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 March 14, 2025 at 8:00 pm central time on Google Meet. Becky will send out invitations.**

The National White-nose Syndrome Decontamination Protocol (March 2024) outlines procedures to effectively clean and disinfect clothing, footwear, and equipment that may have been exposed to *Pd*, and can help reduce the risk of human-assisted spread of the fungus. The recommendations are based on the best available evidence to date.

Key changes to the current update compared to October 2020 include the following:
- **Ethanol, Formula 409 and Hibiclens are removed from the approved disinfection product table.**
- **Isopropanol concentration is narrowed to 50-70%. In the previous protocol, >50% isopropanol was approved.**
- **The WNS management areas map is updated to reflect the current status of Pd and WNS occurrence in the US. Hawai'i, Alaska, and Puerto Rico are added to the map of management areas.**
- **Guidelines for movement of gear and when to decontaminate gear are stated in a bulleted list rather than a diagram.**
- **Additional information is provided regarding decontamination of mist-nets, harp traps and acoustic equipment.**

from https://www.whitenosesyndrome.org/mmedia-education/national-wns-decontamination-protocol-u-s

Bat White-Nose Syndrome (WNS)/Pd Surveillance Submission Guidelines
Winter 2023/2024 (November – May)

The following sample submission guidelines are for use when evaluating unusual bat morbidity or mortality during Winter 2023/2024 identified through either passive surveillance efforts (i.e.: public reporting, rabies lab submissions) or active surveillance efforts (i.e.: hibernacula surveys, spring trapping). They are meant to assist with prioritizing appropriate field samples for laboratory submission based on presence/absence of WNS clinical signs, geographic location, and prior knowledge of WNS/Pd status at a site. This document replaces all previous winter submission guidelines from the USGS-National Wildlife Health Center (NWHC).

BAT CONSERVATION TRUST
www.bats.org.uk/about-bats/threats-to-bats/white-nose-syndrome/overviewWhite-nose syndrome

(WNS) is the name used to describe a group of symptoms associated with the deaths of millions of bats in the USA (40 states) and Canada (eight provinces), according to figures from the US Fish and Wildlife Service. In some hibernation sites numbers have declined by 80-100% since 2006, when the condition was first identified.

The video Battle For Bats: Surviving White Nose Syndrome shows what is being done in the United States to mitigate the effects of WNS on bat populations.

MINUTES

CENTRAL OKLAHOMA GROTTO MEETING
FEBRUARY 14, 2025

AUSCULTATIO: Dale Amlee, Sue Bozeman, Becky Hunsinger—virtual meeting facilitator, John Talbot, Lil Town, Dale and Carole Town, John, Tammy, and Andrew Van Dyke, Noah Zinn, Duane Del Vecchio, Steve Beleu

PRAESIDERE: Dale Amlee, Caesar

SATUS: 8:08

VETAE RES

1. John Van Dyke reported that bat count was up this year, and that there was more breakdown near its entrance/exit than in prior years. No swabbing for WNS was done this year due to John not being able to get swabbing equipment.

2. Becky asked Noah about his usage of the vertical gear that she gave him. Noah reported that he's learning to use it gradually and with care.

NOVAE RES

1. Sue tried to submit our required Internal Organizations report to the NSS via a new tool on its website but found it to be too complicated to use with ease or confidence. She will write to/e-mail the NSS for help.

2. After Duane informed us of the high cost of his printing and mailing out paper copies of our newsletter we agreed that all COG members from hence forward will receive it virtually. The only paper copies that we will print and distribute will be one to send to the NSS for their archives and one to file in our archives.

3. Sue told us that retaining paper copies of the cave maps we have produced has become an unnecessary burden. After discussion we agreed to give them to Andrew who will preserve and protect them from unauthorized use in perpetuity.

NUNTIARE THESAURARIUS – Treasurer Emeritus John Talbot presented his report unto us.

FINIS: 9:06

Fama by S. Beleu, Secretary and Sergeant at Axillae

TREASURER'S REPORT

FEBRUARY 2025 TREASURERS'S REPORT

	INCOME	EXPENSES
Dividends	$ 0.01	
TOTAL	**$ 0.01**	
CASH	$ 6.05	
CHECKING	$ 300.51	
SAVINGS	$ 1,234.79	
TOTAL	**$ 1,541.35**	

3/10/2025

PREPARED BY TREASURER JOHN TALBOT NSS #30254

TRIP REPORTS

NO TRIP REPORTS THIS MONTH

Is there a cave deeper than Mariana Trench?
Jun 25, 2023
Caves are typically found on land, and they are not usually as deep as the Mariana Trench. However, there are some caves that are very deep. For example, the Krubera Cave in Georgia is the deepest known cave in the world, and it is over 2,197 meters (7,205 feet) deep.

