Figure 1, Figure 2).

Dawn Fuller, Don Conover, and Joey Kronk started the resurvey of Rose Cave on 8 October 1995. During the remaining part of 1995 and 1996, only 3 more surveys were conducted. Most of the Main Passage was surveyed during 19 surveys in 1997, 1998, and 1999. The big push to the end of the Main Passage and the Side Passage came in August 1999. Afterwards, plenty of peripheral portions of the cave still needed to be surveyed, including the lower passages in the first section of the cave, the lower passage under the Big Room, Oxbow 1 and 2, and the portion of cave near the East Entrance that extended further east. Thus in 2000 and 2001, eight more trips were conducted to complete the survey of Rose Cave. A total of 30 survey trips by WUSS members were required to complete this cave survey.

Figure 1. *Don Conover, David Effron, Sarah Mauer, and Andrew Burrow in front of west entrance of Rose Cave. Photo by Wade Babish.*

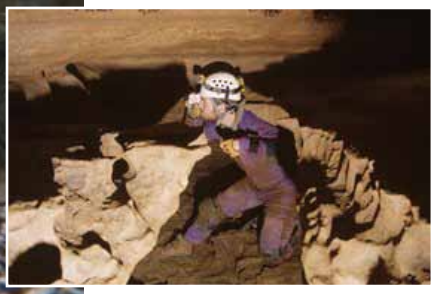


Figure 2. *Taking a inclinometer measurement in Rose Cave. Photo by Horton H. Hobbs III.*

This current map of Rose Cave more than doubled the total distance of previous cave surveys. Using COMPASS (Denver, Colorado, USA) cave mapping software the total cave length for this current survey is 1362.6 meters (4470 feet) and the overall cave vertical profile is 8.1 meters (26.5 feet).

Location

Rose Cave is located in Martin County, Indiana, approximately 16 kilometers (10 miles) south of Shoals, and 7 miles west of French Lick, Indiana. The cave is located in the Hoosier National Forest. A small spring (Figure 3) leads to a 10-12 meter tall old quarry face. Here one will find the two entrances to Rose Cave. Both the entrances are small and require crawling into the cave (Figure 4).

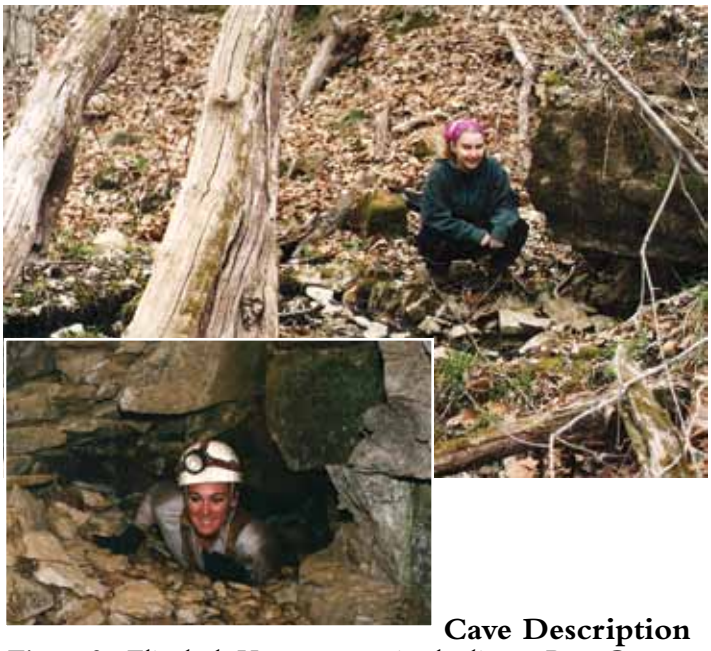


Figure 3. *Elizabeth Hagen near spring leading to Rose Cave. Photo by Matthew Beversdorf.*

Figure 4. *WUSS member exiting East Entrance of Rose Cave. Photo by Matthew Beversdorf.*

Cave Description

The two cave entrances are located to the west of the spring. The West Entrance was slightly easier to use and became the primary entrance for this cave survey. To enter through the West Entrance, one must travel along in a short, tight belly-crawl that leads into the cave's main passage. (Figure 5). Just past the belly-crawl there is a tight passage to the left, however, this passage comes to an end after a short distance. Turning right after the belly-crawl soon leads to a juncture where one must decide between the Main Passage and Lower Passage #1. The Main Passage is dry and soon opens up into taller passageways where stoop walking and upright walking are possible. Lower Passage #1 follows the stream and is quite tight. There are a few locations where one can cross between the Main Passage and Lower Passage #1. In several places, even though we could not physically pass between the upper and lower passages, verbal or light connections could be made. We were able to follow Lower Passage #1 for approximately 60 meters; however, we were unable to connect this passage with Lower Passage #2.

