CENTRAL
OKLAHOMA
GROTTO
OF THE NATIONAL
SPELEOLOGICAL SOCIETY,INC

C.O.G.nizance

Inside this Issue

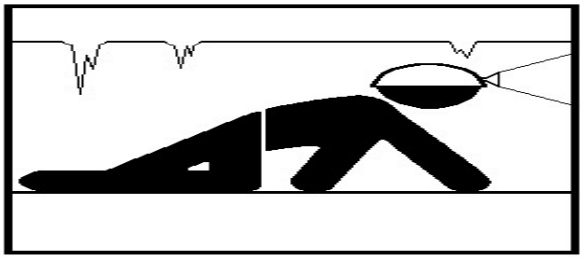
Announcements ……..…...….....2
Memorial to cave owner, Elmer
White-Nose Decontamination Protocol; Meeting places
Meeting locations
Minutes: November 8, 2019 2
Treasurer's Report: December 2019 3
Trip Reports: The Grotto Watershed, Dec. 21, 2019……..3
Potpourri:
3 years later, rare Taney County
'maze cave' gets a closer look ……..…..….4-5
Illumination drives bats out of caves No matter the
color of the light ……..……..…..……...5

The Next Meeting will be on Friday January 10, 2020 7:30 p.m. at John Talbots.

Address: 2909 Shannon Ave. Bethany, OK
Telephone: 405-789-6944

2020

Picture taken by Jon Woltz at Grotto Watershed



ANNOUNCEMENTS

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

*The Next meeting will be Friday, January 10, 2020 at home of John Talbot.

Yet another landowner has departed this world.
https://legacy.newsok.com/obituaries/oklahoman/obituary.aspx?n=elmer-maddux&pid=194534930

This has been a sad year for several gypsum cave landowners.
Elmer bought a bunch of Betty Selman's remaining ranchland.
He allowed us to continue caving and use the East House, as arranged by Betty, until she died.

WHITE-NOSE SYNDROME DECONTAMINATION PROTOCOL, September 2018

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/static-page/decontamination-information

MEETING PLACES FOR 2020

Jan - John Talbot	May - John Van Dyke	Nov - John Van Dyke
Feb - John Van Dyke	June - The Skillful Ogre	October - Bozeman
March - Bozies	July/August no meetings	Dec - Bozeman – Christmas Party
April - Dale Amlee	Sept - Jon Woltz	

MINUTES

CENTRAL OKLAHOMA GROTTO MEETING
Date of meeting: November 8, 2019

Host: John Van Dyke
Attending: Dale Amlee, Sue and John Bozeman, John Talbot, Jason Talbot, Jon and Kelley Woltz, John Van-Dyke, S. Beleu
Guest and prospective member: Crystal Warren
Presiding: Grand High Potentate Woltz
Began: 8:04

Old Business -

1. Summer Fun Trip Lead Officer John Talbot imparted this intel about the Strataca Salt Mine that we propose to visit in Hutchinson, KS in July: there is a tour for $19/$17 for us old folks; we can either walk or take a train through the mine; it's open 9-5 Saturdays.
LINK: https://www.underkansas.org/
2. Sue reported that she had renewed the cost of the SARSAT emergency tracking device that we haul to every cave and set outside it whilst we cave. It's renewed until Nov. 8, 2021.
3. Our guest Crystal introduced herself and told us about the caves that she has visited.
4. Our "elections" for 2020 -
Chair - Dale Amlee Vice-Chair - John Woltz
Treasurer - John Talbot
Secretary and Sergeant at Underarms - S. Beleu The Skillful Ogre
5. Our meeting places for 2020, reported in the vernacular -

Jan - John T	June - The Skillful Ogre
Feb - John VD	Sept - Woltzs
March - Bozies	October - Bozies
April - Dale	Nov - John VD
May - John VD	Dec - Bozies

