

VOLUME 84
ISSUE 04

APRIL
2026

NSS NEWS

AMERICA'S CAVING MAGAZINE



NSS NEWS

AMERICA'S CAVE CONSERVATION MAGAZINE

THIS MONTH

National Speleological Society Headquarters

6001 Pulaski Pike NW, Huntsville, AL 35810
(256) 852-1300

email: nss@caves.org; website: <https://caves.org/>

Please contact the office for address changes or back issues.

Managing Editor

Adam Weaver
nssnews@caves.org

Editor

Sarah Marquart
nssnews@caves.org

Please include "NSS News" in your subject line when e-mailing news content, to help sort it out from spam. Thanks!

Feel free to ask questions about submitting features and photos. Style and submission guidelines can be found on the NSS website: <https://caves.org/nss-news-submission-guidelines/>

DEPARTMENT EDITORS

Underground Update
Jim "Crash" Kennedy
cavercrash@gmail.com



Spelean Spotlight
April Gocha
april.sandy.gocha@gmail.com

Conservation
Val Hildreth-Werker
conservation@caves.org

American Caving Accidents
Adia Sovie
aca@caves.org

NSS OPERATIONS

Executive Director 256-852-1300
Annette S. Engel, Ph.D. annette.engel@caves.org

**Accounting & Finance/
Secretary Treasurer**
Kristine Ebrey
South Pittsburg, TN
(423) 991-3034
kebrey@caves.org

Communications
Jolene Creighton
Gainesville, FL
jcreighton@caves.org

Conservation & Science
Emily P. Davis
Tennessee
(912) 655-0781
emilyp@caves.org

Education & Training
Tim White
twhite@caves.org

Facilities
Maureen Handler
Sewanee, TN
(423) 605-5569
mhandler@caves.org

Membership
Carol Tideman
New Market, VA
ctideman@caves.org



THIS MONTH'S COVER

Jette and Jakob during a formation repair in Virgin Cave, NM. From the Cave Formation Repair Project. Article on page 23.

Photo by Mike Mansur

CALENDAR OF EVENTS

May 8 to 10, 2026

The Spring VAR will be hosted by Tri-State Grotto, at Endless Caverns, New Market, Va., May 8, 9, & 10, 2026. There will be lead trips, hot showers, flush toilets in the club house. Pre-register for a catered meal. To register on line go to: <https://www.zeffy.com/en-US/ticketing/spring-var-2026>



May 15 to 27, 2026

The Northeastern Regional Organization (NRO) will be holding its spring event at Thompson's Lake Campground – Thacher State Park in East Berne NY. The Central Connecticut Grotto and the Northeastern Cave Conservancy will be hosting this weekend of caving, camping, and other fun activities. The location is nearby where last year's NSS Convention was held and there will be led trips to many of the same caves. For more info please contact info@ctcavers.org.



2026 NSS Convention
Hundreds of Caves, Hundreds of Miles
Corydon, IN - July 6 - July 10, 2026



The National Speleological Society (NSS) will host the 83rd Annual Convention in the lush forests and rolling hills of Corydon, Indiana.

This scenic sinkhole plain region is home to hundreds of caves that can be visited within a two-hour drive of the site, including the world's longest (Mammoth Cave) and two others among the top ten longest in the nation!

The caves of the area not only provide the thrill of adventure; but a journey through time, having served as shelters for Native Americans and hideouts during the Civil War. Prehistoric bones and antique relics can be found, along with some of the caving community's greatest lore which originates from this area.

This blend of natural beauty and historical intrigue makes caving in the Ohio River Valley an unforgettable experience. We can't wait to host you in July 2026!

<https://caves.org/convention/2026-nss-convention/>

FEATURES

ANNUAL CAVE CONSERVATION SPECIAL ISSUE



- | | | |
|----|---|---|
| 4 | International Day of Caves and Karst - September 13 Every Year! | Val Hildreth-Werker |
| 6 | First Official IDCK Celebration: Postojna, Slovenia | Nadja Zupan Hajna |
| 8 | 2026 Cave Animal of the Year - Slimy Salamanders | C. Camp, J. Krejca, & M. L. Niemiller |
| 10 | Slimy Salamanders are Super - New Cave Preservation Network Glow Bracelets! | Nicole Ridlen |
| 11 | National Cave and Karst Management Symposium Re-Cap, Oct. 6-10, 2025 | C. J. Mckinley |
| 13 | A New Horizon for Subterranean Exploration - Underground Vision Issue Zero | F. Didonna |
| 14 | Education Through Collaboration | Dave & Tracy Jackson |
| 16 | The Indiana Karst Conservancy | Conservancy Members |
| 18 | Introducing the Ennis Cave Conservancy | Randal W. Rose |
| 20 | The World Stage: Advocacy and Action at UNEA-7 | Ana K. Celis |
| 23 | The Cave Formation Repair Project 2025 Accomplishments | Michael C. Mansur |
| 24 | NSS Wins First Battle to Protect Mill Creek Sink Nature Preserve | E.P. Davis, A. Pitkin, & C. Roberson |
| 26 | Crypt of the Megafauna | Luis & Jordi Espinasa |
| 29 | Voyage to Mictlan | L. Espinasa, J. Espinada, K. Torres, & C. Healy |
| 32 | Society News | |
| 34 | Grants | |
| 35 | Classifieds | |

Back Cover

Andrew Pitkin in Upstream Mill Creek Sink. Photo by SJ Alice Bennet

INTRODUCTION

INTERNATIONAL DAY OF CAVES AND KARST – SEPTEMBER 13 EVERY YEAR!

By Val Hildreth-Werker NSS28963CL,FE,CM,CO,OS

NSS Conservation Department Head | NSSNews Conservation Editor

It's Official: Celebrate September 13

At the fall 2025 meeting of the United Nations Educational, Scientific and Cultural Organization (UNESCO), member nations approved a proposal to establish a global day dedicated to cave and karst education, conservation, and public awareness. In the final days of the campaign, 59 countries joined the Republic of Slovenia in co-sponsoring the proposal for the International Day of Caves and Karst (IDCK), an initiative championed by the International Union of Speleology (UIS). With UNESCO's approval, September 13 has now been designated as the annual International Day of Caves and Karst, to be celebrated worldwide.

IDCK is a huge win for outreach to understand and protect caves and karst. Because important discoveries and events in caves catch more media attention every year, caves are no longer out of sight and out of mind. As people move toward thinking about caves with curiosity and wonder, they become more willing to experience them firsthand. With increasing visitation, we need increasing conservation outreach.

You can be part of the celebration! Individuals, community groups, and grottos can participate by organizing IDCK celebration events to educate and promote awareness of the importance of cave and karst conservation. Organize any type of event that fits your community, your grotto, your style, your needs, or your venue, such as lectures, conferences, workshops, videos, books, social media, cave cleanups, and so on. For resources and ideas, see:

<https://www.dayofcaves.org/unesco> and <https://uis-speleo.org>

Collaborate with Local, Regional, and National Media to Promote IDCK

Media interest and IDCK make outreach easy! Caves are interesting and intriguing. Caving captures imaginations. Our global audience is broad and growing. The public is becoming hyper-aware of caves. When the public is interested, the media jumps on the opportunity. Timing is perfect for IDCK.

Start Planning Now

With this NSS News Annual Conservation Issue, we launch Society-wide planning for the first official celebration of the International Day of Caves and Karst on September 13, 2026. We encourage all to design local, regional, and national events that will draw media coverage. Make bigger shout-outs and celebrations for caves and karst through collaboration with your media contacts. The largest-ever media event about caves and karst was a television event in China during the International Year of Caves and Karst, reaching about 200,000,000 viewers. Reach out to media sources – invite their support and participation. The NSS, Regions, Grottos, and Internal Organization – as well as show caves, conservancies, land-managing agencies, businesses, and partnering organizations – can collaborate in asking media to cover IDCK events and celebrations everywhere.

Coordinate early and often with all types of media: television, radio, newspapers, public service announcements, magazines, brochures, or social media! Keep in mind the tremendous outreach potential of the mere sound of International Day of Caves and Karst in creating curiosity! Most people have never even heard the word karst. IDCK creates an exciting pathway for cave and karst conservation, education, and outreach opportunities.

The UNESCO International Day of Caves and Karst is a big, bold step in telling the wonderful, daunting, important stories of caves and karst. Cavers, speleologists, educators, interpreters, and friends of caves will bring the story to life, helping the world realize that caves are truly significant and truly vulnerable.

People love cave stories. We need to help the caves tell their stories so people will begin to love them

and comprehend that their special aesthetic beauty is often fragile and irreplaceable; that vulnerable cave-dwelling creatures hang in the balance of sensitive cave habitats; that many of humanity's most culturally significant artifacts are archived by nature in stable cave environments; that scientists are discovering surprising, important paleontological remains harbored for eons in the naturally archiving geosystems of some caves; that caves and karst cover nearly one quarter of the Earth's land surface and provide drinking water to over a billion people; and that understanding the vulnerable nature of karst will lead to protection of precious karst groundwater resources hidden under our feet.