To continue to the back of the cave, one must return to the Main Passage. The Main Passage remains

Figure 5. *Rob Payn crawling into the West Entrance of Rose Cave.*

dry and turns north into a room with some breakdown. Beyond this room, the Main Passage continues to the north as a stoop-walking and upright-walking passageway. Continuing on, one soon comes to another room identified by a large bedrock pillar in the center of the room. Just past this room, the Main Passage turns to the east before heading in a northern direction again. The Main Passage continues past large pieces of breakdown before reaching the Big Room.

The Big Room, as the name suggests, is the largest room in the cave (Figure 6). On surveying trips, we always enjoyed taking a short break in this room, as this was one of the few places in the cave to stand comfortably up straight. Lower Passage #2, which parallels the Main Passage, can be entered from the Big Room. Consequently, this lower passage often allows mischievous cavers to make surprise entrances into the room. One can also find evidence of a bear wallow on the north side of the room.

About 30 meters beyond the Big Room, the Side Passage splits off of the Main Passage. The Main Passage is the larger of the two and continues in a generally eastward direction. Starting at the split, the character of the Main Passage changes, with the upper and lower levels much closer to each other and with more frequent connections between the two. The upper passage is dry and requires one to belly crawl. The lower passage is wetter but allows one to crouch walk or crawl on the sharp scalloped ledges above the stream. These razor sharp, pointy scallops could be considered

Figure 6. *The Big Room. Photo by Horton H. Hobbs III.*

the "thorns" of Rose Cave. After about 90 meters, the Main Passage opens up into a slightly wider room. On the original survey of this cave (Ritter and Walker 1971), this room was named the Hot Room, most likely because one generates quite a bit of heat traveling through this tough section of the cave. After this point the cave continues on as a single tall, narrow passage at the stream level. If a caver somehow managed to keep their boots dry up to this point, it is almost impossible for them to stay that way. After the Hot Room, the cave narrows for about 40 meters. Then one must travel through a short pool of water before entering the Gypsum Room, which has wide shallow shelves above both sides of the stream. After the Gypsum Room, two interesting side passages quickly loop back around to the main passage: Oxbow 1 and Oxbow 2. These side passages are slightly higher than the main stream passage and remain dry. As far as we can tell, this is where the Ritter and Walker survey ended (1971). Soon after the Oxbows, the Main Passage becomes shorter for a while forcing cavers into a belly crawl until you reach a short narrow point in the cave, the Tight Squeeze. After the squeeze, the passage continues through Black Cobble Crawl, which is slightly more passable for the next 50 meters. The cobbles in this section of the stream are heavily coated with a black deposit (manganese dioxide). Finally the passage tapers off as a shorter narrow passage. At this point we ended the survey of the Main Passage.

The major addition to this current map of Rose Cave is the Side Passage. The entrance to this passage is small and easily goes unnoticed, which likely explains why it was not included in the Ritter and Walker (1971) Rose Cave map. To navigate the Side Passage, one must first pass through a challenging tight section of cave complete with several sharp angles (Figure 7). Past this section of cave, the passage opens up into a slightly wider stream passage. The Side Passage continues on for approximately 60 meters as a hands-and-knees crawl through the stream.

At this point, a small room can be entered on the north side of this passage. Once inside the room one must remain in a belly-crawl position. The Side Passage continues as a hands-and-knees crawl through the stream for another 30 meters. At this point the

stream disappears but the passage continues to the right. Continuing in a hands-and-knees crawl one soon reaches the Breakdown Room, which as the name suggests is full of several large pieces of breakdown. This room is the widest section of the Side Passage and allows one to sit up for a bit. Moving further through the Side Passage, one still must hands-and-knees crawl, but the passage is a bit wider than before the Breakdown Room. After approximately 40 meters the passage reconnects with the stream in a small room. The passage continues along the stream requiring one to crawl through continuously tighter passage. The Side Passage ends approximately 30 meters beyond this small room.

Biology

In addition to the bear wallows in the Big Room, we found evidence of several organisms inhabiting Rose Cave. Raccoon tracks were identified in the Main Passage just beyond the split with the Side Passage and a large amount of feces (likely raccoon) was found just past the Big Room. Several eastern pipistrelle (*Perimyotis subflavus)* bats were seen during numerous caving trips, including a decomposing bat during a 1997 survey trip. Additionally salamanders (*Eurycea* sp.), spiders, cave crickets, moths, and dipterans were identified throughout the cave. A small mouse was seen in the lower passage in the front section of the cave, the amphipod (*Crangonyx indianensis*) was in the cave stream and spring, and a crayfish (*Cambarus tenebrosus*) was found along Black Cobble Crawl. A previous description of Rose Cave reported seeing a 6-in fish in the cave (Ritter 1971).

Acknowledgments

We want to thank all the numerous WUSSes and their friends who assisted with the Rose Cave survey. Many of these volunteers learned about surveying for the first time in this cave, while others improved their survey skills. Many never came back. In fact, only 14 people came back for a second survey trip and only eight came back more than three times.