6. Future caver Andrew Van Dyke reported about a presentation he attended about bats and WNS at the Yukon Public Library on October 23rd. It was presented by Lynda Loucks, UCO, Biology Dept. Andrew told those present about COG, and put our best foot forward (note that that foot had been duly washed prior to the meeting).
7.Sue brought and showed a well-developed draft map of Grotto Cave, 822 feet long. This is the cave that we've just finished surveying.
8. Beleu brought forth the 2019 NSS Membership Manual which shall live in infamy. There were more mistakes in this botched publication than the human mind can conceive of. It lists some deceased members as being alive, and one living member as being deceased. It lists COG members from other states who aren't members; and leaves out some current members. I donated it to the grotto. Let it be gone from us forever: let it begin *The Walk of Shame.*
9. John Talbot presented his treasurers report.
10. Our meeting ended at 9:02.

TREASURER'S REPORT

DECEMBER 2019 TREASURERS'S REPORT

INCOME			EXPENSES	
DIVIDENDS	$	00.01		
Dues	$	12.00	**POSTAGE**	$ 65.55
TOTAL	$	12.01	**PRINTING**	$ 78.96
CASH ON HAND	$	70.05	**TAX**	$ 0.51
CHECKING	$	81.74	**TOTAL**	**$151.02**
SAVINGS	$	1,915.64		
TOTAL	**$**	**2,067.64**		

PREPARED BY TREASURER JOHN TALBOT NSS#3054RE
11/18/2019

TRIP REPORT

Exploration of The Grotto's watershed
December 21, 2019
Personnel: Dale Amlee, Sue Bozeman, Jon Woltz
Written bu Sue Bozeman

Eager to explore the entrance we'd found in October, we met at Alabaster and changed into cave gear there. We headed to the well pad above the new entrance and parked out of the way of any tanker trucks that might come by.

Jon took a GPS reading near the drip line and we headed in. Since the entrance is directly under the well pad, we wondered if the passage would intersect the pipe. Easy walk-in entrance led over old breakdown to a cross-passage in about 30 feet. We noticed hibernating *Myotis* clusters – decent numbers totaling a thousand or so. We might make a count of them when we return in January.

The cross-passage carries an active stream. Upstream winds around the room and disappears into a low sump. The water was clear with no sign of petroleum residue. Downstream 'goes' but it is wet and low. It is 'doable' – but something that we will do when we are surveying and not just for the pleasure of getting wet in December's cold. There had been little pockets of snow in the protected entrance. Still plenty cool out there.

In one of the upper mud-covered boulder piles Jon discovered a raccoon filling the continuation passage. Neither contested the space although Jon did take a couple photos before retreating.

We probably saw 100 feet of passage in this little cavelet. The stream is trending in a direction that could feed The Grotto, but we may end up connecting it only by dye trace.

We drove to the second sinkhole, which is the farthest east in the line of sinks. It is on a different landowner's property and we did have permission to explore, so we just happily parked and lumbered down to the holes. This sink had several sub-sinks with small holes at the base of each. Nothing looked promising until we found the sinuous entrance in the deepest and farthest west one. Again Jon did the GPSing before we entered. It's an easy squeeze, dropping into a breakdown filled entrance. You can get turned around easily so, being last, I put sticks in the direction of travel for ease of exit.

This cavelet does have a water course at the base of the breakdown, but it is very low. We didn't see many bats and we did see signs of one very large breakdown fall. It is not the most inviting of caves. Again, the water crawl may lead to the previous cave, but we may wish to wait until it dries up a bit – if it ever does. Going upstream, Jon found one of the holes in the sub-sink we'd passed by. How far beyond that jumble can be pushed remains to be seen. Likely not far.

POTPOURRI

43 years later, rare Taney County 'maze cave' gets a closer look

Wes Johnson, Springfield News-Leader
Published 10:00 p.m. CT Dec. 27, 2019
https://www.news-leader.com/story/news/local/ozarks/2019/12/28/cave-state-missouri-rare-maze-caves-msu-speleology-clayton-taney-county/2736738001/

It's no surprise Missouri is known as the cave state.