Speak Up About Caves and Karst

When I travel, I talk with people. I talk about caves. I talk about karst. Conversations spark with interest. In airports, in restaurants, on long flights – it's weird and surprising – but all sorts of people I talk with want to know more about caves. I tend to slip in simple explanations of karst – karst is where we find caves. Karst holds soluble rocks like limestone, dolomite, and sandstone – soluble means those rocks can dis-



solve over time. Water from the surface runs through natural cracks, crevices, declivities, and conduits. That water picks up acids from the surface, thus dissolving and opening passageways as it moves toward the karst aquifer. Most people think water is filtered on its way to an aquifer, but in karst, there is no filtration — just open pathways

that allow water to carry contaminants from the surface directly to the aquifer below. It's not uncommon for dye trace flushed down a toilet to appear in a kitchen sink a few miles away. Imagining this process gets people's attention!

Caves and karst pique hidden interests, knowledge, zest for life, and con-

cern for environmental conservation. Trepidation associated with venturing underground is disappearing. Curiosity is taking over. Imaginations stir, and these conversations turn into dreams of learning about caves. IDCK gives us a grand opportunity to reach out, celebrate, and teach people to take care of Earth's precious cave resources.



PHOTO OF SKOCJAN CAVES BY ZUPAN HAJNA. PHOTOS PROVIDED BY VAL HILDRETH-WERKER

FIRST OFFICIAL IDCK CELEBRATION: POSTOJNA, SLOVENIA (SEPTEMBER 10-13, 2026)

BY NADJA ZUPAN HAJNA, FOR THE IDCK ORGANIZERS - UIS TREASURER

On November 12, 2025, the UNESCO General Conference proclaimed September 13 as the International Day of Caves and Karst (IDCK) — a historic recognition of the global importance of caves and karst landscapes. IDCK provides an annual platform to raise awareness, strengthen protection, and bring together science, education, outreach, and policy in support of these remarkable and vulnerable systems.

Caves and karst are vital natural systems. Karst aquifers supply drinking water for hundreds of millions of people, while caves and karst landscapes sustain unique biodiversity and preserve outstanding natural and cultural heritage. They are also of profound cultural significance: caves have served as early human shelters, preserve archaeological evidence and rock art, and include ritual and sacred sites, offering irreplaceable insights into human history. At the same time, caves and karst are highly vulnerable to pollution, land-use pressures, and climate-related extremes, making their protection and sustainable management a shared global responsibility. IDCK promotes science-based protection, education, and outreach, and encourages cooperation among researchers, educators, decision-makers, and local communities to ensure the sustainable management of caves and karst worldwide.

The first official celebration of IDCK will take place in Postojna, Slovenia, September 10-13, 2026, with September 13 as the central date and a series of scientific and outreach events planned in the days leading up to it.

Slovenia is hosting the inaugural celebration because the IDCK initiative was launched within the International Union of Speleology (UIS) and taken forward through UIS leadership. As UIS is registered in Slovenia, Slovenia formally submitted the proposal to UNESCO and coordinated broad international support for the initiative.

The event will be held under the honorary patronage of the President of the Republic of Slovenia, H. E. Dr. Nataša Pirc Musar, and Mr. Khaled El-Enany, Director-General of UNESCO, with the support of the Slovenian National Commission for UNESCO.

The First IDCK Celebration is being organized by the Karst Research Institute ZRC SAZU (Slovenia), UIS, Postojna Cave d.o.o., Škocjan Caves Park UNESCO WHS Municipality of Postojna, and the Municipality of Pivka.

Preliminary Program Highlights

- September 10-13, 2026 – International conference in Postojna
Theme: Sustainable management of caves and karst, focusing on protection, education, and research as a foundation for sustainable development, combined with scientific excursions to selected karst and cave sites.
- September 10: Excursion to Škocjanske Jame (Škocjan Caves; UNESCO World Heritage Site) and the Pivka Intermittent Lakes.
- September 11 (09:00–17:00): Full-day conference (keynote speakers and participant presentations).
- September 12 (09:00–15:00): Half-day conference (keynote speakers and participant presentations).
- September 12 (evening): Official IDCK celebration event in Postojnska Jama (Postojna Cave) (to be confirmed).
- September 13 (10:00–17:00): Excursion to the Unica Spring (IAH/MIKAS event), the en-

trance section of Planinska Jama (Planina Cave), the Rakov Škocjan natural bridges, and Cerkniško Polje.

Registration

The online registration page is expected to open mid-to-late March 2026, and the detailed program will be updated as further information becomes available.

We warmly invite NSS members and the wider US cave and karst community — researchers, educators, land managers, conservation groups, show caves, and grottos — to join us in Postojna for this historic inaugural celebration.

At the same time, IDCK is meant to be celebrated everywhere. We encourage NSS and partner organizations across the United States to organize local IDCK activities on or around September 13 (e.g., public talks, school outreach, exhibitions, guided visits where appropriate, clean-up actions, responsible caving messages, and events highlighting the value of karst water resources and biodiversity). Every local initiative helps strengthen public understanding and support for the protection and sustainable management of caves and karst.

We look forward to celebrating IDCK together — globally and locally.



**Union Internationale
de Spéléologie**



PHOTO OF CERKNISKO POLJE 2026 BY ZUPAN HAJNA. PHOTOS PROVIDED BY VAL HILDRETH-WERKER



2026 CAVE ANIMAL OF THE YEAR SLIMY SALAMANDERS

By Dr. Carlos Camp, Dr. Jean Krejca, and Dr. Matthew L. Niemiller

While the genus *Plethodon* includes dozens of woodland species, the 2026 Cave Animal of the Year focuses specifically on the Slimy Salamander complex (*Plethodon glutinosus* group). These salamanders are among the most frequently encountered amphibians in eastern US. caves. Although they lack the extreme cave adaptations of troglobionts, Slimy Salamanders function as classic troglophiles — regular cave users that move freely between surface forests and subterranean environments.

What Do Slimy and Other Woodland Salamanders Look Like?

Unlike stygobiotic (obligate cave-dwelling) salamanders, which have pale bodies, spindly legs, and barely noticeable eyes, woodland salamanders of the genus *Plethodon* — including the Slimy Salamanders frequently encountered in caves — look like typical surface-dwelling salamanders. The reason is that although several species utilize caves extensively, none are restricted to cave life. In caves, especially in karst regions of the eastern US, Slimy Salamanders typically remain in the twilight zone near the entrance, from which they can make feeding forays out into the forest when weather conditions permit. In fact, some species only enter caves when the forest is too hot and dry to persist on the surface.

These salamanders come in different sizes, ranging in maximum total length from 10 or 11 cm (~4 in) to over 20 cm (8 in). Regardless of size, they all have

the same basic “look.” The body is tubular with a slightly wider head. The eyes are prominent, giving the animal a distinct “pop-eyed” appearance. The tail is also tubular with no side-to-side flattening and no tail fin (tail fins are prevalent in aquatic and semi-aquatic salamanders).

Colors vary. Members of the Slimy Salamander (*Plethodon glutinosus*) species complex are black with differing numbers of white or brassy flecks. Several small species (for example, Redback Salamander, *P. cinereus*) sport a reddish stripe down the back. A couple of the larger forms have backs that are the color of caramel or chestnut brown, and members of the Jordan’s Salamander (*P. jordani*) complex have bright-red cheeks or legs. The Yellow-spotted Woodland Salamander (*P. pauleyi*) has bright-yellow polka dots running down the back.

Where Can I Find Slimy and Other Woodland Salamanders?

Woodland salamanders are endemic to North America, with the vast majority of species occurring in forests of the eastern US. A species that commonly uses caves during hot, dry weather is the Northern Slimy Salamander (*P. glutinosus*), which ranges from New York to central Alabama. Members of the Zigzag Salamander (*P. dorsalis*) complex also use caves to avoid dry conditions. Two species that are strongly associated with caves are the Pigeon Mountain Salamander (*P. petraeus*), found only on the eastern flank of Pi-

geon Mountain in northwestern Georgia, and the Dixie Caverns Salamander (*P. dixi*), which lives in or near Dixie Caverns in Roanoke County, Virginia. All of these species can also be found outside of caves. Pigeon Mountain Salamanders frequent surface rock outcrops and cliffs, while the others are more common under coarse woody debris on the forest floor. Within caves, individuals rest on tiny shelves or in small crevices along the walls of the twilight zone, or, if small enough, they climb directly across the sheer rock walls.

Members of the Slimy Salamander complex — including the Northern Slimy Salamander (*Plethodon glutinosus*) in the Appalachians and Interior Low Plateau and the Western Slimy Salamander (*Plethodon albagula*) in the Ozarks and in Texas — are particularly well known for their use of caves. During hot, dry conditions of late summer and early fall, individuals retreat into cave twilight zones where temperature and humidity remain stable. In many caves of the Ozarks, Interior Low Plateau, and Appalachian karst regions, Slimy Salamanders are among the most conspicuous vertebrates at cave entrances and in twilight-zone habitats.

What Do Slimy and Other Woodland Salamanders Eat?

Woodland salamanders eat primarily insects. Because of the paucity of insect life inside caves, salamanders regularly forage outside in the forest. Because



woodland salamanders are lungless, they depend entirely on the skin to breathe. Therefore, they must maintain wet skins the same way that humans have to maintain wet lungs. This biological constraint forces these animals to restrict foraging to wet or extremely humid conditions. Rainy nights during the spring represent prime feeding opportunities. Although they readily feed on insects inside their cave retreats during the summer, they do not get enough food to meet their energetic needs. Spring feeding is thus necessary to store enough energy in the form of fat in the tail to last them through the leaner times inside the cave.

How Do Slimy and Other Woodland Salamanders Reproduce?