Figure 7. *Matthew Beversdorf entering the Side Passage. Photo by Elizabeth Hagen.*

Literature Cited

Ritter. C. 1971. Rose Cave. p25.

Ritter and Walker. 1971. Rose Cave: Martin County, Indiana [map]. 1971. p26.

Miller, T and S. Engler. 1990. Rose Cave (aka Bill Rose) Martin Co. Rusk Quadrangle.

A description of Rofkar's Cave I and II, Ottawa County, Ohio

Kevin M. Kissell (WUSS #0530, NSS #54578 RE)

Introduction

The sun was just rising in the warm May sky when I began the four hour drive that would unite me with the rest of the survey team near the southwestern shore of Lake Erie. I was meeting members of WUSS, Dayton Underground Grotto (DUG), Ohio Department of Natural Resources (ODNR), and a local liaison to visit a pair of caves located less than a mile south of Catawba Island, Ohio. The seven of us met at a local restaurant for breakfast before heading to the caves. The purpose of our trip was two-fold: first we were to conduct a bioinventory of any cavernicoles found within the caves for the Ohio Bioinventory, and then, if necessary, we would survey both caves.

The caves are named for the local landowner and both are on private property. They are located in the east-central part of Ottawa County, Ohio. Both caves are developed in the Silurian dolomite, like many of the caves found in the western region of Ohio. Typical of the caves in the area, including South Bass Island, both caves consist of a breakdown floor that slopes away from the entrances and the lowest level of the caves reach Lake Erie's water table; the nearest coastline is 700 meters (2,268 feet) from the entrances.

Rofkar's Cave I Description

Rofkar's Cave I has four entrances that run in a line from northeast to southwest. The first entrance is a pair of narrow pits, each less than a half meter in width, only the left-most can actually be entered due to its slightly larger size (Figure 1). The second entrance is a larger, crawl-in entrance roughly one half meter high. Underground, one cannot travel between the first and second entrances due to a constriction caused by breakdown; however it is possible to see through the pile from either entrance. The third entrance is a sinkhole entrance and is easily the largest of the four

Figure 1: *The squeeze to get into the first entrance of Rofkar's Cave I is definitely only for lucky, little cavers! Photo by K. M. Kissell.*

measuring four meters (12 feet) wide by one meter (3 feet) tall; here one can walk and stoop into the cave and actually stand up (Figure 2). When entering the cave via the sinkhole entrance, one immediately sees a 2m x 1m rectangular concrete pad in the floor of the cave, the purpose of which is unknown but speculation may be that it was once part of a water well system since the cave is so close to the water table (Figure 3). The area of the cave that surrounds the sinkhole entrance is by far the tallest in the cave with ceiling heights averaging 1.6 meters (5 feet). To the southwest of the sinkhole entrance is a small passage that had a small amount of standing water in it; it is likely that this water level fluctuates with the rise and fall of Lake Erie. The fourth and final entrance to Rofkar's Cave I is at the southernmost tip of the cave and consists of another small pit that drops into a low room, however this room has no development and peters out into a breakdown pile after only a few meters. A through trip from entrance one to entrance four is not possible because of the constriction between entrances one and two, however a through trip from two to three to four would be easily accomplished. The entire cave is fairly short, measuring 55.8 meters (183 feet) of total horizontal passage.

Figure 2: *The sinkhole entrance to Rofkar's Cave I is easily accessible and large enough to accommodate multiple cavers. Photo by K. M. Kissell.*

Figure 3: *This concrete pad was placed in the largest entrance into Rofkar's Cave I for an unknown purpose. Photo by K. M. Kissell*

As previously noted, the cave consists of a breakdown and compacted dirt floor that continually slopes away from the entrances. The cave was quite dry and no speleothem development was noted; there is also no possibility of a true dark zone due to the four entrances that span the entirety of the cave. Due to the large sinkhole entrance, there was a large amount of vegetal debris throughout the cave as well as signs of visitation by humans in the form of graffiti found on the walls near the largest entrance. No true cave-adapted fauna were seen on the day of the survey however numerous trogloxenes consisting of cave crickets *(Ceuthophilus* sp.*)*, orb-web spiders *(Meta ovalis)*, millipedes, centipedes, various beetles *(*Staphylinidae*)*, pseudoscorpions, springtails, and terrestrial isopods were identified. Also noted was a strong presence of a mammal, most likely a raccoon.

