



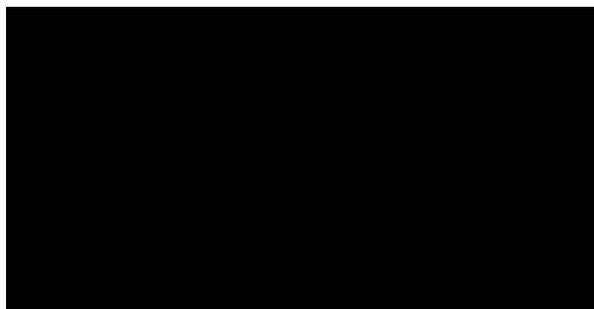
CENTRAL OKLAHOMA GROTTO OF THE NATIONAL SPELEOLOGICAL SOCIETY, INC

C.O.G.nizance

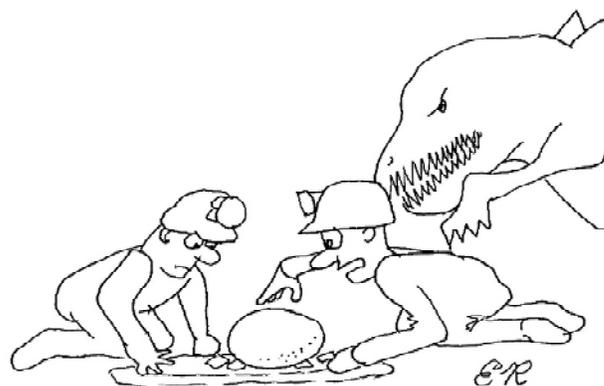
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The September meeting will be Friday, September 8, 2017 at 7:30 p.m. The meeting will be at the home of Jon Woltz.



The 2017 eclipse seen from inside a cave. (Lil Town)



"Well, it looks like a cave pearl to me."

Copied from <http://www.rogerbrucker.com/artwork.html>



"NO! NO! NOT AGAIN! NOT IN THE CRAWLWAY!!"

Copied from <http://www.angelfire.com/tx2/toons/1999feb.html>

ANNOUNCEMENTS

*Northwest trips are scheduled the third Saturday of every month. Contact Sue or John Bozeman for details.

*The September meeting will be Friday, September 8, 2017 at the home of Jon Woltz.

WHITE-NOSE SYNDROME DECONTAMINATION PROTOCOL, APRIL 2016

This is the latest formal revision of the national decontamination protocol to prevent spread of the fungus that causes white-nose syndrome. This document is the product of a collaborative effort with multiple federal and state agencies and several non-governmental organizations.

Go to this website to view the detailed suggestions listed to help stop the spreading of WNS.

<https://www.whitenosesyndrome.org/news/national-white-nose-syndrome-decontamination-protocol-april-2016>

For the latest information about WNS visit this site:

<https://www.whitenosesyndrome.org/>

Our dear Anne Ault passed away June 17, 2017.

As a tribute to her memory, COG members were asked to write any fond memories they had while caving with her. We will remember her always.



John Bozeman remembers Anne in the Selman System. We were at a point where we felt air booming through a tiny opening at floor level that was about an inch or so high and two feet wide. Sue was convinced from the mapping done to date, that it would connect with a major inflow from the north. The proof required major digging. Steve hauled his Weapons of War in and began excavating the passage into something of a comfortable size. Long before he was satisfied, Anne and Lil were able to fit and began 'swimming' through the dry soil ahead of him. Those two pushed the sandy soil to whichever side had more room ... for hours. They went about 70 feet and then ran out of energy and retreated to Steve, who had opened them up a major thoroughfare exit! The passage became known as "Lil Anne Dugway" and did connect to the southern entrance that we were working on at the time, W'Estwing.

John also remembers that in Broken Horn, he, Anne and Steve Beleu went in the Jon-John Entrance and planned to hook up with Dale Amlee, Sue Bozeman and Jon Woltz, who were coming in from the master cave. It was hoped that we could at least make a voice connection if not a through connection. It was also the last caving trip John could see much with the left eye. It was that weekend ARN came to visit. Acute Retinal Necrosis is where the same herpes virus that causes you to have cold sores visits your retina instead, chewing it up and detaching it. John battled that for months until it was halted, but then had to have the aqueous humor replaced with a yellow oil that now holds what remains of his retina in place. Needless to say, he can no longer cave. However, their trio did successfully complete the connection with the others -- a memorable end-of-caving-career trip.