Woodland Salamanders are completely terrestrial, and although they require humid environments, they never voluntarily enter water. Mating occurs at the same time as foraging, that is, during moderate, wet weather. Mating itself involves a complex ritual in which the male rubs the female's back, releasing pheromones from a gland on his chin that penetrate her porous skin. If she responds to his chemical "come hither," she straddles his tail until he deposits a sperm packet on the substrate. She then sits down on the sperm packet and picks it up with her vent, storing the sperm in a pocket called a spermatheca until she lays eggs, which may not be for several months. Typically, eggs are laid underground, and nesting females of both Northern Slimy Salamanders and Northern Zigzag Salamanders (*P. dorsalis*) have been

observed in caves. Nesting females of Northern Slimy Salamanders (*Plethodon glutinosus*) and related members of the Slimy Salamander complex have been documented depositing and guarding eggs within cave crevices, demonstrating that caves are not merely temporary refuges but also reproductive habitat.

The nest itself consists of a clump of eggs attached to the roof of a crevice or, in the smaller species, hung from the roof like a clump of grapes. The mother wraps around the eggs, protecting them from fungal attack through chemicals produced by bacteria living on her skin. She remains with the eggs until they hatch, and the hatchlings have tiny gill remnants and enlarged bellies full of yolk. However, both gills and yolk are rapidly absorbed, and within a day or two, these tiny creatures look like miniatures of their parents.

Threats to Slimy Salamanders

Because woodland salamanders travel between caves and the surrounding forest, damage to either environment could negatively impact their populations. Clearcutting forests represents a significant threat because of resulting changes in temperature and humidity, appropriate levels of which are necessary for foraging and mating. Moreover, the loss of leaf litter results in declines in litter-dwelling insects, which are critical to salamander diets. All of these changes also affect the moisture content and insect fauna in the twilight zones of caves. As it does for many organisms, climate change remains a legitimate threat because of possible

modification of temperature and rainfall patterns. Light pollution, trampling, and over-collection for scientific purposes or for the pet trade are potential threats for individuals within caves. Conservation of Slimy and Other

Woodland Salamanders

Many woodland salamanders like the Northern Slimy Salamander and members of the Zigzag Salamander complex are widespread and abundant, so there are no federal or state regulations designed to protect them specifically. However, the Pigeon Mountain Salamander is protected as a rare species by the state of Georgia because of its restricted geographic range. Because it has only been recognized as a distinct species since 2018, the Dixie Caverns Salamander has yet to receive any legal protection. However, it is considered critically imperiled because it is known from only three locations.

Why Slimy and Other Woodland Salamanders are Important

The primary ecological role that woodland salamanders play is in the flow of energy and nutrients through complex food webs. Salamanders feed on insects and in turn serve as food for predators higher on the food chain. In some forests, the total biomass of woodland salamanders exceeds that of birds, making salamanders critical contributors to the overall health of eastern forests. Because woodland salamanders move regularly between the cave and surrounding forest, they are critical conduits of energy and nutrients into the cave system. In particular, their waste contributes to decomposing organic material that provides food for cave-dwelling taxa.

References for Personal Edification

Camp, C.D. & Jensen, J.B. (2007). Use of Twilight Zones of Caves by Plethodontid Salamanders. *Ichthyology & Herpetology*, 2007(3), 594-604.

Camp, C. D., & Jensen, J. B. (2021). Long-term observations of salamander abundance in twilight zones of caves in Georgia, USA. *Herpetological Conservation and Biology*, 16(1), 63-71.

Wilson, K. L., Niemi Miller, K. D. K., & Niemi Miller, M. L. (2024). Reproductive biology of the Northern Slimy Salamander (*Plethodon glutinosus*) from a cave in northern Alabama, USA. *Herpetological Conservation and Biology*, 19(2), 222-235.

SLIMY SALAMANDERS ARE SUPER – NEW CAVE PRESERVATION NETWORK GLOW BRACELETS!

BY NICOLE RIDLEN

Every year, a new US Cave Animal of the Year is selected to help promote awareness of the unique ecosystems found underground, and this year is the Slimy Salamander complex (*Plethodon glutinosus* group).

I am so excited because these are my favorite animals to see when caving. They are so unique and the perfect example of an “exception to the rule” that exists in science. In elementary school, when we learn about amphibians, we are taught that they are all born aquatic and graduate to land-breathing as they mature. Not so with Plethodontids; their eggs are laid on land, and the mother salamander often carefully guards the clutch of eggs. You can watch the little guys developing over time, and when they hatch, they can already breathe air! They inspired the NSS to create a new Cave Preservation Network (CPN) glow bracelet this year, featuring salamanders.

Cave Preservation Network

Many NSS Members have heard of the CPN, but aren't quite sure what it is. For our show cave partners, the CPN is a way to support conservation, education, and research through the NSS by raising money. There are several options for show caves to join the CPN program, including collecting donations from their tour guests or donating directly from their own funds. This encourages show cave guests to participate in cave conservation and serves as outreach, helping the public know about our organization.

Some show caves have expressed a desire to support the CPN, but they cannot commit to joining the program due to marketing/branding standards, point-of-sale limitations, or support of other local charities with similar programs. That's why I first created the glow bat bracelets in 2021, and now the salamander bracelets have been added to the line-up. Show caves can purchase these glow bracelets to either sell in their gift shops or give away at events, helping support the NSS both directly through purchases and indirectly by increasing awareness. Many CPN partner show caves stock these bracelets, and there are several caves that purchase the bracelets or stickers separately from the program. We also have amazing Cave Animal of the Year stickers (designed by Don Arburn), and several show caves stock this series for sales and outreach.

Our NSS Headquarters stocks the bracelets at the NSS Bookstore! Get yours there. If any show caves or other businesses are reading this and would like more information about becoming a partner for the CPN, send me an email or give me a call. I would love to chat! Also happy to share our new PDF describing the different ways you can participate.



PHOTOS OF SLIMY SALAMANDER AND BRACELETS. PROVIDED BY NICOLE RIDLEN.



NATIONAL CAVE AND KARST MANAGEMENT SYMPOSIUM RE-CAP, OCTOBER 6-10, 2025

BY C.J. MCKINLEY

The focus for this year's symposium was "Hidden Waters. Hidden Life," with a focus on looking at the way in which underground water systems and adapted organisms play a vital role in sustaining life and maintaining ecological balance in regions with a scarcity of water and changes due to climate issues. These underground systems become critical reservoirs to both the environment and human populations. The perfect setting for this symposium was Ely, Nevada and the Bristlecone Convention Center.

The area is semi-arid and relies heavily on the subterranean waters available in this expansive basin. It is also home to Great Basin National Park and Lehman Caves. However, there are many more limestone caves in the mountains surrounding the basins. It also contains one of the most active geothermal fields in North America due to thinning of the crust resulting from the underlying geological structure that created the basin.

The pre-symposium weekend started off with an excellent and fun two-day workshop *Orientation to Cave Rescue*, led by Gretchen Baker. The first day included lecture and packaging patient practice at a local park. Day two was a cave rescue simulation at a local cave. Over a dozen certifications were given out. On Sunday the "Microbiology of a Hot Spring" featured the Monte Neva hot spring for some sample testing and education in a glorious, special spot with a long history in the basin. The weekend also hosted the NSS Board of Governors Meeting, the Western Cave Conservancy (WCC) President's Reception dinner, and a WCC board meeting. Sunday night featured an ice cream social and a trip to a local cemetery for the popular Ghost Toast.

On Monday, the actual symposium started with excellent presentations on a wide range of topics followed by a fun and educational trip on the Ghost Train of Old Ely that highlighted the geology up through the Robinson Nevada Mining District. Tuesday started National Cave and Karst Research Institute's (NCKRI) Coffee and Karst roundtable conversations where problems and solutions were discussed among managers and owners of caves. These sessions were also available on Thursday

and Friday prior to the symposium sessions. After the Tuesday sessions, a Bacardi and tequila tasting was followed by the Howdy Party dinner which was catered by a local high-school program. The catering was staffed by teens learning about food service.

Wednesday was field trip day. Two trips were planned, one to focus on the management of caves which included a trip to Great Basin National Park. Unfortunately, the US government shutdown prevented the planned trip into Lehman Cave. However, management issues and solutions throughout the park were able to be presented. The second field trip was designed to show off the geology and hydrology of the Great Basin area with a self-guided tour through many sites in the area. The busy day was completed with the poster session and social back at the Bristlecone Convention Center and a samba dance lesson at a local bar.

Thursday and Friday had many more educational sessions along with the tasty banquet dinner and keynote speaker on Thursday night, again catered by the local teen program. The sessions concluded on Friday afternoon.

Many volunteers helped to pull this event together; in particular, a big thanks has to go to Matt Bowers, who was the driving force who made the event happen. Tables of vendors with caving products and information were present throughout the symposium. And, of course, many sponsors helped make this symposium a success. Please visit the NCKMS.org website for more information and list of all the sessions presented. The sessions were recorded and will be available for viewing soon.

