CENTRAL
OKLAHOMA
GROTTO
OF THE NATIONAL
SPELEOLOGICAL SOCIETY,INC

C.O.G.nizance

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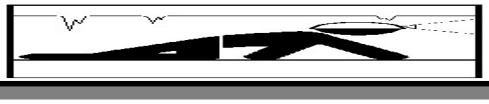


ANNOUNCEMENTS

*No trips planned at the present time.

***Next meeting may be October 11, 2024 at 8:00 pm central time on Google Meet. Becky will send out invitations.**

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

Wildlife Health Bulletin 2022-01

National Wildlife Health Center
Jonathan Sleeman, Center Director
January 31, 2022

Summary

The USGS National Wildlife Health Center has released updated guidance for bat diagnostic submissions for the 2021/2022 white-nose syndrome (WNS) surveillance season.

During the 2020/2021 surveillance season, WNS was detected for the first time in Wyoming and Montana, increasing the number of states where WNS has been confirmed to 37.

Field testing of several vaccine candidates to prevent WNS in susceptible bat species is ongoing, and field vaccination has proven to be safe in WNS susceptible animals.

Updated guidance from the USGS National Wildlife Health Center (NWHC) is now available for bat diagnostic submissions for the 2021/2022 white-nose syndrome (WNS) surveillance season. These guidelines are posted on the NWHC WNS web page and replace all previous NWHC bat submission criteria.

MINUTES

CENTRAL OKLAHOMA GROTTO MEETING,
SEPTEMBER 13, 2024

In attendance: Dale Amlee, Sue Bozeman, Becky Hunsinger—virtual meeting facilitator, Lil Town, Dale and Carol Town, Noah Zinn, Jon and Kelley Woltz, Steve Beleu
Start time: 8:06
PRESIDING: Jon Woltz

OLD BUSINESS

1. We've heard naught from Carlsbad Caverns staff. They appear to want us not.
2. Since the Wild Cave Tour isn't available to the public this fall at Blanchard Springs Cavern we shall not be going there.

NEW BUSINESS

1. Lil wants us all to wear our COG t-shirts during our monthly meetings.
2. We discussed ongoing life-as-it-is-lived problems that are interfering with our survey trips.
3. Becky gave away several hundred dollars of vertical caving gear to Noah. She will ship it to Noah who may or may not share it out with other COG members as he wishes.

TREASURER'S REPORT

Lil read John Talbot's treasurer's report unto us.
Meeting ended 9:15
Report by S. Beleu, Secretary and Sergeant at Underarms.

TREASURER'S REPORT

September 2024 TREASURERS'S REPORT

INCOME		**EXPENSES**
Dividends	$ 0.01	
TOTAL	**$ 0.01**	
CASH	$ 6.05	
CHECKING	$ 224.49	
SAVINGS	$ 1,434.61	
TOTAL	**$ 1,665.15**	

PREPARED BY TREASURER JOHN TALBOT NSS #30254

10/6/2024

TRIP REPORTS

NO TRIP REPORTS THIS MONTH

POTPOURI

Black bat flower (*Tacca chantrieri*)

Flowers tend to be colourful to attract **pollinators**, but this and the next entry lean to the dark side. The black bat flower has large black flowers which measure 30 centimetres and sprout 'whiskers' which reach 70 centimetres in length. It is found primarily in southeast Asia and prefers forests and valleys in shady areas.

High-altitude cave used by Tibetan Buddhists yields a Denisovan fossil

Cave deposits yield bones of sheep, yaks, carnivores, and birds that were butchered.

John Timmer - 7/3/2024, 12:27 PM

http://arstechnica.com/science.2024/07/high/attitude-cave-used-by-tibetan-buddhists-yields-a-donisovan-fossil/

For well over a century, we had the opportunity to study Neanderthals—their bones, the items they left behind, their distribution across Eurasia. So, when we finally obtained the sequence of their genome and discovered that we share a genetic legacy with them, it was easy to place the discoveries into context. By contrast, we had no idea Denisovans existed until sequencing DNA from a small finger bone revealed that yet another relative of modern humans had roamed Asia in the recent past.