Rofkar's Cave II Description

Unlike Rofkar's Cave I, Rofkar's Cave II has only one small entrance (Figure 4) which is five meters (15 feet) northwest of the southernmost entrance to Rofkar's I. This low, crawl-in entrance immediately drops down allowing the average size caver the ability to sit up, one of the only opportunities to do so available in this cave. To the right (northwest) of the entrance room, the cave quickly drops down to roughly one half meter in height and continues on this way for about ten meters (30 feet) before terminating in a

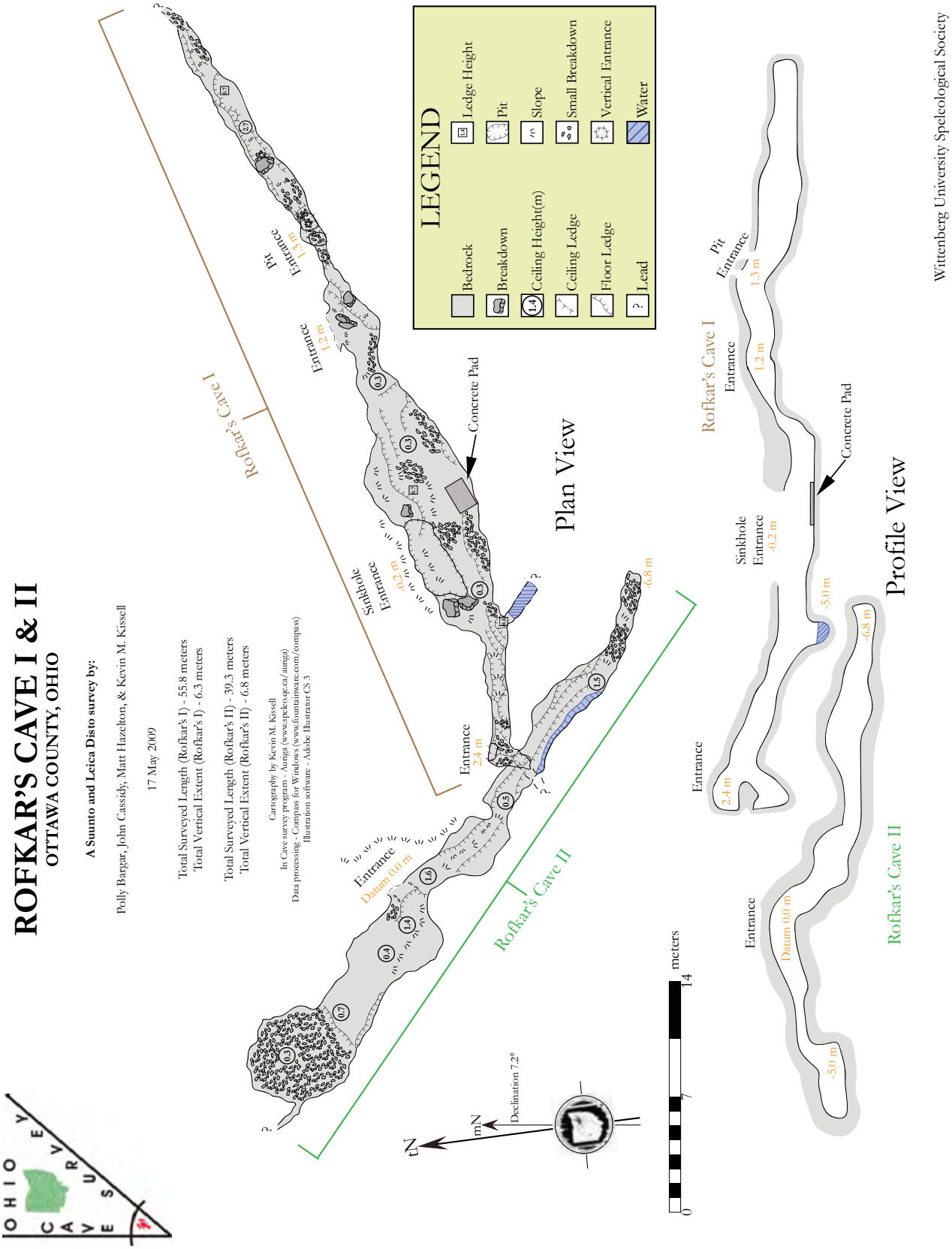
small, low, rounded room of breakdown. To the left of the entrance room is a set of two constricting drops that prevents any larger cavers from continuing on to the deepest section of the cave. After the two drops, the cave develops like so many other caves in the area in that it has a low ceiling, breakdown floor, and continual downward slope. Much of this section of the cave is painful belly crawl over small to medium sized pieces of the sharp breakdown; however the cave does eventually open up into an area big enough to sit up. The cave reaches water level and eventually terminates in a downward sloping pile of breakdown. This low section of the cave does provide for a true dark zone as well as dampness, however again no speleothem development was noted. Rofkar's II is shorter in total length with 39.3 meters (129 feet) of total horizontal passage however it has about one-half meter more vertical development that its longer brother.