This year's sponsors include:

- Western Cave Conservancy
- Great Basin National Heritage Area
- Great Basin National Park Foundation
- National Cave and Karst Research Institute
- White Pine County Board of Tourism and Recreation
- American Cave Conservation and Association
- Karst Waters Institute
- National Speleological Society
- Cave Research Foundation
- Cave Gators
- Southwest Geophysical Consulting

Note: Article reprinted with permission from the Western Cave Conservancy Newsletter Vol 19 No 1, Winter 2026.





n 0 December 2025



<https://speleomedit.tetide.org/magazine/>

A NEW HORIZON FOR SUBTERRANEAN EXPLORATION – UNDERGROUND VISION ISSUE ZERO

BY FERDINANDO DIDONNA

The launch of *Underground Vision* – SpeleoMedit Magazine (Issue Zero, December 2025) marks the debut of a publication that expertly bridges the gap between technical speleology and high-end geographical storytelling. Published by Tetide APS, this inaugural issue serves as a sophisticated manifesto for the modern explorer, treating the “Mediterranean Sea of Caves” not merely as a region, but as a global symbol for the dual mandate of exploration and preservation. Furthermore, the magazine represents the natural evolution of the Underground Vision Contest, featured in the April 2025 issue of *NSS News* (Vol. 83, No. 4).

A Sanctuary for Karst Conservation

At its core, the magazine is a plea for the stewardship of karst environments. It moves beyond the “conquest” of caves, focusing instead on their intrinsic conservation value. The editorial philosophy treats these fragile environments as living ecosystems and irreplaceable climate archives.

The conservation narrative is driven by practical, high-stakes reports. From monitoring invasive species in Kosovo’s aquatic caves to grassroots cleaning of sinkholes in Greece, the magazine emphasizes that documentation is only the first step toward protection. By highlighting that only a small fraction of identified “natural monuments” enjoy institutional protection, the publication acts as a vital advocate for the subterranean world.

Global Collaboration and the Issue Zero Team

The breadth of this project is reflected in its diverse international authorship. Issue Zero features contributions from eight different countries, bringing together a prestigious group of researchers, explorers, and photographers.

Contributors:

- Fadil Bajraktari – Kosovo
- Claudia Crema – Italy
- Ferdinando Didonna – Italy
- Amos Frumkin – Israel
- Boaz Langford – Israel
- Victor Ferrer – Spain
- Iliass Naouadir – Morocco
- Ali Yamaç – Turkey
- Stelios Zacharias – Greece

This team is supported by other authors and a dedicated Editorial Board, led by Editor-in-Chief Francesco Maurano, ensuring that every report meets rigorous technical and aesthetic standards.

A Deep Dive into Issue Zero

Issue Zero positions itself as a precise and accessible source of knowledge, featuring:

- **Advanced Explorations:** Detailed accounts of the Ternani Cave and its hypogean connection with the Presepe Cave in Capo Palinuro (Italy).

- **International Karst Systems:** Exploration of the Chaara Cave (Morocco), the Mount Sedom salt caves (Israel), and the historical underground shelters of Kayseri (Turkey).

- **Conservation in Action:** A report on the cleanup of the Nestani sinkhole in Greece and environmental monitoring of invasive Louisiana Red Crayfish (*Procambarus clarkii*) in Kosovo.

- **Culture and History:** A comprehensive history of cave protection in Kosovo and a feature on the four Kosovo caves featured in the latest postage stamp emission.

A Magazine for the World

While the technical precision of the maps and photographic standards satisfy the seasoned speleologist, the magazine is clearly aimed at a much broader audience. It adopts a narrative style that uses breathtaking visual storytelling to engage the general public. The philosophy is simple: by showcasing the hidden beauty of the underground, we foster a global community that feels a sense of responsibility for its protection.

To ensure this vision reaches the widest audience possible, the magazine utilizes a modern, accessible distribution model:

- **Read online:** An interactive digital reader allows for immediate browsing.

- **Free subscription:** The full PDF version is available for download to all registered users at no cost, promoting the free exchange of speleo-culture.

- **Print on demand:** For those who value the tactile experience of a high-quality journal, physical copies can be ordered on demand.

An Invitation to Collaborate

As the magazine moves toward future issues, we extend an open invitation to the global community. We are seeking collaborators who share a passion for merging exploration with aesthetic excellence. Whether you are a researcher documenting new species, a photographer capturing ethereal calcite formations, or a conservationist, there is a place for your voice.

The publication operates under a strict principle of neutrality — it is an apolitical, non-partisan platform dedicated exclusively to research and culture. It is more than a journal; it is a global movement to ensure that the “Underground Vision” remains clear, protected, and celebrated for generations to come.

Contacts and submissions: Authors interested in contributing manuscripts or high-resolution visual media are encouraged to follow the strict submission guidelines regarding image resolution and academic citations. All content is shared under a Creative Commons Attribution 4.0 (CC BY 4.0) license.

Official Submission Link: <https://speleomedit.tetide.org/magazine/sending-articles/>

The Underground Visions Contest:

Entries for this year’s Underground Visions Contest can be submitted at this link: <https://www.tetide.org/progetti/visioni-sotterranee/>





EDUCATION THROUGH COLLABORATION

by Dave and Tracy Jackson

Why do you cave? Certainly, there's the excitement of exploring places that few (if any) other humans have ever seen. There are physical and psychological challenges. There are scientific and historical discoveries to be made. But don't overlook the fact that caving is a group activity. Cavers derive great satisfaction from working with friends to accomplish a common goal. And the rewards of collaboration come not just from caving itself but also from caving-related projects that many of us do.

This is just as true for the CaveSim program as for other caving projects. The authors travel around the US with a new, highly realistic mobile cave and teach tens of thousands of children and adults about caving every year. CaveSim participants learn cave conservation, exploration, science, history, safety, and more. In 2025, CaveSim conducted 90 days of education in a dozen states from California to Georgia to New York. CaveSim visited schools, libraries, museums, military base youth centers, state and city parks, show caves, and even the NSS headquarters.

In just seven weeks last fall, CaveSim taught 22 days of conservation programs in eight states with a massive mobile cave at every event. Over 4,800 people learned from these events, and we traveled over 9,000 miles to make this happen. While this is impressive, the number of people and organizations that collaborated to make these events happen is astounding. Planning started nearly a year prior. CaveSim conducted free public education at Luray Caverns in October, 2024, and even

before the event ended, CaveSim was asked to come back to Luray for the National Caves Association meeting in September, 2025. Several teachers in Georgia read about CaveSim online and asked for at-school field trips. Two very generous cavers from Georgia provided funding for CaveSim to return to Tellus Science Museum for the fifth time. Ruby Falls reached out to see if CaveSim could partner with SCCi to educate kids at a homeschool event. The Alabama Science Festival organizers offered funding to bring CaveSim back to their Huntsville event.

With such strong enthusiasm for educational events in TAG and Virginia, we knew we needed significant help transporting the mobile cave across the country. The Cave Conservancy of the Virginias (CCV) stepped in for the second year in a row with a very generous grant that funded three days of free public programming in Roanoke, as well as funds for transportation. The NSS also stepped up with funding for public education at the headquarters and at two Virginia locations (Pocahontas State Park and the Children's Museum of Richmond), with additional support from the Richmond Area Speleological Society and the Blue Ridge Grotto.

All of this collaboration was well worth the effort. Attendance at all events was very strong, with caver Wil Orndorff commenting after one Virginia event, "It was a banner day." A mother in Virginia wrote, "Dave and the entire CaveSim team are awesome! We got to see them twice in two days, and

we wish they had a Virginia location to be around 10x more! This is SUCH a great experience for ALL kids." We also received great feedback about the educational quality of the program, including from a teacher who wrote, "The CaveSim experience is not only a fantastic experience and adventure for everyone, but also an incredible educational opportunity for all. As a physical education teacher, I think this is a brilliant way to explore movement and inspire more people to enter the world of nature and the cave experience." This quote touches on one of the primary goals of CaveSim — to inspire kids to love caves (even if they never become cavers) so that they advocate for their protection when they become adults.

Many NSS members volunteered at the events, with especially strong caver turnout in Roanoke (thanks to Mary Sue Socky) and Huntsville. The NSS headquarters event was attended by several vanloads of kids from the Boys and Girls Club and by families who heard about the event online. Cavers Emily P. Davis, Dave Hughes, Ed Strausser, and many others made it possible for CaveSim to teach multiple groups of kids simultaneously, which we always strive to do.

While some kids explore the mobile cave, others learn geology, try the squeezebox, learn about the physics of pulleys on the CaveSim SRT tower, learn bat biology, and consider safe caving while trying cave rescue phones. Caver Maggie Cole helped kids learn about haul systems and SRT on the new CaveSim tower at the Alab-

ama Science Festival, and toward the end of the day, had several kids in Frog harnesses learning to ascend.

Maggie said afterward that, "I have found most of the people I introduce to the caves are not interested in going caving, out of fear, but they learn new things about the caves in our area every time. I think from our encounters, people better appreciate the importance and value of the subterranean world we love so much. Many have said something along the lines of, 'I don't want to go, but I respect what you do and find it fascinating.' I find experiences like this to be encouraging, that maybe we are teaching our peers, and future generations, to love and protect the caves far better than if we were to pretend they didn't exist."

As we all know, caving requires significant flexibility (both physical and mental), and flexible scheduling is the key to CaveSim programming. Halfway through the fall CaveSim tour, a school in Oklahoma City called to request a fourth-grade CaveSim program. With careful planning and late-night driving, we were able to fit this school in with just enough time between elementary programs in Austin, TX, and a high school event in Colorado Springs.