Since then, we've learned little more. The frequency of their DNA in modern human populations suggests that they were likely concentrated in East Asia. But we've only discovered fragments of bone and a few teeth since then, so we can't even make very informed guesses as to what they might have looked like. On Wednesday, an international group of researchers described finds from a cave on the Tibetan Plateau that had been occupied by Denisovans, which tell us a bit more about these relatives as to what they ate. And that appears to be anything they could get their hands on.

The Baishiya Karst Cave

The finds come from a site called the Baishiya Karst Cave, which is perched on a cliff on the northeast of the Tibetan Plateau. It's located at a high altitude (over 3,000 meters or nearly 11,000 feet) but borders a high open plain.

Oddly, it came to the attention of the paleontology community because the cave was a pilgrimage site for Tibetan monks, one of whom discovered a portion of a lower jaw that eventually was given to a university. There, people struggled to understand exactly how it fit with human populations until eventually analysis of proteins preserved within it indicated it belonged to a Denisovan. Now called the Xiahe mandible, it remains the most substantial Denisovan fossil we've discovered to date.

The Ganjia Basin borders the cliffs that contain the Baishiya Karst Cave.

Since then, excavations at the site had turned up a large collection of animal bones, but none that had been identified as Denisovan. Sequencing of environmental DNA preserved in the cave, however, revealed that the Denisovans had occupied the cave regularly for at least 100,000 years, meaning they were surviving at altitude during both of the last two glacial cycles.

The new work focuses in on the bones, many of which are too fragmentary to be definitively assigned to a species. To do so, the researchers purified fragments of proteins from the bones, which contain large amounts of collagen. These fragments were then separated according to their mass, a technique called mass spectrometry, which works well even with the incredibly small volumes of proteins that survive over hundreds of thousands of years.

The interpretation of the mass spectrometry data relies on the fact that there are only a limited number of combinations of amino acids—often only one—that will produce a protein fragment of a given mass. So, if the mass spectrometry finds a signal at that mass, you can compare the possible amino acid combinations that produce it to known collagen sequences to find matches. Some of these matches will end up being in places where collagens from different species have distinct sequences of amino acids, allowing you to determine what species the bone came from.

When used this way, the technique is termed zooarchaeology by mass spectrometry, or ZooMS. And, in the case of the work described in the new paper, it identified nearly 80 percent of the bone fragments that were tested.

The Denisovan diet

The ZooMS analysis showed that a lot of species eventually met their end in the Baishiya Karst Cave or were at least dragged there after dying. The single most common species was a bharal, or blue sheep, which is widespread across the Himalayas. But yaks, horses, and gazelles also appeared, along with two species of deer. These are consistent with the open grasslands near the site at present, but also suggest there may have been some small patches of wooded(shrublands present as well.

There was also a range of smaller and larger species, including a woolly rhinoceros, flying squirrels, and porcupines. Predators

Continued on page 4)

included the spotted hyena, wolf, and snow leopard, and birds like the pheasant and golden eagle.

Obviously, some of these are extremely unlikely to have ended up in a cave on their own. But characterization of the bones show that many of them have signs of muscle being cut away and/or having been broken open to extract the marrow. Combined, rodent and predator damage appear on only 1 percent of the bones, while clear signs of butchering are present on nearly 20 percent. A handful also show signs of being worked into tools.

The lack of predator damage suggests that, in many cases, the people who occupied the cave weren't simply scavenging someone else's kills to get their food. In addition, the frequency of the species changes over time, with an increasing number of sheep in the more recent layers, suggesting that the Denisovans there were becoming more specialized hunters.

Another Denisovan bone

One of the bones didn't belong to any of the groups mentioned above. Instead, it clearly belonged to a human relative. Careful collagen sequencing from the bone showed that it clustered in with Denisovan populations found elsewhere, making it one of the larger bone samples we've ever obtained from them. Unfortunately, it's still just a fragment of a rib that's only 5 centimeters long.

Intriguingly, the bone came from a layer within the cave where environmental DNA hadn't indicated the Denisovans were present. Whether this is a matter of the Denisovans having become less frequent visitors or a matter of the preservation of environmental DNA isn't clear. But it does indicate the Denisovans were present on the Tibetan Plateau as recently as 30,000 years ago.