SUE AND JOHN BOZEMAN



Anne would sometimes ride with me to Fairview after we got out of the caves, and on those drives we discovered that we shared a mutual love of Tom Lehrer songs. Lehrer is a mathematician who became a minor celebrity during the 1950s and 1960s for his funny and controversial songs satirizing everything from nuclear annihilation ("So Long, Mom") to Vatican II ("The Vatican Rag"). So the way I choose to remember Anne is to remember her laughter as we drove down the highway recalling the wickedly funny lyrics from old Tom Lehrer songs about nukes, religion, dope peddlers, and plagiarists.

JON WOLTZ



The thing I remember best about Anne is that she did not like water or cold. She loved her friends at COG as they loved her. When I stopped by to see her at the old house for a visit her love for her son and animals showed. Anne will be missed at our COG meeting as she has been missed on caving trips in the last few years.

JOHN TALBOT



(continue on page 3)

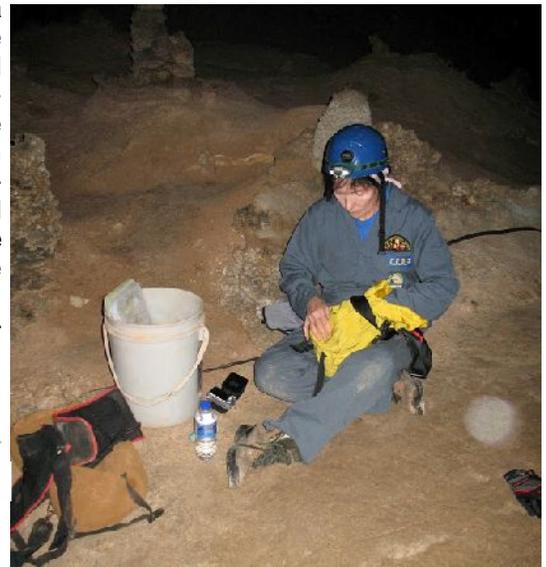
Here's I most remember and value: coming out from surveying a cave one evening—don't remember what year or which cave it was--we were all beat up and worn down, especially Anne and me. We began walking slowly and with much effort up the grade of the prairie field on Betty's ranch, doing the best we could. Anne was slowing down perceptibly, so I walked up beside her and grabbed either her left or right arm, held on to that arm, and together we walked up to the Bozemobile where we took off our caving overalls and hats and crawled into it there to sprawl out.

STEVE BELEU

Anne liked to laugh and we often joked around with each other while caving. She also liked to collect arrow heads. One day, while walking a trail with me in the lead, I dropped fake arrow heads which she delighted in finding. That is, of course, until she figured out what was going on. Then, for a few moments, I thought my life was in danger. Of course Anne and the rest of us all had a good laugh and enjoyed our day together.

DALE TOWN

Anne and I had many adventures together. Once when ridge walking in Southwest Oklahoma, we lost sight of the rest of the group. I looked at Anne and told her to use her Indian tracking skills to find the others! We had quite a laugh. Then there were the times we spent in Anne/Lil dug-way. She never did let me live down the Jumping Jack Room being so wide we could turn around and not have to back all the out. Don't think we ever did find that place again.. We spent so many hours digging and crawling in many areas. She may have had hesitations of creepy crawly things and in hunt for furry cave monsters, but she was not claustrophobic! Another time we were going in Gothic Entrance and a rattlesnake was guarding the entrance. Dale T. found a forked stick he said he would hold the snake back while everyone passed by. He took the stick, poked Anne in the back of her leg and made a rattling sound. I didn't know anyone could jump that high! Another trip, I think in Selman, we were point in a wet, cool passage and all the points we set where on rocks in the water. The surveyors had to lay in the water to take a shot. There were some words said about all the water, getting wet, and foggy evaporation raising off the hot bodies and someone hollered out the was all "Ault's Fault!" I think that is the name of the passage. We all started hysterically laughing and decided there was a shortage of fresh air a nd that we should bring a canary with us. And who could forget the trips to Carlsbad and stopping for her scratch-offs across Texas! So many fond memories. **LIL TOWN**