Filling gaps in the CaveSim schedule while we're on the road is not uncommon, and it allows us to educate more children. It also gives us plenty of time at home, which is important because we're building a new version of CaveSim. Why are we building yet another CaveSim trailer? Our vision for CaveSim Trailer4 is that another organization with a strong education team will own this new cave and use it for public education elsewhere in the country. This will greatly increase the number of children and adults who learn about cave conservation via the CaveSim experience.

Building the new cave is a very time-consuming process because we pay so much attention to detail. As a parent in Virginia wrote, "The whole setup was so detailed and felt like you were really in a cave! It was amazing!" Thankfully, we have an awesome team to help with both education and cave fabrication, and we're very excited to have welcomed caver Cole Newton to the team in November. We also have incredible volunteers, such as retired professor Geoff Lawrence. If you or someone you know has an interest in sharing time and talent with us, feel free to reach out (info@cavesim.com).

We have an exciting year ahead, with plans for events in eight states, including five consecutive weeks of education in San Francisco. As always, it takes lots of teamwork to make these programs happen, and we're grateful for all of the people and organizations that work with us to teach the next generation of cave conservation advocates.



A FEW OF THE PEOPLE WHO HELPED RUN CAVESIM DURING GO FEST IN ROANOKE, INCLUDING, FROM LEFT TO RIGHT, DAVE JACKSON, DAVE SOCKY, MARY SUE SOCKY, NICK SCHMALENBERGER, GEOFF LAWRENCE, AND BAMBI MARSHALL.
PHOTO BY CITY OF ROANOKE STAFF



A 4TH GRADER EMERGES FROM CAVESIM. PHOTO BY FRONTIER ELEMENTARY STAFF



THE INDIANA KARST CONSERVANCY

by Conservancy Members

The Indiana Karst Conservancy (IKC) was founded in 1986 in response to extensive vandalism in the caves of Indiana's iconic Garrison Chapel Valley and other areas. Thousands of thoughtless visitors impacted these caves and, spurred on by a certain publication that encouraged them to ignore property owners' rights, left mountains of trash and layers of graffiti in some of Indiana's most popular wild caves.

Cleanup efforts began in caves, including Wayne and Sullivan, where volunteers laboriously removed tons of discarded trash through obstacles such as Wayne's infamous 1,200-foot crawlway and Sullivan's equally long Backbreaker. Countless hours were spent tediously removing graffiti from the well-travelled portions of these caves. It was quickly recognized that without controlling access, all that hard work would be for naught as waves of thoughtless visitors arrived, bringing more trash and spray paint.

The IKC first negotiated access control to Wayne Cave in 1986, with the landowner's permission, and the cave was gated in February 1986. Gating popular caves was immediately controversial in the Indiana caving community. Several gates were destroyed. Unknown trespassers endangered permitted visitors by jamming locks while other cavers were still inside.

Despite the controversy, the IKC stuck to its exempt purpose, which states in part that we are "dedicated to the conservation and preservation of caves and karst features in Indiana and other

areas of the world." Some version of this mission statement has appeared in every issue of the quarterly IKC Update since issue #1, and all 160 issues are available on our website at www.ikc.caves.org.

The IKC acquired its first preserve, which includes Sullivan Cave, in 1998. Since then, six additional preserves, totaling almost 300 acres, have been added, representing caves across both regions of southern Indiana's exposed karst landscapes.

Beyond our seven preserves, the IKC manages access to several privately owned caves, State-owned caves in Indiana's Spring Mill State Park, and the Cave River Valley Natural Area. In partnership with The Nature Conservancy and the City of Salem, we also manage caves in Henderson Park and monitor a conservation easement on the Sinks of Indian Creek, a significant karst feature near Corydon, Indiana.

From its beginning, the IKC has been an all-volunteer organization of mostly cavers who have a deep appreciation — even a love — for the underground. We regularly sponsor cave rescue training through the National Cave Rescue Commission and Wilderness First Aid training for cavers and the general public. Surface programs include bird hikes, geology hikes, moth identification events, bat counts, and the annual Indiana Cave Symposium, held in conjunction with the Indiana Cave Survey. We also promote, sponsor, and conduct research on and under our properties.

Conservation on our preserves goes well beyond the underground. Volunteers put significant effort into invasive species treatment, bat habitat improvements, and maintenance of hiking trails and camping areas on the surface of our preserves — working to maintain not just the caves we steward but the landscapes above them as crown jewels of Indiana conservation.

The IKC is also an advocate when development pressures could stress Indiana's karst. We work with landowners to help them better understand and care for the karst features on their property, and our volunteers give presentations to civic groups interested in caves and karst. We are not a philosophical conservation organization. We are cavers who love caves, and we do our best work surrounded by the forests of our preserves or covered in the mud of the caves we love.

The IKC is 350 members strong and is committed to advocating on behalf of Indiana's caves, the life forms that depend on them, and to promoting safe and responsible caving throughout our community.





ABOVE: SUE VERNIER IN THE STREAM LEVEL OF SULLIVAN CAVE. PHOTO BY RICHARD VERNIER
PREVIOUS PAGE: THE TWIN ENTRANCES OF LOWRY CAVE. PHOTO BY RICHARD VERNIER



TYPICAL CAVE STREAM PASSAGE IN UPPER TWIN CAVE. PHOTO BY DAVE EVERTON



THE BREAKDOWN ROOM, ENNIS CAVE. PHOTO PROVIDED BY RANDAL ROSE



PASSAGE TO TREASURY, ENNIS CAVE. PHOTO PROVIDED BY RANDAL ROSE

• New Hillside Campground:

- o Road up the hill has been improved at the top; the lower half is planned for April 2026
- o Construction of a new shelter house
- o Construction of a new composting toilet
- o New campsites with picnic tables, firepits, tent pads, and a large open area for camping
- o Construction April 2026 to May 2027

•Main Pavilion:

- o Will be wired for lights and receptacles
- o Bluetti will be used to power
- o Schedule general maintenance
- Construction May 2026-

Inside the cave

- Complete final surveys of known cave (~3,000 – 4,000') – March 2026
- Video document the main cave (~5 miles of the cave) – Fall 2026
- 3D modeling with complete survey – April 2026
- Replace two ladders to the 100' waterfall room – Fall 2026
- Survey control points established at strategic locations in the cave – March 2026
- Continue digging in three primary areas in the cave. All very promising with one difficult, but not impossible, until the leads stop

The ECC is a planned and prepared conservancy with a vision for the mission. To do this, we need your help. The ECC is self-funded and benefits caving and educational communities. We need people to help construct the projects, but we also need expertise for our mission: protection of the resource, conservation, research, exploration, and recreational caving. If you want to help and/or join the ECC, message us at: EnnisCaveAR@gmail.com.

THE WORLD STAGE: ADVOCACY AND ACTION AT UNEA-7

BY ANA K. CELIS - DIRECTOR & FOUNDER OF KARST LAB MÉXICO

Introduction

The United Nations (UN) is the world’s largest and most inclusive intergovernmental organization, with 193 Member States representing nearly all sovereign nations. It serves as the foremost global forum for countries to collectively address international challenges and pursue shared solutions.

The UN functions through a diverse system of specialized agencies, programs, and conventions, each dedicated to specific issues. One of the key bodies addressing global environmental concerns includes the UN Environment Programme (UNEP). Within it, the UN Environment Assembly (UNEA) — convened biennially at the UNEP headquarters in Nairobi, Kenya — serves as the world’s highest-level decision-making body on the environment. It brings together government delegates from all UN Member States, observers from non-member states, and accredited civil society organizations to shape global environmental policy through dialogue and multilateral agreements.

Why UNEA-7 Mattered to Cavers

In late September 2025, the Republic of Indonesia introduced a landmark draft resolution on karst ecosystems for con-

sideration at UNEA-7, the seventh session of the UN Environment Assembly. Titled “Karst ecosystems for global water, biodiversity, climate resilience, and economic development,” this resolution represented an unprecedented step toward international recognition of karst landscapes. For the first time in a UNEA setting, the proposal formally acknowledged the vital role of subterranean karst ecosystems and the natural and cultural resources they contain. This placed the protection and sustainable management of these fragile environments — long championed by cavers and scientists — onto the agenda of the world’s highest-level environmental decision-making body.

My Path to UNEA-7

It was through Bärbel Vogel, President of the German Speleological Federation (VdHK), that I first learned of the groundbreaking Indonesian resolution on karst ecosystems at UNEA-7. Instantly captivated, I volunteered to assist her in developing the official Karst-Aware website (www.karst-aware.org). This platform served a dual mission: to inform the global speleological community about the resolution, and to educate UNEA delegates on the critical importance of the world’s karst ecosystems and the field of speleology.

The VdHK holds a unique position as the only karst- and cave-focused civil society organization with accredited non-governmental organizations (NGO) status in the UN system at UNEP and UN Economic and Social Council (ECOSOC). Consequently, Vogel, as VdHK president, was appointed by fellow NGO representatives to act as their focal point for engagement with the Indonesian resolution — a role that would soon define my own involvement.

Engaging in the Consultations

From October to November 2025, I had the privilege of joining Vogel in a series of online preparatory consultations for UNEA-7. My first session in Nairobi was a revelation. I was immediately struck by the sophisticated diplomatic discourse, the formal UNEA procedures governing dialogue, and — most strikingly — the widespread lack of foundational knowledge about karst ecosystems among many participants.