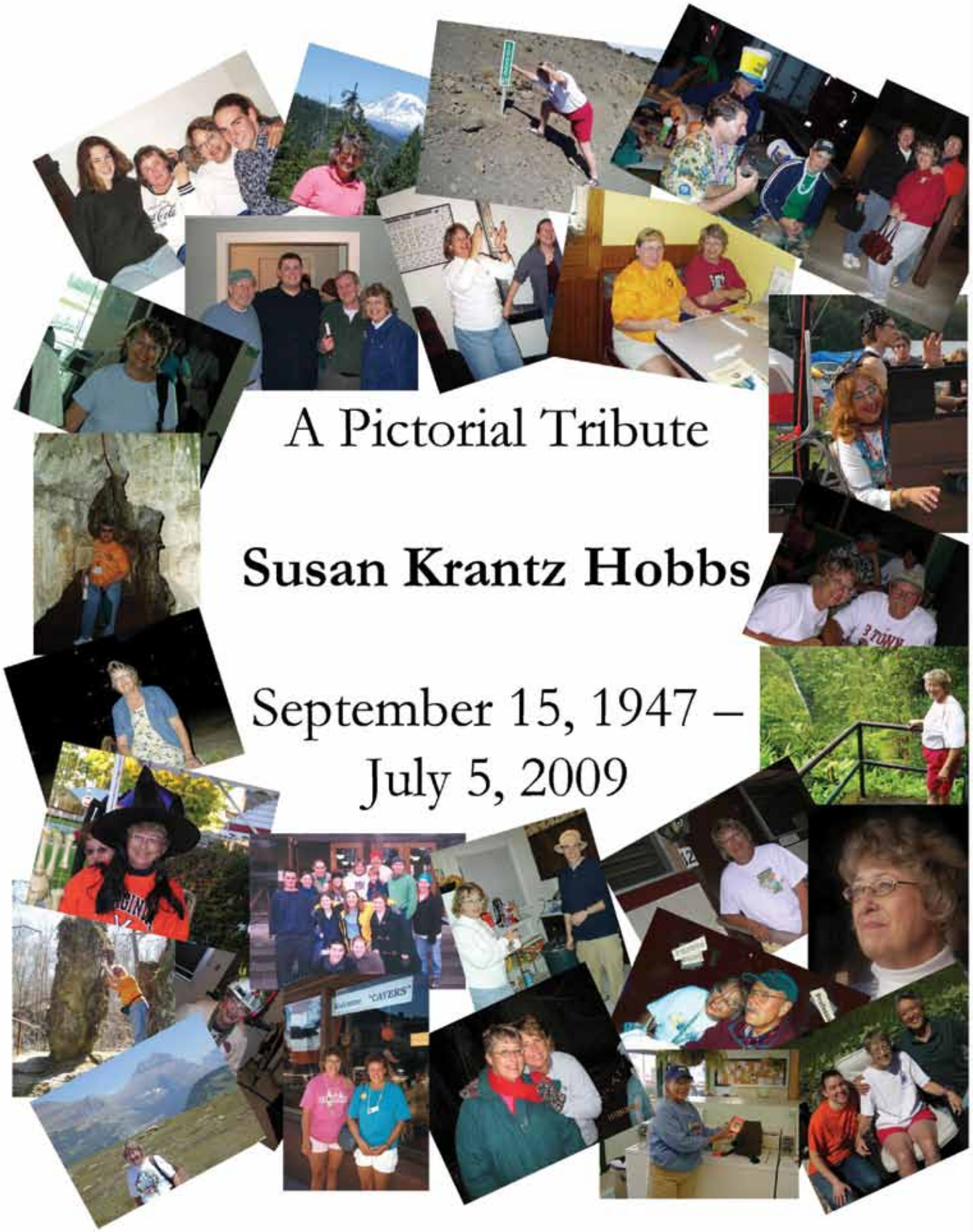
Figure 4: *The view looking out of the entrance to Rofkar's Cave II. Photo by K. M. Kissell.*