A Picture Tribute to Anne has been created on our website. She avoided pictures like the plague but we still have enough to remember her by. <http://okcavers.com/memory/index.html>

DUANE DEL VECCHIO

NOTE: I HOPE I INCLUDED EVERYONE'S MEMORIES THAT WERE SUBMITTED. IF ANY HAVE BEEN LEFT OUT PLEASE LET ME KNOW SO THEY CAN BE PUT IN THE NEXT NEWSLETTER.

MINUTES

CENTRAL OKLAHOMA GROTTTO

Minutes of the meeting of June 16, 2017

Host: the wikiup-and-lean-to of The Skillful Ogre
Attendees: Dale Amlee, Sue & John Bozeman, John Talbot, Carol and Dale Town, John Van Dyke, Jon Woltz, The Skillful Ogre

Most Exalted Potentate Jon Woltz began the meeting at 8:00

OLD BUSINESS

John Talbot read the report about Sue's accident as printed in the new *American Caving Accidents*.

NEW BUSINESS

Jon told us about his and Kelley's vacation to Wakulla Springs, a storied water cave:
<https://www.floridastateparks.org/park/Wakulla-Springs>

We shared with one another our many medical challenges and current ambulatory status.

Sue asked approval to spend \$25 for a group photo of COG that Betty Selman has requested. Approved by all, voice vote.

Carol reported that she received a message via Facebook from a June Post who asked about how she could get into Jester Cave. We agreed that Carol should tell her about COG and how to join it, but we will send her no caving access information.

Last and least, I showed off my new pry bar—3 feet, 9.5 inches of heavy metal—that we will use in our cave digging projects. Verily is it like unto the pry bar that Wotan uses in Valhalla.

TREASURER'S REPORT

John Talbot delivered reports for June

We concluded the meeting at 8:38

TREASURER'S REPORTS

JUNE 2017 TREASURERS'S REPORT

INCOME		
Dividends	\$	00.29
Dues	\$	18.00
TOTAL	\$	18.29
CASH ON HAND	\$	256.62
CHECKING	\$	128.17
SAVINGS	\$	2,139.41
TOTAL	\$	2,524.20

EXPENSES

Balance as of 8/7/2017

PREPARED BY TREASURER JOHN TALBOT

TRIP REPORT

No Trips Reports submitted to publish.

POTPOURRI

Service Provides 1 Million Dollars to States to Combat Bat-Killing Fungal Disease

Funding Supports White-nose Syndrome Research,
Prevention and Eradication Efforts
July 17, 2017

Today, the U.S. Fish and Wildlife Service announced over \$1 million in grants to 37 states and the District of Columbia to help combat white-nose syndrome (WNS), a fungal disease that has killed millions of North American bats in recent years. Funds will help states find ways to prevent the spread of WNS while increasing survival rates of afflicted species

The grants bring the total funding to states for WNS response over the last eight years to \$7 million. This financial support is part of a Service-led, cooperative, international effort involving more than 100 state, federal, tribal, academic and non-profit partners.

"White-nose syndrome has ravaged bat populations in many parts of this nation. Funding from the Service provides state fish and wildlife agencies with critically important support to manage and mitigate the spread of the disease to new areas of the country," said Nick Wiley, President of the Association of Fish and Wildlife Agencies and Executive Director of the Florida Fish and Wildlife Conservation Commission. "The Association greatly appreciates the Service's role in coordinating a national response to white-nose syndrome and the funding support for state responses to this wildlife disease crisis."

First discovered in New York in the winter of 2006-2007, the fungus has now spread to 33 states and five Canadian provinces and infects eight of the top 10 agricultural producing states. Insect-eating bats keep agricultural pest populations down, saving farmers at least \$3.7 billion per year in lost crop revenue and preventing the need for spraying costly toxic chemicals. Some farmers install "bat box" homes to increase the number of bats protecting their crops.