More than 6,000 caves lie beneath the karst landscape, with more caves discovered every year. And there's still lots to learn about them.

In 1976, two Southwest Missouri State University speleology (study of caves) students decided to map one of the rarest kinds of caves in the state, a winding labyrinth known as a maze cave.

Most Missouri caves tend to be a long tunnel, with openings branching off to the sides. But only about a dozen fit the disorienting description of a maze cave.

For their class project, SMS students Dave Coonrod and Richard Langston decided to document one

(Continued on page 4)

of them in the Mark Twain National Forest in Taney County.

A map of Clayton Cave in Taney County, produced as a class project by Southwest Missouri State University students Dave Coonrod and Ted Langston in 1976.

"Back in the day it was a known cave, but was not explored," Coonrod recalled. "We were the first to map it. Back then we had the old standard carbide lamp, a flashlight and Suunto compass and wrote our findings down on paper."

Fast-forward 43 years.

Coonrod and noted Ozarks cave researcher Jonathan Beard returned to Clayton Cave a few weeks ago to see how the mysterious cave might have changed.

This time, they were equipped with a modern mapping device that uses laser beams to record the cave passageways accurately in three dimensions. They were joined by two members of the Springfield Plateau Grotto caving group, Treavor Bussard and Scott Campbell.

Their foray was part of a research project Beard is doing to document the known maze caves in southwest Missouri for the Cave Research Foundation. Beard plans to write a scholarly paper about the mechanics of how the odd caves form, once his cave explorations are done.

Dave Coonrod, left, and Jonathan Beard prepare to remap Clayton Cave in Taney County. The cave entrance is a narrow opening in the rock behind them.

Clayton Cave is not for beginners, nor for anyone who might be squeamish about tight, enclosed spaces in pitch-black darkness.

You don't walk into this cave; you get on your belly and slither into it through a narrow crack. During his 1976 exploration, Coonrod acknowledged bringing a bit of Wild Turkey whiskey along to take the claustrophobic edge off — in moderation, of course.

"There are some snug spots, without question," Coonrod said. "There are some belly crawls, and there are only a few spots where you can even stand up."

Dave Coonrod squeezes through a narrow passageway inside Clayton Cave. Much of the cave requires belly crawling, with only a few places tall enough for a person to stand.

Coonrod and Beard found "pendants" — rocks eroded by water that were hanging from the ceiling. They are different from typical cave stalactites that form by centuries of dripping water.

"This cave gets a lot of water through it, and you can see water rings on the walls," he said. "We found some soda straw formations, we found a blind cave salamander and a couple of bats."

Coonrod said the cave was remarkably free of graffiti, though someone in the past had etched the name "Dewey" onto one of the walls. It was still there 43 years later.

Beard said Clayton Cave's passageways are created like braids, which gives the maze cave its distinctive name. Most caves have a stream or other source of water flowing through them. Not a maze cave.

"These are very old caves with water no longer running through it," he said. "They are way above the water table and are formed by flood events, where water rushes into them with no place to go."

The slightly acidic water eventually seeps out through cracks, while also dissolving the rock. Over hundreds or thousands of years, the cracks dissolve away, leaving a maze of passageways behind.

Clayton Cave is about 1,300 feet long but lies very flat, rising and falling only 15 feet over its length. Both Coonrod and Beard say it would be easy for someone to become disoriented by the interconnecting tunnels — especially if one's light source ran out.

Beard said the two bats they found didn't appear to be infected with white nose syndrome, a lethal fungal infection that is decimating bat populations.

"Braided" passageways make navigating Clayton Cave a challenge and not one for beginners. The cave is closed to exploration except for research, with a permit.

Because WNS spores can be introduced into caves on the clothing and shoes of cave explorers, nearly all of the caves in parks and national forest land are off-limits to spelunkers.

Beard said he and Coonrod had a special research permit through the Cave Research Foundation to conduct the cave survey. They also used a disinfection protocol to decontaminate their equipment and clothing before entering the cave.