The early efforts to draft proposals to augment the Indonesian resolution proved essential. Our dedication was rewarded when the Indonesian delegation formally integrated some of our key references into the official negotiation text — a moment of genuine celebration for our international team of



DURING THE GMGSF, OUR INTERVENTIONS WERE CENTERED ON THE INTERSECTION OF KARST AND CAVE PROTECTION WITH OTHER GLOBAL ENVIRONMENTAL ISSUES IN DISCUSSION AT UNEA-7. PHOTO BY: SIMMONA ZIMMERMANN



WITH VDHK REPRESENTATIVE DR. DAVID WECHULI AND THE INDONESIAN DELEGATION, THE PROONENT MEMBER STATE OF THE LANDMARK KARST ECOSYSTEMS RESOLUTION. PHOTO PROVIDED BY THE VDHK ARCHIVES.



WE PROMOTED THE DISCUSSION OF KARST ECOSYSTEM PROTECTION FROM THE PERSPECTIVE OF DIFFERENT UN MGS AND INTERNATIONAL ORGANIZATIONS SUCH AS THE IUCN. PHOTO BY: BERNHARD ZLANABITNIG

Vogel, George Veni, John Gunn, Ferdinando Didonna, Val Hildreth-Werker, and Ana Celis.

In early November, this groundwork led to a pivotal question. Vogel asked if I would be interested in representing the VdHK in person at UNEA-7 in Nairobi. My answer was an immediate and enthusiastic “Yes!”

Touchdown in Nairobi: The Negotiations Begin

I landed in Nairobi on November 30 to attend the core of the political process: the in-person negotiations of the Open-ended Committee of Permanent Representatives (OECPR), scheduled from December 1 to 5.

The path to this moment follows a defined UNEA protocol. After countries submit draft resolutions, the text undergoes successive rounds of refinement. This builds on the online consultations I joined in October and November, culminating in the final, intensive talks in Nairobi. Here, discussions move into nuanced formats known as “informal” and “informal-informal” consultations, where the most delicate diplomatic bargaining often occurs.

The OECPR Process

From my very first day, I was immersed in the formal protocols of a UN negotiation.

To briefly illustrate the process: each day at the appointed hour, national delegations gathered in the assigned meeting room for a three-hour formal negotiation. The draft resolution was displayed on screen, and a Co-facilitator led a meticulous, line-by-line review. Member State delegates were then invited to propose textual amendments in real time. At the close of each session, Major Groups and Stakeholders (MGS) could request the floor and deliver a brief oral statement, subject to the Co-facilitator’s discretion. Civil society participants were allotted two-and-a-half minutes to speak, and their remarks had to pertain directly to the specific lines or paragraphs discussed in that session.

From the outset, a concerning pattern emerged in the negotiations — not only for the karst resolution but across most of the 17 texts under discussion. A bloc of Member States demonstrated a uniform desire to marginalize civil society groups by referring to them as “relevant stakeholders.” Their strategy was to omit or vaguely reference the formal MGS designation within the text, thereby avoiding explicit commitments to include them in future implementation.

Yet, not all delegations were resistant. Throughout the OECPR and UNEA, we engaged directly with more than 25 national delegates. Our core advocacy message was to seek formal acknowledgment of the role of speleology with-

in the resolution’s text. This was the central argument of the two statements Vogel and I prepared and delivered during the first week of negotiations.

The Role of Major Groups and Our Strategy

Within UNEP, civil society participation is formally channeled through the structure of MGS. This framework is designed to incorporate diverse perspectives in global environmental governance. The nine official groups are: Business and Industry; Children and Youth; Farmers; Indigenous Peoples and their Communities; Local Authorities; NGOs; the Scientific and Technological Community; Women; and Workers and Trade Unions.

I attended the 21st Global Major Groups and Stakeholders Forum (GMGSF) on December 6 to 7, representing the VdHK. A key strategic realization crystallized during this forum. After a week of intense interactions, it became clear that most civil society participants had little to no prior familiarity with karst landscapes or speleology. Concepts fundamental to us — such as the definition of a cave or the acknowledgment of the existence of cave ecosystems — were entirely outside their expertise.

This insight refined our core message to serve a dual purpose: our statements had to educate and persuade Member State delegates while simultaneously building bridges with the wider civil

society. Our strategy for UNEA-7 was thus to frame every intervention as a foundational introduction to karst groundwater and cave benefits that could resonate in both diplomatic and collaborative spheres, essential for achieving the assembly’s overarching environmental goals.

UNEA-7: The Final Decision

The following week, from December 8 to 12, the official UNEA-7 session commenced. Dr. David Wechuli, a bat conservation specialist serving as the Kenya Program Manager for Bat Conservation International (BCI), joined me in representing the VdHK. His accreditation was a tremendous asset, enabling us to broaden our outreach at an event of over 5,000 registered participants.

With UNEA-7 underway, the clock was now ticking toward a final consensus on the Indonesian resolution within a single week. Our strategy evolved in response: while sustained lobbying with Member State delegates remained critical, we also prioritized building strategic connections with other NGOs and Major Groups. These alliances were essential, not only to secure immediate support for karst ecosystems, but also to embed karst and cave issues within the broader environmental agenda for future forums.

Despite compelling scientific data underscoring the need for global protection policy, the Karst Ecosystems resolution met its decisive moment on December 10, when diplomatic priorities and competing agendas prevailed, leading Indonesia to formally with-

draw it. In their closing remarks, the delegate from the Republic of Indonesia explicitly acknowledged and thanked the speleology community for its active engagement — a notable recognition of our collective advocacy on the global stage.

This outcome serves as a pivotal reminder that effective advocacy extends beyond sound data; it demands persistent navigation of intricate political landscapes. Our efforts in Nairobi do not conclude with the withdrawal of the text. Instead, they reaffirm the urgent need to deepen understanding, strengthen alliances, and continually advocate for the irreplaceable role of karst ecosystems in securing our shared environmental future.

Side Events: Elevating Karst on the Global Stage

I was invited to speak at an IUCN-led side event titled “Flow Forward: Transboundary water cooperation to restore and sustain water ecosystems from source to sea,” held on December 8. In parallel, David drew significant attention at a separate side event focused on invasive species, where he presented on the devastating impact of white-nose syndrome on bat populations, effectively linking this specific threat to the broader vulnerabilities of karst ecosystems.

On December 11, the VdHK organized a UNEA-7 side event titled “Karst-aware decisions for a sustainable planet: Bridging Science and Policy. Turning knowledge of the hidden geoeosys-

tems into sustainable action.” The live-streamed event featured presentations, a keynote by a representative of the Indonesian Ministry of Environment and Forestry, and a panel discussion with members of other UN Major Groups and a representative of the IUCN.

A Milestone Year for Karst and Speleology

The year 2025 stands as a landmark period for the global recognition of karst landscapes, caves, and the science of speleology. After a multi-year advocacy effort led by the global speleological community, UNESCO officially proclaimed September 13 as the International Day of Caves and Karst (IDCK). Also, for the first time, karst ecosystems became part of a formal resolution placed on the highest environmental agenda (UNEA) of the world’s premier environmental decision-making body (UNEP). Crucially, this process also marked the first time accredited speleologists participated directly in the negotiation of a UN resolution concerning karst, ensuring that specialist knowledge informed the highest levels of diplomatic discussion.

Finally, speleologists achieved the inclusion of karst ecosystems in the Global Environmental Outlook Geo-7, the most comprehensive scientific assessment of the global environment to this day. (<https://www.unep.org/resources/global-environment-outlook-7>)

Read the official VdHK press release at <https://www.vdhk.de/unea-7>

Acknowledgements

The representation of speleology in UNEA-7 was made possible through the generous financial support of the German Speleological Federation (VdHK), the British Caving Association (BCA), the British Cave Research Association (BCRA), the Conservation and Science Committee of the (US) National Speleological Society (NSS), the Italian Speleological Society (SSI), and ARGE Grabenstetten.

Special thanks to Bärbel Vogel, whose leadership was an honor to work under. My sincere gratitude to Dr. John Gunn, Dr. George Veni, M. Sc. Ferdinando Didonna, and Val Hildreth-Werker for their invaluable support and guidance. Advocating alongside Dr. David Wechuli for these vital ecosystems was a true privilege.

My deepest thanks to speleologists and caving organizations worldwide for their vital support, advocacy, and solidarity throughout the UNEA-7 process.



THE FIRST NEGOTIATION ON KARST ECOSYSTEMS WITHIN THE UN SYSTEM, ANA CELIS IN LOWER LEFT CORNER. PHOTO BY SONIA GOICOECHEA



THE CAVE FORMATION REPAIR PROJECT 2025 ACCOMPLISHMENTS

By Michael C. Mansur, CFRP Leader and Founder

The Cave Formation Repair Project (CFRP) had another very productive year. We held 21 trips, repaired 248 broken formations, and had 66 participants who volunteered 1,181.5 hours in caves. CFRP volunteer hours are calculated as actual hours worked and tracked from the time we leave the vehicles until we return to them. The caves in which we worked this year are: Caverns of Sonora, Carlsbad Caverns Music Room and Lower Cave, Hidden, Ft Stanton, Cottonwood, and Spider.

The types of formations we made repairs to this year were stalactites, stalagmites, soda straws, helictites, pool fingers, draperies, and crust. We were very fortunate to find a Hydro-magnesite Balloon in Ft Stanton Cave during one of our CFRP trips while we were looking for broken formation matches. I have included some photos of our work. I want to thank all of the volunteers who dedicated their time to help restore the beauty of our caves, and to the Cave Specialists who issued the permits for us to perform our repair and restoration work!