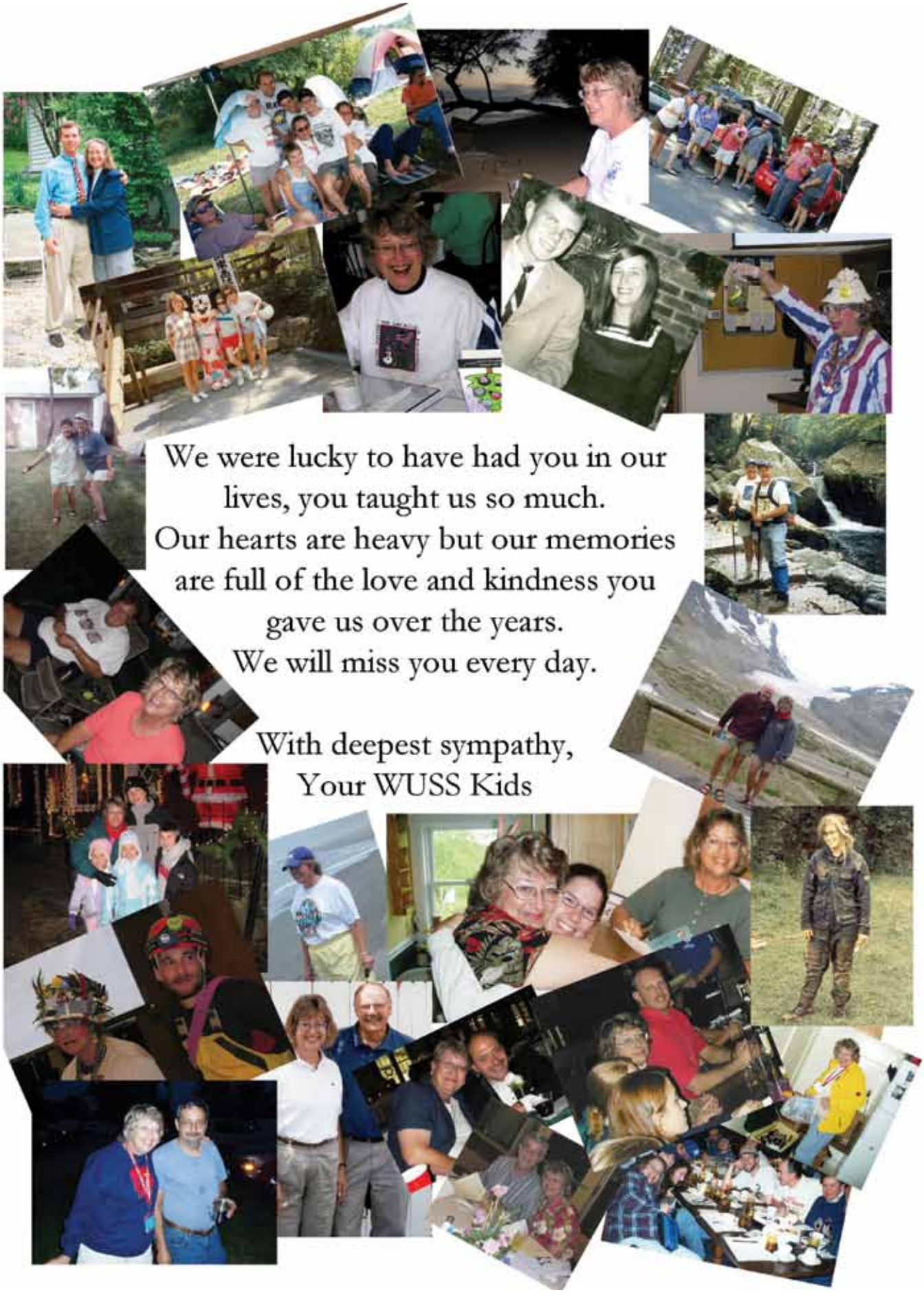
Oddly the fauna observed in Rofkar's Cave II was less numerous than in Rofkar's Cave I despite the better conditions. It is possible that the cave was too damp or that the single, small, entrance was not as easily accessible as the four entrances of the other cave. Despite this discrepancy, a few trogloxenes were noted including ticks, millipedes, mites, spiders, and again the presence of a mammal, most likely a raccoon. No aquatic organisms were found in the dark zone pool at the bottom level of the cave.

Conclusion

The two caves were most likely one cave at some point however a collapse appears to have occurred near entrance four of Rofkar's Cave I; despite the survey team's best efforts, no voice or light connection could be made between the two caves. On a peculiar note, both caves had water in them but the water appears to be at two completely different levels of rock. The water level in Rofkar's Cave I is at least a meter or two above that of Rofkar's Cave II, this is odd because evidence shows that both seem to fluctuate, possibly in response to the rise and fall of Lake Erie.


ROFKAR'S CAVE I & II
OTTAWA COUNTY, OHIO
A Suunto and Leica Disto survey by:
Polly Bargar, John Cassidy, Matt Hazelton, & Kevin M. Kissell
17 May 2009
Total Surveyed Length (Rofkar's I) - 55.8 meters
Total Vertical Extent (Rofkar's I) - 6.3 meters
Total Surveyed Length (Rofkar's II) - 39.3 meters
Total Vertical Extent (Rofkar's II) - 6.8 meters
Cartography by Kevin M. Kissell
In Cave survey program - Auriga (www.speleoape.ca/auriga)
Data processing - Compass for Windows (www.fountainware.com/compass)
Illustration software - Adobe Illustrator CS 3
OHIO CAVE SURVEY
LEGEND
Bedrock
Breakdown
Ceiling Height(m)
Ceiling Ledge
Floor Ledge
Lead
Ledge Height
Pit
Slope
Small Breakdown
Vertical Entrance
Water
Rofkar's Cave I
Rofkar's Cave II
Entrance
Pit
1.5 m
Entrance
1.2 m
Sinkhole
Entrance
-0.2 m
Concrete Pad
Entrance
2.4 m
Entrance
Datum 0.0 m
-6.8 m
Plan View
Declination 7.2°
mN
tN
meters
0
7
14
Rofkar's Cave I
Pit
Entrance
Entrance
1.2 m
1.3 m
Sinkhole
Entrance
-0.2 m
Concrete Pad
-5.0 m
Entrance
2.4 m
Entrance
Datum 0.0 m
-6.8 m
-5.0 m
Profile View
Rofkar's Cave II
Wittenberg University Speleological Society