Once the cave is resurveyed, Beard plans to map the land above it to see how the cave and surface features might be related.

Beard hopes to publish his paper on Missouri's maze caves within two years.

Going caving before going to Mars NASA puts a test rover through its paces in earthly California.

Richard A Lovett reports.

https://cosmosmagazine.com/space/going-caving-before-going-to-mars

Valentine Cave in California's Lava Beds National Monument – perfect for putting a Mars rover through its paces.

Scientists looking for ways to search for life on Mars – or to explore safe abodes for long-term bases on the Moon – are using a NASA robot to explore underground tunnels in the high desert of northeastern California.

The work, says the project's principal investigator, Jennifer Blank, an astrobiologist with the Blue Marble Space Institute of Science, is being carried out in Lava Beds National Monument, a 190-square-kilometre protected area that contains 780 known lava caves, the highest concentration of such caves in North America.

Sometimes called lava tubes, they are caverns that form beneath lava flows, where they serve as conduits for low-viscosity (runny) lavas.

When the eruption ceases, the lava flows out the lower end of the tube, leaving a long, noodle-like cavern in its wake. The longest one known on Earth, Kazumura Cave in Hawaii, stretches an incredible 32 kilometres.

Blank's project is a NASA astrobiology mission called BRAILLE (Biologic and Resource Analog Investigations in Low Light Environments), which used a four-wheeled NASA test rover to explore nine caves in Lava Beds as practice for exploring on Mars and the Moon.

The goal wasn't to gain major insights about the earthly caves – all nine are easily accessible to earthly scientists. Rather, it was to put the rover through its paces

(Continued on page 5)

and figure out how to conduct such a mission from millions of kilometres away.

Planetary scientists, Blank says, know that such caves exist on both the Moon and Mars because we can peer into them via collapses in their ceilings, known as skylights.

"We've seen skylights on the Moon," she says. "We've seen skylights on Mars and many [other] features implying that there may be many, many lava tubes on Mars."

On the Moon, lava tubes may offer safe havens for Moon bases, shielded from dangerous radiation by the overlying rocks.

On Mars, they offer the same opportunity for shelter, but may also preserve signs of ancient microbes that once lived beneath the surface, "eating" energy-supplying chemicals in the rocks, much as ecosystems surrounding Earth's deep-ocean hydrothermal vents "eat" chemicals bubbling up from the Earth's interior.

"If there is life there," Blank says, "those tubes are a good place to look. And if there was life in Mars's ancient past, that's where it's most likely to be preserved."

To see what might be detectable by a rover, Blank's team used rover-mounted instruments to sample water seeping into the cave through fractures, examine the cave walls for minerals that might have been deposited by long-deceased microbes, and test the DNA of the microbes they found.

Earth, of course, is a living planet, so they found plenty of life signs. But that wasn't the point. "We're simulating a mission," Blank says.

That said, there are still some technological hurdles to overcome before a lava-tube explorer can be deployed to Mars.

Lava tubes like the ones explored by BRAILLE tend to have smooth floors and are easy to either walk around or drive across, once you get into them. But getting into them is a different matter.

In Valentine Cave, which BRAILLE visited, the main entrance is via a stairway built to create easy access for tourists: not exactly something you could drive down with a 120-kilogram rover.

Instead, Blank's team was forced to disassemble the rover at the top of the stairs, carry it into the cave, and reassemble it. Once there, however, it was free to explore 1000 metres of easily navigable cave passages.

On Mars or the Moon, stairs won't be the problem, but it will be necessary, Blank says, to develop a way to lower a rover – probably smaller and lighter than the one used in the BRAILLE project – into a cave through a skylight.

There are a number of proposals for how this can be done, she says, but those are beyond the scope of the BRAILLE project. The key thing, she says, is that BRAILLE has proven that lava tubes can be explored by a remotely operated rover.