For further information on the Cave Formation Repair Project, please check out our Facebook page or contact Mike Mansur at mmansur@caves.org



Photos of the Cave Formation Repair Project working in 2025
Photos Provided by Mike Mansur

NSS WINS FIRST BATTLE TO PROTECT MILL CREEK SINK NATURE PRESERVE

BY EMILY P. DAVIS, ANDREW PITKIN, AND CHARLES ROBERSON

Planning Board denies development permit after hours of testimony from scientists, cave divers, and residents.

The National Speleological Society (NSS) has secured an important early victory in the effort to protect our NSS Mill Creek Sink Nature Preserve from development impacts in north Florida. Following months of preparation and coordinated advocacy by NSS volunteers, preserve managers, scientists, and community members, the City of Alachua Planning & Zoning Board unanimously denied a Special Exception Permit tied to a large development project adjacent to the Preserve. The decision represents the first successful defense of the site against a series of proposed developments planned around the Mill Creek watershed.

The outcome highlights the importance of organized advocacy and scientific expertise in protecting sensitive karst landscapes and aquifer systems. Mill Creek Sink: A Unique Cave Diving Site and Biodiversity Refuge

Located a few miles from Gainesville, Florida, the Mill Creek Sink Nature Pre-

serve lies within a region long recognized for its natural beauty, warm climate, and proximity to major springs. These same characteristics have also made the area attractive for residential development.

The NSS acquired the property in 1992 when the Asgrow Florida Company donated the Mill Creek Sink site, also known locally as Alachua Sink. Since then, the preserve has become both a destination for trained cave divers and an important protected landscape within the Floridan Aquifer system. The underwater cave system is known for its scalloped limestone passages and exceptionally clear water. To date, approximately 8,194 feet (2,497 meters) of cave passage has been mapped. Access is carefully managed by NSS Preserve Managers and Cave Diving Section members Andrew Pitkin and Charles Roberson.

Beyond its importance for cave diving, the system also supports a remarkable subterranean ecosystem. The cave environment hosts diverse aquatic organisms, including decapods, amphipods, copepods, and ostracods, many of

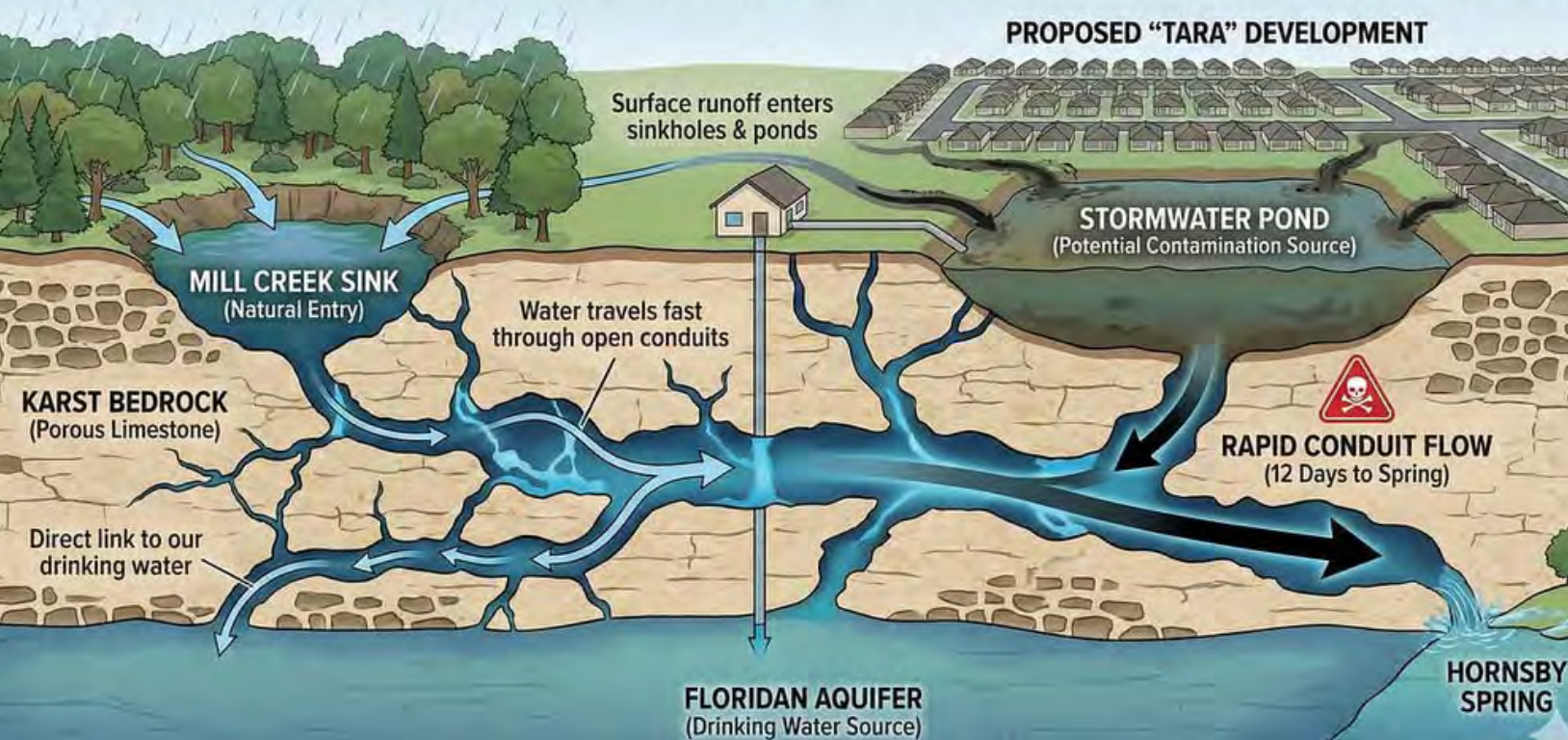
which are highly specialized for life in groundwater habitats.

Biologist Dr. Tom Sawicki noted the ecological significance of the system: "Amphipods such as *Crangonyx hobbsi*, *C. parhobbsi*, and *C. grandimanus* are considered keystone species whose presence and health reflect the ecological integrity of the Floridan Aquifer. Groundwater microbial communities are likewise central to natural water purification processes."

Emerging research also shows that surface contamination can disrupt these microbial communities and introduce pathogens or antibiotic-resistant genes into groundwater.

Mill Creek Sink is also hydrologically significant. The sink functions as a swallet draining more than 70 square miles (181 square kilometers) of watershed to the north. Dye tracing has demonstrated that water entering the sink travels underground approximately six miles northwest to Hornsby Spring, which feeds the Santa Fe River, designated as an Outstanding Florida Waterway.

THE UNDERGROUND HIGHWAY: MILL CREEK SINK & THE AQUIFER



Because of this direct connection, active excavation, building, or filling around the cave sink can significantly affect the spring through potential groundwater contamination from pesticides, fertilizers, or sediment mobilization during new construction.

Organized Response by the NSS

In recent years, development company Tara Forest, LLC, has proposed several residential projects surrounding the Nature Preserve and the Mill Creek watershed. Collectively, the projects — Tara Forest West, Tara Forest East, Tara April, Tara Phoenicia, and Tara Baywood — could bring more than 1,000 houses and one million square feet of commercial development to the area.

Although the proposals have been submitted as separate applications to the City of Alachua, the projects collectively represent a large development footprint surrounding the Nature Preserve. In August 2025, the Society notified the City of Alachua that it had not received appropriate notice for a hearing concerning the Tara Forest West Special Exception Permit, located north of the Mill Creek Sink Preserve. Proper notice is required under Florida law for affected parties.

When no response was received, NSS members continued to monitor the permitting process and prepare for future hearings.

The opportunity for formal involvement came when a Special Exception Permit was requested for a stormwater management utility associated with the Tara April project.

The NSS asserted Affected Party status and raised several concerns regarding the proposal, including:

- Lack of adequate geotechnical analysis in a sensitive karst environment
- Potential conflicts with the City's Land Development Regulations
- Insufficient protection for a significant geological resource under the City's Comprehensive Plan Conservation and Open Space Element

During testimony, NSS and NSS Cave Diving Section member Bryan Buescher summarized a central concern:

"We know that no stormwater detention basin fully protects water quality. Detention systems do not eliminate nutrient loading into the aquifer."

Preparing for the hearing required extensive coordination among NSS volunteers, scientists, cave divers, and local residents.

To support these efforts, the NSS also launched the Mill Creek Sink Defense fundraising campaign to help cover legal and technical expenses associated with protecting the preserve.

A Decisive Hearing

In January 2026, the case finally came before the City of Alachua Planning & Zoning Board.

Over the course of more than 12 hours of testimony and public comment, more than 50 citizens addressed the board. Speakers highlighted the importance of protecting the cave system and surrounding karst landscape for drinking water, biodiversity, recreation, and scientific research.

The board had the option to approve the permit with conditions — such as requiring additional geological testing after approval. Instead, members voted 4-0 (with one abstention) to deny the permit outright.

No public comments were submitted in favor of the permit.

The hearing drew significant attention from residents, scientists, environmental organizations, and cave divers. Discussion centered on the vulnerability of karst aquifers, the ecological importance of the Mill Creek Sink system, and the long-term consequences of development in sensitive recharge areas. Community Support and Legal Advocacy

This outcome was made possible in part by the rapid mobilization of the Litigation to Protect Caves Fund, approved by the NSS Board of Directors in January 2026.