A Pictorial Tribute
Susan Krantz Hobbs
September 15, 1947 –
July 5, 2009


We were lucky to have had you in our
lives, you taught us so much.
Our hearts are heavy but our memories
are full of the love and kindness you
gave us over the years.
We will miss you every day.
With deepest sympathy,
Your WUSS Kids

2010 NSS CONVENTION ANNOUNCEMENT

2010 NSS Convention – A Cool Convention

The 2010 NSS Convention will be held **August 2nd through August 6th, 2010,** in Essex Junction, Vermont. After 100-plus degree heat in Texas in 2009, and withering humidity in Florida in 2008, the Yankee cavers thought it was high time for **"A Cool Convention."**

All-in-one Convention site

Originally a huge agricultural fairground, the Champlain Valley Exposition, known simply as the EXPO, is now Vermont's premiere convention and exhibition facility. All Convention activities will take place on site, including camping. So come, set up your tent or RV, relax and walk to all the week's events.

Caving

The closest cave to the Convention is just a mile away. That area of Vermont is primarily in the Dunham Dolomite, but marble features are also exposed. Sea caves, talus caves, and ice caves, are short day trips away. Guided trips to some of our larger and more sensitive caves will be provided.

White Nose Syndrome is a prime concern, having wiped out many of our bats. We will take strict precautions, generally avoiding bat caves entirely. There will be a complete decontamination station on site, as well as a loaned equipment and cave clothing cache so that gear does not leave the region and risk contaminating other regions.

Above ground activities

Burlington is a beautiful and lively town, with its fabulous waterfront on Lake Champlain, featuring gorgeous mountain views and every water-related activity imaginable. You can boat, swim, fish, or even dive and explore our underwater shipwreck state park. Summer in Vermont is superb for hiking, kayaking, waterfall touring, cycling and climbing amongst many others.

Downtown Burlington boasts the Church Street Pedestrian Marketplace, a vibrant social center, buzzing with activity. It features an exceptional selection of fine and casual dining, pubs and microbreweries, unique shops and boutiques, and a lively and entertaining cultural, art, and music scene.

Burlington is a college town, anchored by the University of Vermont, but including Champlain College, Burlington College, and nearby St. Michael's College, too. It's a great family town, with plenty to do for people of all ages, so plan on bringing the whole crew to enjoy summer in Vermont.

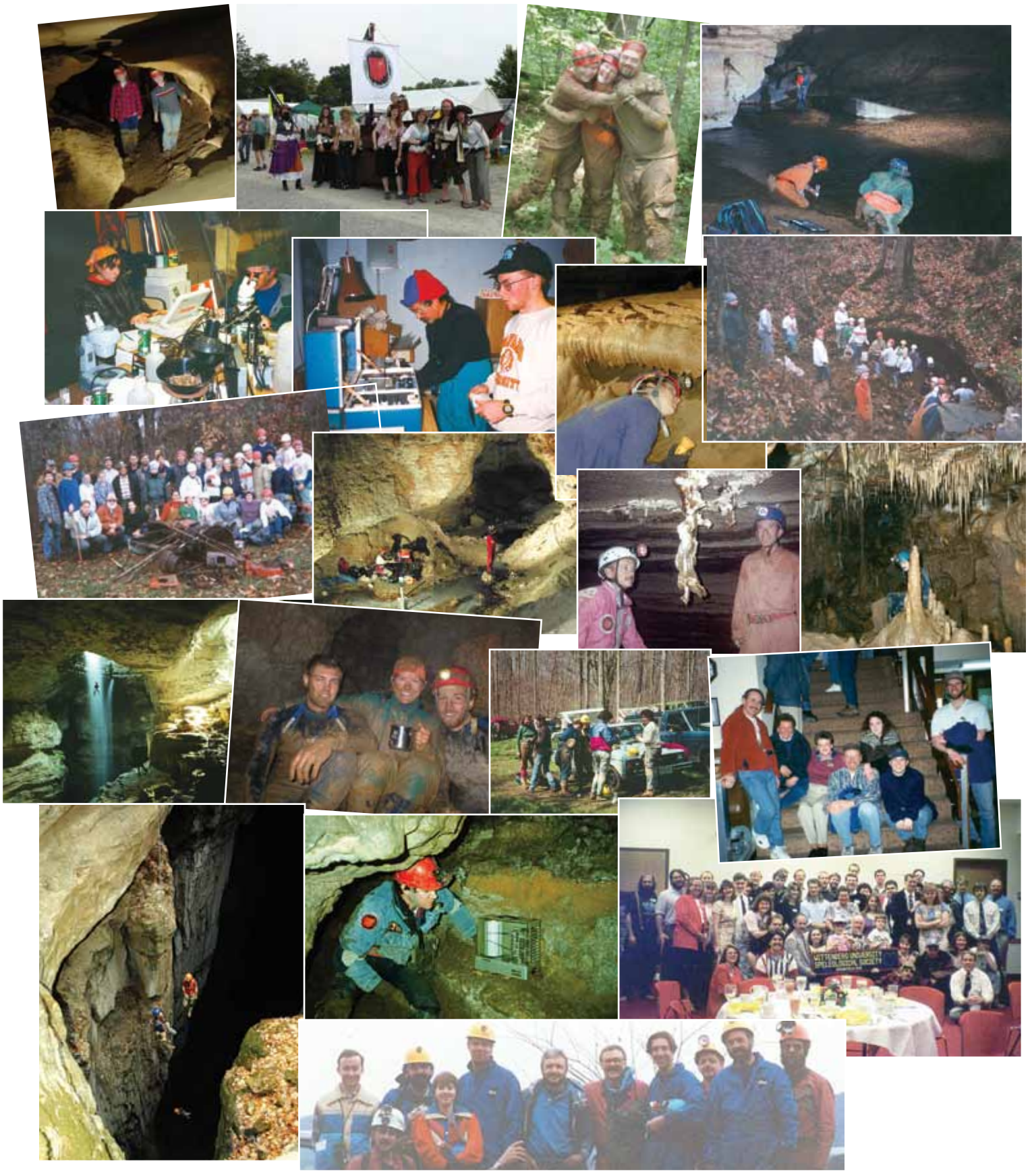
For more information, including a full schedule and online registration, check out the Convention website at **www.NSS2010.com**. Make your plans and reservations now. We look forward to welcoming you to Vermont!