POTPOURI

Bats play a key role in combating rice pests in Southeast Asia

Scientists confirm that a species of bats flies super-high and restricts the spread of high-flying planthoppers
February 10, 2025
Leibniz Institute for Zoo and Wildlife Research (IZW)

Summary:
Scientists have demonstrated that Wrinkle-lipped free-tailed bats not only travels great distances, but also hunt at impressive altitudes of up to 1,600 meters above ground -- the altitude at which many planthoppers fly, which are dreaded insect pests of rice plants. Conventional methods of pest control such as insecticides do not work at these altitudes. By restricting the spread of high-flying planthoppers, Wrinkle-lipped free-tailed bats make an important contribution to pest control and thus also to food security in South and East Asia.

FULL STORY

Scientists from the Leibniz Institute for Zoo and Wildlife Research (Leibniz-IZW) and the Prince of Songkla University in Thailand have demonstrated that Wrinkle-lipped free-tailed bats not only travels great distances, but also hunt at impressive altitudes of up to 1,600 metres above ground -- the altitude at which many planthoppers fly, which are dreaded insect pests of rice plants. Conventional methods of pest control such as insecticides do not work at these altitudes. By restricting the spread of high-flying planthoppers, Wrinkle-lipped free-tailed bats make an important contribution to pest control and thus also to food security in South and East Asia. The article published in

Wrinkle-lipped free-tailed bats make an important contribution to pest control and thus also to food security in South and East Asia.

the scientific journal "Oecologia" therefore emphasizes how important and valuable it is to protect this bat species.

Rice is the staple food for more than half of the world's population and Southeast Asia, South and East Asia together are the most important regions for its production. Planthoppers cause massive damage to the rice fields there, leading to crop losses and thus considerable financial losses for farmers and even entire economies. The insects are very mobile during their dispersal phase and use winds at altitudes between 300 and 1,000 metres to travel long distances.

A scientific team led by Prof Dr Christian Voigt, Head of the Department of Evolutionary Ecology at the Leibniz-IZW, has now shown that the Wrinkle-lipped free-tailed bat (Mops plicatus) is able to use these heights as hunting grounds. The results are an outcome of a multi-year research project on the flight and hunting behavior of this bat. "Mops plicatus bat is a skillful hunter that specializes in catching insects in

This bat is a tropical bat species, common in Southeast Asia and known to roost in large caves in colonies of hundreds of thousands to millions of individuals

the open air, i.e. above the vegetation," says Voigt. "Until now, their hunting behavior during peak planthopper activity was still largely unexplored. We therefore investigated the hunting behaviour of Wrinkle-lipped free-tailed bats in the entire airspace using miniaturized GPS loggers during this time."

This bat is a tropical bat species, common in Southeast Asia and known to roost in large caves in colonies of hundreds of thousands to millions of individuals. Earlier studies showed that Mops plicatus feeds on planthoppers, including the brown planthopper (Nilaparvata lugens) and the white-backed planthopper (Sogatella furcifera). When planthoppers appear in large numbers, they travel at high altitudes to raid rice fields in other regions and reproduce there. The team's study period overlapped with the annual mass occurrence of planthoppers in Thailand.

The scientists captured several adult Wrinkle-lipped free-tailed bats in a cave in Lopburi province, central Thailand, using mist nets and hand nets. They attached a 0.95 gram miniaturized GPS logger to the back of each animal

(Continued on page 4)

using a medical skin glue. The GPS loggers were programmed to record the spatial position in all three dimensions at 10-minute intervals throughout the night. After a few days, the miniaturized loggers fell off again and were collected by the scientists.

"We were able to demonstrate that Mops plicatus has large foraging areas of up to 1,743 km², which is roughly twice the size of the area of Berlin," says Voigt. "No vertebrate with a body weight of just 18 grams has ever been reported to have such a foraging range. Some bats travelled distances of more than 200 km from the cave on a single foraging trip and spent up to 11.5 hours in continuous flight in a single night. They spent more than 50 percent of the time at altitudes of more than 150 m above ground, regularly reaching more than 1,600 m above ground."

Dr Supawan Srilopan, scientist at Prince of Songkla University and first author of the paper, adds: ""Our study provides detailed insights into the aerial choice, habitat selection and foraging behaviour of the Wrinkle-lipped free-tailed bat. This bat species uses rice fields as hunting grounds, even if these were much further away from the caves than areas with other crops. The preference for rice fields could be a consequence of the greater availability of prey insects such as planthoppers."

The scientists emphasize the urgent need to preserve and protect the natural habitats, retreats and resting places of this bat species. Although there are many millions of individuals of this bat species, only just under a dozen caves are known to be colonized by bats all year round. Protecting these caves from disturbance, such as tourism, is extremely important, both for local farmers in central Thailand and those in distant farming areas in China, Korea and Japan. "The ecosystem services that Mops plicatus provide to the human population in Thailand and other regions of Southeast Asia extend far beyond local borders. Their contribution to pest control has the potential to sustainably secure rice production in Asia," adds Prof Sara Bumrungsri from Prince of Songkla University, co-author of the paper.

The research was carried out as part of a four-year project funded by the National Research Council of Thailand (NRCT).