"Bats are beneficial in many ways," said Jeremy Coleman, National White-nose Syndrome Coordinator for the U.S. Fish and Wildlife Service. "While state natural resource agencies are on the front lines of bat conservation, many have limited options for responding to this devastating disease without these funds. Activities supported by state WNS grants have been critical to the national response."

For example, Alabama has no full-time staff dedicated to bat conservation. With the WNS grants, however, biologists have contributed to the national understanding of WNS by documenting the disease in a new species (the southeastern bat) for the first time this year. The biologists also discovered a large hibernation site for the federally endangered Indiana bat and surveyed the most important hibernation area in the world for another endangered species, the gray bat. "The WNS grants to states program is absolutely critical to our efforts to understand the disease in Alabama and contribute to the national fight against WNS," said Nicholas Sharp, Nongame Biologist with the Alabama Division of Wildlife and Freshwater

(Continued on page 5)

Fisheries. "Without it we simply would not have the capacity to do this work."

In addition to developing science-based protocols and guidance for land management agencies and other partners to slow the transmission of WNS, the Service has funded many research projects to understand the disease and support sound, effective management responses, including the application of disease treatments. Priorities this year include coordination and research for WNS treatment trials in collaboration with the Bats for the Future Fund, along with bat monitoring, response planning and conservation actions.



Deadly Fungus Affecting Hibernating Bats Could Spread During Summer

The cold-loving fungus (*Pseudogymnoascus destructans*, or Pd) that causes white-nose syndrome, a disease that has killed millions of North American bats during hibernation, could also spread in summer months. Bats and humans visiting contaminated caves and mines can inadvertently contribute to the spread of the fungus, according to a recently published study by the U.S. Geological Survey.

USGS scientists tested samples collected from bats, the environment and equipment at eight bat hibernation sites in Kentucky, Indiana, Ohio, Tennessee and Virginia. They found that bats occupying such sites in summer can harbor the Pd fungus on their skin, and that Pd is more readily detectable in their guano, or feces.

The scientists also detected Pd on clothing and equipment taken inside and near caves and mines used by bats. These detections demonstrate that gear exposed to fungal-infected environments is a potential mechanism for Pd spread, even during summertime when the prevalence of WNS is low. WNS is not known to affect humans, pets, livestock or other wildlife.

"Our findings provide insights into additional means by which Pd may be dispersed and further contribute to the spread of this devastating disease that threatens agriculturally and environmentally valuable bat populations," said Anne Ballmann, a USGS scientist and the lead author of the report. "This information will further help inform managers working to control the westward movement of WNS in North America."

Between July 18 and August 22, 2012, Ballmann and her colleagues collected swabs from bat wings, cave walls and equipment used in and near the study sites. They also collected guano from individual bats and floor sediment in underground summer roost sites. Findings include:

- Pd was detected on 40 bats and in environmental samples from seven of the eight study sites;
- Guano accounted for 93 percent of the bat-associated Pd detections;
- Equipment, including trapping equipment and a backpack, from three WNS-impacted sites in Kentucky, Indiana and Ohio tested positive for Pd DNA; and
- Fungal DNA from Pd was more readily detected in sediment samples than on swab samples from cave walls.

No bats showed visible signs of WNS during the course of this study, even though the disease-causing

fungus was found. Although exposure to Pd does not result in WNS during summertime, the study showed that the fungus that causes the disease can be transported by bats and people visiting contaminated sites in summer.

First detected in New York State in the winter of 2006-2007, WNS has spread to 31 states and five Canadian provinces. The disease is named for the white fungus that infects the muzzle, ears and wings of hibernating bats. Scientists at the USGS National Wildlife Health Center discovered, characterized and named the fungus that causes WNS, and pioneered laboratory techniques for studying effects of the fungus on hibernating bats.

Decontamination guidance for cave visitors to help reduce the risk of human-assisted movement of Pd can be found online.

The USGS is part of an international coordinated response to WNS, which is led by the U.S. Fish and Wildlife Service.

For more information about USGS wildlife disease research, please visit the USGS National Wildlife Health Center website.