So, while we've learned a bit more about these relatives of ours, we still have no idea what they looked like. And any plants in their diet weren't preserved in the cave, so the study only provides a partial picture of their eating habits.

Still, the finds show that the Denisovans lived in a harsh, high-altitude climate over two distinct glacial periods, indicating that they were very adept survivalists. And it appears that they passed at least one of the things that helped them handle the altitude on to the present-day inhabitants of the Tibetan Plateau.

The collapse of bat populations led to more than a thousand infant deaths

September 5, 2024
University of Chicago
https://www.sciencedaily.com/releases/2024/09/240905143612.htm

Bats are considered a natural pesticide, widely relied on by farmers as an alternative to chemical pesticides to protect their crops from insects. But since 2006, many bat populations have collapsed in counties in North America due to an invasive fungus found in the caves bats use during the day and throughout winter that causes what is known as White-Nose Syndrome. A new study in Science uses their sudden collapse to explore whether farmers turned to chemical pesticides, and whether doing so impacts human health. It finds that farmers did increase their pesticide use, leading to more than 1,000 infant deaths.

"Bats have gained a bad reputation as being something to fear, especially after reports of a possible linkage with the origins Covid-19," says study author Eyal Frank, an assistant professor at the Harris School of Public Policy.

"But bats do add value to society in their role as natural pesticides, and this study shows that their decline can be harmful to humans."

Frank compared the effect of bat die-offs on pesticide use in counties that experienced those bat population declines to counties that were likely unaffected by the wildlife disease.

He found that when the bat populations declined, farmers increased their use of pesticides by about 31 percent.

Because pesticides have been linked to negative health impacts, Frank next tested to see if the increased use of pesticides corresponded with an increase in infant mortality -- a common marker to study the health impacts of environmental pollution.

Indeed, when farmers increased their use of pesticides, the infant mortality rate rose by almost 8 percent.

This corresponds to an additional 1,334 infant deaths. Or, for every 1 percent increase in pesticides, there was a 0.25 percent increase in the infant mortality rate.

The study also found that pesticides aren't as good at preventing pests as bats.

The quality of the crops likely declined, as farmers' revenue from crop sales decreased by nearly 29 percent. (Continued on page 5)

Combining this revenue loss with the expense of the pesticides, farmers in communities that experienced the bat die-offs lost $26.9 billion dollars between 2006 and 2017.

Adding onto those losses the $12.4 billion in damages from infant mortality, the total societal cost from the bat die-offs in these communities amounted to $39.6 billion.

"When bats are no longer there to do their job in controlling insects, the costs to society are very large -- but the cost of conserving bat populations is likely smaller," says Frank. "More broadly, this study shows that wildlife adds value to society, and we need to better understand that value in order to inform policies to protect them."

Carlsbad Caverns Queens Chamber CFRPs 1000th Repair

http://caves.org/caves/carlsbad-caverns-queens-chamber-frps1000th-repair/

National Speleological Society (caves.org)

The Cave Formation Repair Project (CFRP) is an all volunteer project that had begun with a stalagmite repair in Black Cave, Lincoln National Forest, NM on June 2, 2018 by Michael C. Mansur, CFRP Leader and Founder. As of April 9, 2024, the CFRP has made repairs to 1018 broken formations, and has volunteered 4462.5 in cave hours. The participant volunteers have traveled 263,205.5 miles round trip from home to work on the Project.

Mike has invented many of the devices that the team uses to support broken formations like stalactites soda straws, draperies, and helictites. Some of the tools he has invented and named are the Stalactijack, Speleoclamp, Speleocup, Speleorack, and Soda Straw Stand to name a few. Details on how to make these devices can be found in Mike's new book The Cave Formation Repair Project: Restoring the Beauty of America's Great Caves.

The repair process involves drilling holes in many of the broken formations to insert stainless steel all-threads which reinforce epoxied joints. So far, the CFRP has made repairs to broken cave formations in 6 states, including NM, TX, CO, NV, SD, and WV.