Mystery of Pirunkirkko: The cave that whispers secrets of the past

By Jordan Joseph, Earth.com staff writer
02-11-2025
The study is published in Open Archaeology
https://www.earth.com/news/mystery-of-pirunkirkko-the-cave-that-whispers-secrets-of-the-past/

In recent years, interest in how ancient people harnessed sound has sparked new questions among curious minds. Some researchers believe that certain structures were designed and to create resonant effects for spiritual or ceremonial reasons.

That conversation has now focused on Pirunkirkko, a cave in Finland. Scientists Dr. Riitta Rainio and Dr. Elina Hytönen-Ng of the University of Helsinki have undertaken an in-depth investigation of the sound mechanics of the cave.

In the new study, investigators employed impulse response recordings to measure how noises bounce off walls in the Pirunkirkko cave system.

“The results indicate that the back of the cave houses a distinct resonance phenomenon,” stated Dr. Rainio.

During their assessment, they detected a ring that continued to resonate after sudden sounds at around 219 Hz.

Ancient practices, forgotten knowledge

Folklore suggests that shamanism thrived in Finland’s past, where rhythmic drum beats were used to connect with unseen forces.

Oral histories describe gatherings where the cave’s environment seemed to heighten participants’ sense of spiritual focus.

Although such stories do not detail the acoustic mechanics, they do point to experiences that local communities held in high regard.

Some speculate that knowledge of the underlying mechanisms may have faded over time.

Comparisons with other sites reveal patterns of intentional design or fortunate coincidence. Studies in diverse regions suggest that certain rock formations or chamber layouts can produce sonic effects that are not always detectable by casual visitors.

Such phenomena can heighten emotional intensity and reinforce ceremonial importance. Communities that practiced these rituals might have recognized the value of acous-

(Continued on page 5)

tic quirks long before modern research gave them official labels.

Challenges in modern interpretation

Archaeologists and anthropologists sometimes clash over how to interpret ritual spaces when cultural memories have grown hazy.

Scientific tests capture data, but local beliefs often emphasize intangible elements that instrumentation cannot quantify.

This disconnect can fuel debates over whether we truly grasp the real purpose of these structures. Some experts suggest that we may only see a fraction of what ancient practitioners fully understood.

Listening to what remains

Modern explorers occasionally host drumming ceremonies inside Pirunkirkko, echoing earlier traditions.

Though the technology behind these acoustics might be overlooked, participants report experiences that align with ancient accounts of heightened awareness.

physical acoustics. This gap raises the question of whether a deeper, forgotten knowledge lingers in subtle cultural memory.

Bridging science and tradition

Contemporary experiments in archaeoacoustics blend physics, anthropology, and cultural studies. This approach recognizes that ancient sites carried meanings that extend beyond their mere structural function.

Researchers sometimes collaborate with local groups to compare lab findings with lived experiences. These collaborations help reveal how intangible aspects, like mood or emotion, can shape interpretations of an echoing chamber.

Such partnerships can reduce the tension between scientific precision and cultural knowledge. People with ancestral ties to a site often see nuances that instruments cannot record.

Implications for Pirunkirkko heritage

Some communities view these acoustic qualities as part of their cultural identity. Preservation efforts may benefit from acknowledging the role of sound in shaping visitors' emotional responses to historical locations.

In some cases, tourist development risks overshadowing the original ceremonial significance. People who maintain spiritual practices in such spaces may worry that loud crowds and commercial activities dilute the intangible atmosphere.

Balancing visitor access with respect for cultural traditions is an ongoing challenge. Responsible management of these sites involves working closely with local voices.

Lessons from field research

Archaeologists continue to refine methods for recording subtle auditory impressions. Fieldwork can include controlled acoustic tests, interviews with practitioners, and comparisons with historical archives that reference intangible site qualities.

Such thorough techniques aim to capture the full range of experiences. Scholars increasingly realize that a site's significance can't be pinned down by data points alone.

Context matters, and listening to local interpretations is just as vital as examining acoustic graphs. Without this balance, crucial pieces of cultural heritage might slip away.

Continuing the Pirunkirkko conversation

Academic circles have begun to champion integrated studies that merge archaeology, musicology, and ethnography. This holistic viewpoint exposes fresh details about ancient events that might otherwise remain unexplored.

Workshops and conferences now encourage hands-on demonstrations of traditional instruments in historically significant spaces.

Participants gain insights by experiencing how sound reverberates through environments that were once filled with ceremonial rhythms.

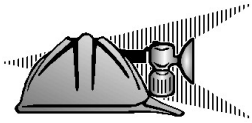
Such gatherings spark new discussions about the role of memory and communal identity. Researchers find that blending academic inquiry with lived tradition creates a richer understanding of the past.

Research on Pirunkirkko's unique acoustics highlights how fragile cultural memory can be. People who still use that space for spiritual purposes might hold the final clues to this acoustic story.

By gathering firsthand accounts and analyzing them alongside scientific findings, scholars hope to bridge the gap between data and personal experience. This line of inquiry can illuminate how intangible heritage shapes modern identities.

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
March 14, 2025
There will be a virtual meeting.
See you online!



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