Skeleton Stolen From Underwater Cave in Mexico Was One of the America's Oldest

By Ben Panko

August 31, 2017

<http://www.smithsonianmag.com/news/stolen-skeleton-was-one-americas-oldest-180964682/>

A new study shows that the human remains looted in 2012 are more than 13,000 years old

A stolen skeleton, which was first discovered in an underwater Mexican cave in the 2010, may be one of the oldest-known human remains in the Americas, Ewen Callaway reports for *Nature*.

In a [study](#) published yesterday in the journal *PLOS One*, the archaeologists found that the skeleton, dubbed "Young Man of Chan Hol II," which was looted from an underwater cave on the Yucatán Peninsula in 2012, dates back more than 13,000 years, making it one of the oldest-known human remains on the continent. It joins the company of a more than 12,000-year-old skeleton found in a different Yucatán cave, as well as another skeleton found nearby, which dates back approximately 13,500 years, writes Callaway.

The underwater caves of the Yucatán Peninsula preserve some of the earliest years of human settlement in North America. "During the Late Pleistocene, these caves were dry. The first people to occupy what is now the Caribbean coast of Mexico wandered into these caves, where some ultimately met their demise," Waitt Institute archaeologist Dominique Rissolo told *National Geographic's Fabio Esteban Amador* in 2011. "As the last glacial maximum came to end, the melting of the polar ice caps and continental ice sheets raised sea levels worldwide. The caves of the Yucatán Peninsula filled with water and the First Americans were (continued on page 6)

hidden for millennia — only to be discovered by underwater cave explorers."

In 2007, the aforementioned 12,000-year-old bones of a teenage girl were discovered in another Yucatán cave. Then, in 2010, another promising skeleton was discovered by divers in Chan Hol (meaning "little hole" in a Mayan language, referring to the small size of the opening to enter it). The divers posted about the thrilling discovery on social media around February 2012, Callaway reports. But when archaeologists arrived at the site the following month, they found that the social media posts had also attracted looters, who stole the skeleton from its millennia-old place of rest. Frank Nowikowski of *New Scientist* reported at the time.

About 10 percent of the 80-percent-intact skeleton was left behind in the cave, likely because it was embedded into the rock and too difficult to extract by the looters, wrote paleontologist Sarah Gibson in a blog post for the PLOS Paleo Community.

Previous attempts to date these bones with conventional methods like carbon dating produced extremely inconsistent results, reports Andrew Masterson for *Cosmos*. This was due to a unique quirk of the cave in which the skeleton, which appeared to archaeologists to be from a young man, had resided since his death. The Chan Hol cave had regularly been flooded with both saltwater and freshwater since the man's death, leaching nearly all of the collagen from the bones that is vital for accurate carbon dating.

To get around this problem, the archaeologists turned to the rock that had nestled the skeleton, reports Sarah Sloat for *Inverse*. The researchers were able to extract samples of a stalagmite grown through the skeleton and from other nearby rocks and scrutinize the amount of isotopes of different elements in those samples. Studying those isotopes can tell researchers about the climate of the time when they were deposited onto the stalagmite, thus giving clues to when they began to be formed.

The scientists are now working to extract DNA from the remaining bones of the skeleton, Callaway reports, and despite five years passing since the theft, they are still holding out hope for the ancient remains' safe return.



New species of Giant Spider found in Baha

SAN DIEGO, CA (RNN) - Researchers from the San Diego Natural History Museum discovered a new species of big, hairy cave-dwelling spiders as big around as a saucer with red fangs.

The museum team along with experts from Brazil and Mexico found an abnormally large exoskeleton hanging from the roof of a cave in Baja California Sur, said Jim Berrian, an etymologist for the museum.

He said he could tell by the eye pattern that it was from a family of wandering spiders that were rare in the area.

That kind of spider is nocturnal, so they came back when the sun went down. That same night they

poked around and there it was, the creature now known as *Califorctenus cacachilensis*, or the Sierra Cacachilas wandering spider.

"In all my experience over the years collecting spiders on the peninsula, I had never seen a spider this large," said Dr. Maria Luisa Jiminez, who is considered the foremost expert on spiders of Baja California Sur. "I suspected that something new was waiting to be described."

They found about two dozen more specimens in caves, an abandoned mine shaft and the remnants of a pit toilet, according to *Smithsonian.com*.