WUSS PAST & PRESENT PHOTO GALLERY

WUSS PAST & PRESENT PHOTO GALLERY

WUSS PAST & PRESENT PHOTO GALLERY

WUSS PAST & PRESENT PHOTO GALLERY



INFORMATION FOR CONTRIBUTORS

PHOLEOS

Journal Of The Wittenberg University Speleological Society

EDITORIAL POLICY: Manuscripts treating basic research in any aspect of speleology will be considered for publication. They must not have been previously published, accepted for publications, or be under consideration elsewhere.

All manuscripts are to be in English. Metric and Celsius units must be used, and SI units are preferred. The CBE Style Manual, the Handbook for Authors of Papers of the American Chemical Society, and Webster's Ninth Collegiate Dictionary are useful guides for matters of form and spelling.

The original of the manuscript must be typed double-spaced on one side of white bond paper approximately 8.5 x 11 inches, leaving margins of one inch. Use triple-space above headings.

The most effective way to submit a manuscript is as an attachment to an e-mail message sent to the editor. A second approach is to submit three (3) hard copies of the manuscript, figures, and tables along with a CD-ROM of the manuscript, figures, and tables in separate files.

Number pages consecutively at the top right-hand corner. Underline scientific names of genera and lower categories. Acknowledgments should be on a separate, double-spaced page. Each figure and table must be referred to in the text. Text references are by author, followed by year of publication.

The sequence of material in the manuscript should be as follows.

1. The *title* page should include the title, author's name, affiliation, WUSS and NSS membership number, and mailing address.
2. The *abstract* should not exceed one double-spaced page. It should contain a summary of significant findings and note the implications of these findings.
3. The *introduction*.
4. *Methods and materials.*
5. *Results.*
6. *Discussion*.
7. *Literature Cited*. List all publications referred to in the manuscript alphabetically by first author on a separate sheet of paper (double-spaced). Each citation must be complete, according to the following examples:

   Journal Article:

   Peck, S.B 1974. The food of the salamanders *Eurycea lucifugá* and *Plethodon glutinosus* in caves. NSS Bulletin, 36(4): 7-10.

   Book:

   Moore, G.W., and N. Sullivan. 1997. Speleology: Caves and the cave environment. St. Louis, Missouri: Cave Books.

   Chapter:

   Hobbs, H.H. 1992. Caves and springs. *IN*, C.T. Hackney, S.M. Adams, and W.A. Martin (eds.), Biodiversity of Southeastern United States/Aquatic Communities. John Wiley & Sons, pp. 59-131.

8. *Figures and Tables* should be self-explanatory, with captions of tables placed above and those for figures situated beneath. Each table and figure should start on a separate sheet. Headings and format should be consistent. Originals for all figures and tables should be submitted with the manuscript or, if in electronic form, should have a minimum resolution of 300 dpi.

Address all manuscripts and correspondence concerning editorial matters to

Editor, *Pholeos*
c/o Horton H. Hobbs
Dept. of Biology
Wittenberg University
P.O. Box 720
Springfield, OH 45501-0720

30 Years of Pholeos