Mike has taught Cave Formation Repair Workshops in Great Basin NP, Carlsbad Caverns NP, the 2022 NSS Convention in Rapid City, SD, and the 2023 NSS Convention in Elkins, WV. He will teach a Speleothem Repair Workshop in this year's NSS Convention in Sewanee, TN.

The Third Edition of The Cave Formation Repair Project: Restoring the Beauty of America's Great Caves, which is sold at the NSS Bookstore, Speleobooks, and at the Carlsbad Caverns Visitor Center Bookstore, will be released on April 20, 2024. Cavers can learn more in the NSS Webinar, "Preservation, Restoration, and Repair: Projects and Considerations in the Southwest", which features Mike as a moderator and speaker.

The 1000th formation repair trip was a special one that Mike originally scheduled in January, 2024 because he had hip replacement surgery that month and needed time to recover. The CFRP formation repair count at that time was 987, so he knew the CFRP was close enough for the trip to be scheduled on that date. Mike had also scheduled a CFRP trip to the Music Room for the team participants to hopefully make enough repairs to get to 999. That day, the team easily reached that number. In fact, they had to stop at 999 early in the afternoon, so as not to hit 1000. Jo Ann Garcia, Volunteer Coordinator for the Park, had planned a wonderful reception for us in the Visitor Center at 11:00AM. The team had to get in to the Queen's Chamber, where we had selected for the milestone repair, by 9:00AM. They then needed to set up, make the repairs and pack up before the first Ranger led visitor tour came in at 10:30AM.

Carlsbad Caverns is a premier National Park, which is visited by over a million people each year, is a must see for cavers and non-cavers. Mike selected Carlsbad Caverns as the location for the CFRP's 1000th repair because the team has repaired over 165 broken formation repairs in the Caverns, as well as other caves located within the Park: Spider, Lake, and Slaughter Canyon Cave.

The team for the 1000th repair was pre-selected from the first folks who replied to Mike's request for volunteers. Mike had also asked for volunteers to work on the 1001, 1002, 1003, 1004 repairs. There were a number of folks who wanted to be present at this event. All but three of the volunteers present had participated on previous CFRP trips: the new park intern, Em Michaels, and Sharon's parents who had not been on a previous CFRP trip but had a great time sharing the moment with the team.

The team had gathered in the Visitor Center at 8:30AM, and headed into the cave at 8:50AM. They had got everything set up in the work area by 9:20AM. Mike, Alison, Vanessa, Jesse, Sharon, Minori began setting up the Stalactijack and mixing the epoxy. Mike had asked John Cochran to do all the video and some photos for the event, and he finished setting up as the team was beginning the 1000th repair. They had finished the repair by 9:45AM, and then switched teams.

Everyone was able to take photos of the finished repair. Thanks to Ryan Palmer (NPS) for being there to unlock the gates for the team and being part of the event. The team also welcomes Intern Em Michael to the Park.

John had conducted an interview of Mike before we left the room. The team members all had fun taking photos with one another there.

The team then went through the King's Palace and stopped on the trail next to the famous Brad Pitt Stalactite repair that they had completed last summer so John could take a group photo.

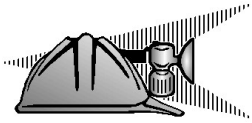
The team then met back at the room in the Visitor Center where Jo Ann Garcia had set up with refreshments. She then presented all the participants with NPS Certificates of Appreciation for their Volunteers In the Park (VIP) work in the Park under the Cave Formation Repair Project. Thank you very much Jo Ann for this wonderful event!

After the presentations, Mike took a number of folks in the team on a tour of the cave starting at the natural entrance to show them areas of restoration and formation repairs that they had done in the past.

Mike would like to thank everyone for a wonderful and memorable day!

Central Oklahoma Grotto is a non-profit organization and a chapter of the NSS (National Speleological Society), 6001 Pulaski Pike, Huntsville, AL, 35810-1122 USA. Phone (256)852-1300. Dedicated to cave conservation and safety, C.O.G. publishes 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 an SASE with submission. All materials in this newsletter are available for reproduction, provided proper credit is given with the article when you print it. Trade publications are welcomed. *Cave softly and safely!*

Friday
October 11, 2024
There will be a virtual meeting.
See you online!



Central Oklahoma Grotto
Hibernating in darkness
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