The new Mexican cave spider is related to the notorious Brazilian wandering spider, whose venom can kill a grown man but not before giving him a four-hour erection. But it's so different it has been put in a whole different genus, and while it's venomous, it's no danger to humans said Berrian, who got bitten by one and lived to tell about it.

Most insects and spiders on the planet are undiscovered, according to a museum blog post. There are 1.1 million species of insects and spiders that have been identified and given names, but there are probably two to five million critters that remain an enigma to science.



The weather report for California 8,200 years ago was exceptionally wet and stormy.

<https://www.sciencedaily.com/releases/2017/06/170620093206.htm>

That is the conclusion of a paleoclimate study that analyzed stalagmite records from White Moon Cave in the Santa Cruz Mountains published online Jun. 20 in *Scientific Reports*.

The Golden State's 150-year stretch of unusually wet weather appears to have been marked by particularly intense winter storms and coincides with a climate anomaly in Greenland ice cores first detected in 1997. Before this "8.2 ka event" was discovered scientists thought the world's climate had been unusually stable during the Holocene, the geological epoch that covers the last 11,700 years of Earth's history.

Since then researchers have associated the distinctive, 3.3-degree Celsius temperature dip in the Greenland ice cores with a catastrophic event: The drainage of two giant glacial lakes (Lake Ojibway and Lake Agassiz) located in northeastern North America caused by the collapse of massive ice sheet that covered much of the continent during the last ice age. In short order, the two lakes dumped enough melt water into the North Atlantic to disrupt the world's oceanic and atmospheric circulation patterns and raise the sea level by somewhere between two to 10 feet. The tremendous freshwater flood has been associated with an extended cold snap in Europe, increased drought in Africa, weakened monsoons in Asia and strengthened monsoons in South America.

"This is the first high-resolution evidence of the response of the coastal California climate to the most distinctive event in the Holocene. Although the effects appear to have been less severe than in other parts of the world, it provides us with new information about the nature of this global climate event," (*continued on page 7*)

said Jessica Oster, assistant professor of earth and environmental sciences at Vanderbilt University, who directed the study.

Oster is a member of a small community of earth scientists pioneering the use of mineral deposits in caves as proxies for the prehistoric climate. Cave formations, including stalagmites and stalactites, can provide valuable information about the climate for the last 600,000 years. They have a built-in clock: The mineral deposits contain radioactive uranium-234 that decays into thorium-230 at a constant rate so the ratio of the two isotopes is determined by the date the mineral deposit formed. Seasonal variations in water seepage produce layers that can be dated with considerable precision. The ratios of other isotopes in the minerals including oxygen and carbon provide information about the temperature and nature of the vegetation in the region at the time the layers formed. Concentrations of trace elements like magnesium, strontium and phosphorus provide information about how wet the environment was.

"Events like this are particularly difficult to study because they are so brief," said Oster. "Fast-growing stalagmites are particularly good for this purpose because they have very high temporal resolution."

With a five-year grant from the National Science Foundation, Oster is analyzing stalagmites from two California caves in order to shed new light on the factors that produced megadroughts in the region during the late Pleistocene and early Holocene. During her studies, she discovered a stalagmite that was growing rapidly just before, during and after the 8.2 ka event. By analyzing the oxygen and carbon isotope ratios and the concentrations of the trace elements phosphorus and magnesium in the mineral layers formed from 6,900 to 8,600 years ago, Oster and her collaborators extracted a considerable amount of information about what was going on in the prehistoric California atmosphere.

According to the paper, ". . .the new record suggests that the 8.2 ka event was associated with a brief period of wetter conditions, potentially arising from increased storminess, and demonstrates a near synchronous climate response to this event on both sides of the Pacific."

Climatologists are particularly interested in this prehistoric event because it can provide insight into what would happen if global warming reaches a point where glaciers in Greenland and other parts of the globe melt rapidly enough to dump large amounts of fresh water into the ocean. In 2003, for example, the Office of Net Assessment at the U.S. Department of Defense produced a study of prospective climate change specifically based on this event.