Due to Mars's harsh surface environment, she adds, "I think more and more people are dubious that people will find signs of life preserved on the surface." And lava caves, she says, may provide a much more accessible entry to the subsurface than simply trying to drill into it. "Drilling is hard," she says.

Illumination drives bats out of caves
No matter the color of the light

December 11, 2019
Forschungsverbund Berlin
https://www.sciencedaily.com/releases/2019/12/191211100322.htm

Artificial light influences the behaviour of many nocturnal animals such as bats, which are very sensitive to all types of lighting. Particularly critical is the illumination of natural caves in which bats roost. Cave illumination is widespread in tourist areas worldwide and disturbs the animals in their resting places. Researchers of the Leibniz Institute for Zoo and Wildlife Research (Leibniz-IZW) and the Max Planck Institute for Ornithology (MPIO) have now investigated how the illumination of bat caves affects the animals' behaviour and whether the colour of light makes a difference on their flight and emergence activity. Although red light irritates the small mammals somewhat less than white light, from the researchers' point of view neither the entrance nor the interior of bat caves should be illuminated if bats are present. The results are published in the journal *Global Ecology and Conservation*.

With two experiments the scientists tested how bats respond to the lighting of cave entrances and cave interiors and whether they show a preference for certain colours. The first experiment took place in a natural cave at the Siemers Bat Research Station in Tabachka in northern Bulgaria. Four bat species live here, including the common bent-wing bat Miniopterus schreibersii and Myotis capaccinii, the long-fingered bat. The six meter long and four meter wide entrance of the Zorovitsa Cave, which serves more than 1,000 animals as a daytime roost, was divided: Alternately one half was left unlit, while the other was briefly lit with white, amber or red LEDs. "With ultrasonic detectors, we measured which part of the cave entrance the bats used based on their acoustic activity," explains Voigt. The result: the animals avoid all light colours and prefer the dark entrance.

In order to find out how bats react to these different light colours inside the cave, the research team conducted an experiment in a flight room. The team captured 16 specimens of M. schreibersii and 21 M. capaccinii, which were released after the short experiments. In the simulated quarter -- consisting of a windowless room divided almost entirely by a wall in the middle -- they let the animals fly for 14 minutes each. The "participants" could decide for themselves whether they preferred to stay in the illuminated or dark part and were observed with infrared cameras and ultrasonic detectors. The results show again that bats react very sensitively to any light. Only if the dark was not a choice they showed a slight preference for red light over amber and white.

"It does not come as surprise that light drives bats out of their roosts. But now we also know that this happens almost independently of the light colour," explains Voigt. "We therefore recommend that lighting is not used at all inside or at the entrance to caves that are inhabited by bats." For bats, light means a high risk of being attacked by an owl or other birds of prey, but also by cats. That is why bats in and around quarters avoid bright illumination, regardless of colour.

In many European countries, street lighting is currently being switched to energy-saving LEDs. LEDs can easily be used in almost any light colour. The inexpensive and durable light-emitting diodes are used in many places for purely aesthetic purposes, for example to illuminate historical buildings -- often in addition to conventional spotlights. In tourist areas in particular, caves where bats sometimes spend the day are colourfully illuminated day and night as a tourist attraction. Some LED manufacturers state that their products are particularly bat-friendly thanks to amber and red light instead of white light. Since the animals' eyes are particularly sensitive to short-wave UV light, they should be less able to perceive these colours, which are at the long-wave end of the light spectrum. The investigation of Voigt and his colleagues now shows that this theory is not entirely wrong, but in reality makes amber or red light not necessarily more acceptable for bats than any other colour.

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, 25692 Mosier Circle, Conifer, CO 80433: All submissions to the newsletter should be sent to the editor: Lil Town, 25692 Mosier 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 welcomed.
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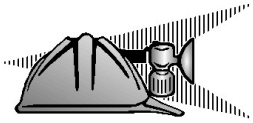
Perfect eyesight???

The January meeting will be Friday, December 10, 2020 At John Talbot's



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Batty New Year's Publications
2125 Holly Oaks Lane #105
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