Big bat find in Alberta's boreal forest

Wildlife Conservation Society

March 16, 2017

<https://www.sciencedaily.com/releases/2017/03/170316152004.htm>

A cluster of Little Brown Myotis bats in the newly explored Alberta cave. Unlike in eastern caves, most hibernation sites in northern and western regions contain only a few hundred bats at most. *Credit: Greg Horne*

The Wildlife Conservation Society Canada and Alberta Environment and Parks announced today the discovery last month of the largest Alberta bat hibernation site (based on estimated bat count) ever recorded outside of the Rocky Mountains.

The newly-discovered cave is being used as a hibernaculum by at least 200 Little Brown Myotis bats, listed as Endangered under Canada's Species at Risk Act. Formed by weak sulphuric acid dissolving bedrock, conditions in the narrow, muddy cave make it impossible to fully inspect hand-sized pockets, cracks and fissures that compose roosting sites. "This means population numbers could be significantly higher," suggests Dave Hobson, Senior Wildlife Biologist of Alberta Environment and Parks.

Said Dave Critchley of the Northern Alberta Institute of Technology (NAIT), who co-coordinates WCS Canada's BatCaver program in Alberta, and was one of the cave explorers: "Finding a cave in Alberta's boreal forest inhabited by several hundred bats is a real breakthrough. It demonstrates that this kind of bat habitat may well exist in other non-mountainous areas throughout the boreal forest."

Said Shannon Phillips, Minister of Environment and Parks: "This is a fascinating and important find. Understanding where Alberta's different bat species are living is a crucial part in preventing the spread of white-nose syndrome and in protecting sensitive habitats."

The discovery of hibernation spots has become extremely urgent in western Canada since the 2016 discovery of white-nose syndrome (WNS) in Washington State. Bats with WNS are infected with a fungus that wakes the individual bats and forces them to burn through their precious stored winter fat long before the return of insect season. It spreads throughout hibernation sites and can kill more than 90 percent of resident bats. WNS has devastated bat colonies in Eastern North America and could be about to erupt in the West.

Said Greg Horne, who is co-leading the BatCaver efforts in Alberta: "Cavers are helping to locate hibernacula so that more can be learned about the bats before the disease arrives."

The four-person crew that explored the Alberta cave collected DNA and guano samples for analysis. In addition, they placed ultrasonic bat detectors along with temperature and humidity loggers in the cave to learn more about this newly discovered bat colony, including when the bats are entering and exiting the cave and more about their behavior during hibernation.

Said WCS Canada Associate Conservation Scientist and bat specialist Dr. Cori Lausen: "Bats are the No. 1 nocturnal consumer of insects such as mosquitos. Losing vast numbers of the night-feeders will have cascading impacts for backyard enthusiasts and ecosystems, and for industries such as forestry and agriculture. It's urgent we develop plans for protecting bats and ensuring they are in a position to eventually recover should WNS hit the western provinces."



Central Oklahoma Grotto is a non-profit organization and a chapter of the NSS (National Speleological Society), Cave Avenue, Huntsville, AL., 35810. Dedicated to cave conservation and safety, C.O.G. published general information in a monthly newsletter (\$6.00/year) and detailed cave surveys and related Speleological items in a yearly publication, *The Oklahoma Underground* (\$3-\$8/issue) Membership is by sponsor and is \$12 per year for adults, \$6 for spouses and students, and \$3 if under 18. Central Oklahoma Grotto meets once a month on the second Friday of each month. For information, write Lil Town Mosier Circle, Conifer, CO 80433: All submissions to the newsletter should be sent to the editor: Lil Town, 25692 Circle, Conifer, CO 80433: Telephone: (580)471-1238: E-mail: cavemoose@gmail.com. The deadline for submissions for any particular month's issue is the 20th day of the previous month. If you wish material returned. Please include a SASE with submission. All materials in this newsletter is available for reproduction, provided proper credit is given with the article when you print it. Trade publications are welcome *Cave softly and safely!* Website: <http://www.okcavers.com>

The September meeting will be
At the home of Jon and Kelly Woltz
Friday, September 8, 2017



Central Oklahoma Grotto
Cool Cave Air Printing Press
2119 Holly Oaks Lane #283
Weatherford, TX 76087