The campaign quickly gained momentum, raising more than \$5,500 — over half of the initial fundraising goal.

These funds helped secure legal representation from Jane Graham of Sunshine City Law, whose work proved instrumental in presenting evidence during the hearing.

Although the developer did not appeal the Planning & Zoning Board's decision to the City Commission, the possibility remains that a revised application could be submitted in the future. Tara Forest, LLC is also continuing to push for approvals of Tara Forest West and Tara Phoenicia.

Nevertheless, the unanimous denial represents a critical milestone in protecting the Mill Creek Sink system and the surrounding karst landscape.

A Collective Effort

The NSS extends special thanks to the many individuals and organizations who contributed to this successful defense of the Preserve.

Key contributors include Bryan Buescher, who — along with his wife Vickie Bashor — received the 2025 NSS Cave Diving Section Conservation Award; Charles Roberson and Andrew Pitkin, Mill Creek Sink Preserve Managers; Fred Stratton, Chair of the NSS Cave Diving Section; and Gayle Hall, former NSS-CDS Board Director and head of its Science Committee.

Expert testimony was also provided by Steve Boyes, professional geologist; Ken Sallot, a Mill Creek Sink guide with years of diving experience in the system; and Dr. Thomas Sawicki, associate professor of biology at Florida A&M University.

Support came from cave divers, residents relying on well water from the Floridan Aquifer, and organizations including the Florida Speleological Society, the Florida Springs Institute, Our Santa Fe River, the Sierra Club, and Our Alachua Water.

The NSS also recognizes the leadership of the Preserves & Acquisitions Committee, chaired by Julie Schenck-Brown, for helping coordinate the Society's response.

Protecting the Future of Mill Creek Sink

The denial of the Tara April permit represents the first major victory in an ongoing effort to protect the Mill Creek Sink Nature Preserve.

Development pressure in north Florida continues to grow, and NSS members remain committed to monitoring proposals that could affect the cave system, the aquifer, and the surrounding karst landscape.

Interested in directly supporting this work? Please donate to the Mill Creek Sink Defense Fund at this link to help us replenish funds in the NSS Litigation to Protect Caves Fund: <https://secure.givelively.org/donate/national-speleological-society/mill-creek-sink-defense>

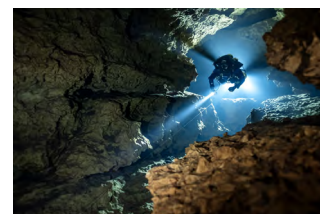


Photo from this article on back cover of this issue!

CRYPT OF THE MEGAFUNA

BY LUIS ESPINASA AND JORDI ESPINASA
MARIST UNIVERSITY

I have devoted more than thirty-five years to studying blind cavefish, investigating how evolution reshapes organisms to survive and adapt in extreme, isolated environments. I never imagined that this work would expand beyond cavefish genetics into paleontology, archaeology, filmmaking, and conservation. Yet, that is precisely what happened after the discovery of a remarkable cave system in northeastern Mexico.

The story begins in Sistema Calera, an unexplored cave in the tropical Sierra de El Abra in Northeast Mexico. What first drew my attention to this system was its unusual fish population. Inside the cave lives a mixed community of blind cave-adapted fish and surface-dwelling fish, of the species *Astyanax mexicanus*. These two morphs coexist, breed, and hybridize naturally. Such a setting provides an extraordinary natural laboratory to test how individual genes influence survival in an extreme environment.

While conducting this research, my family joined me in mapping and exploring the cave's unexplored passages. My brother, Ramón; his wife, Ruth; and my niece, Sofi, helped map galler-

ies that total 1,324 meters in surveyed length. Sistema Calera is an interesting, if uncomfortable, cave. Narrow crawls of floodways covered in thick mud. Bat guano carrying histoplasmosis, as three members of the team who ended up in the hospital can attest. Scattered across the painful floor were many bone fragments, stained dark brown by the hard water. Not an uncommon sight in caves beneath ranchland, where the rainy season often carries remains of livestock and wild animals into such caverns.

One afternoon, at the end of a long day underground, Ramón exclaimed, "You're going to be jealous. Look at the giant ammonite that Sofi found."

They produced a heavy rock from a backpack, nearly forty centimeters across. At first glance, it resembled the massive spiral shell of a mollusk — an extinct marine cephalopod related to the modern nautilus. But when I turned it over, I noticed a flat grinding surface marked with distinct ridges. The part of my brain dedicated to biological patterns went into overdrive.

This was not an ammonite! It was an elephant molar. How could that be?

There are no elephants in Mexico. Suddenly, it dawned on me that what I had in my hands was the molar of a mammoth!

The implications were staggering. The presence of a mammoth tooth deep inside a tropical cave suggested that we were standing within a deposit far older and more significant than we had imagined. We reexamined the cave floor with new eyes. Thousands of bones were scattered everywhere. We had casually assumed they were modern. Instead, they were fossil remains of Ice Age megafauna. Many were exceptionally well preserved, partially mineralized with manganese oxide, which gave them a dark, lustrous coating.

We secured the necessary permits (No. 401.15.3-2024/138 and No. 401.15.3-2025/147) from the Consejo de Paleontología e Historia (INAH) to formally investigate the site. We named the initiative "The Crypt of the Megafauna." Over the next three years, we organized multidisciplinary expeditions to document and recover specimens, map the cave system, and assess its scientific significance.

Much of the most promising fossil material lay underwater in flooded passages. Rather than risk divers in narrow and dangerous environments, we collaborated with ROV specialists Michael Girard and Mike Sandone. Together, we deployed a remotely operated underwater vehicle equipped with cameras, lights, and a robotic claw. We affectionately named it Robo-Teddy. Our guiding principle was simple: it is better to risk equipment than human life.

The underwater expeditions were technically demanding and physically intense. During our first dive, we located a massive bison jaw and a limb bone resting on the cave floor. Unfortunately, Robo-Teddy lacked sufficient lifting capacity to retrieve them. Despite the frustration, the day yielded unforgettable discoveries.

In a vast, submerged chamber, illuminated only by Robo-Teddy's lights, we encountered an extraordinary spectacle: the largest breeding colony of mysid shrimp ever recorded inside a cave. Thousands of delicate, white



FACE-TO-FACE WITH TREMARCTOS FLORIDANUS. A SHORT-FACED BEAR

crustaceans drifted slowly through the water column, descending like snowflakes. Their long antennae shimmered in the beam of our lamps. Suspended among them, we felt as though we were inside a living galaxy. We named the chamber “The Dome of Angels.” You look for science, hoping to achieve beauty in life.

To strengthen the scientific case for protection, we pushed Robo-Teddy farther into the submerged labyrinth. The ROV squeezed through tight breakdowns, navigated unstable rock piles, and repeatedly became lodged in constricted passages. Each time we feared we had lost it. Through skillful piloting and patience, it returned — often bearing extraordinary finds.

To date, we have catalogued more than 750 fossil specimens, with thousands still awaiting documentation. The assemblage includes massive herbivores, such as mammoths, mastodons, giant ground sloths, glyptodonts, camelids, bison, extinct horses, and deer. Apex predators are also represented: dire wolves, American lions, pumas, coyotes, bears, and saber-toothed cats. The exceptional diversity and abundance of fossil remains mark the cave as one of the richest and most important Pleistocene deposits in the region. We published our findings in the

journal *Revista Mexicana de Ciencias Geológicas*. Then, we created a book offering a thorough narrative alongside a detailed scientific account, *Crypt of the Megafauna*, published by the Association for Mexican Cave Studies. (AMCS; www.mexicancaves.org/bul/bulcat.html). A documentary film chronicling the exploration later received “Best in Show” at the 2024 convention of the National Speleological Society (www.youtube.com/watch?v=H2wUxca0MnK).

Some bones display marks consistent with cutting or scraping, raising the possibility of human interaction. Collaborative research is ongoing to support this hypothesis. This cave may contribute to our better understanding of humankind’s spread throughout the Americas and their role in the extinction of the megafauna.

During our time in Mexico, our local host informed us that the land above the cave was slated for sale and potential water extraction to support agriculture. The blind fish, shrimp colony, and fossils were suddenly at risk. Local community members recognized the cave’s uniqueness, yet economic realities could not be ignored. Families depend on land and water for survival. Conservation that disregards livelihoods is neither fair nor sustainable.

Despite its scientific value, Sistema Calera remains vulnerable. Our first conservation strategy envisioned the landowner becoming the steward of a private preserve, supported in part by visiting researchers who would rent space in a modest biological station. Initial discussions were enthusiastic. However, months later, the owner, confronted with retirement and mounting financial pressures, chose to sell the property to a buyer who plans to establish a small cattle operation supported by water drawn from the cave. Their choice underscored a critical lesson: long-term conservation must address the local community’s immediate economic needs.

For our second attempt, we envisioned a different conservation model. The economic burden should not rely on a local campesino from the community. Each season carries its own economic burdens. Who can blame a campesino who needs to feed their family for exploiting their land if the weather fails to bring rain? We would follow the model used by the National Speleological Society (NSS) and many Grotto Clubs in purchasing the land around the cave’s entrance.

As of January 2026, water pipes have already been installed at one of the four entrances, and it is expected that



ICE AGE MEGAFAUNA FOSSILS RETRIEVED FROM THE CAVE. A: LOW CEILING PASSAGES ARE THE NORM IN THIS CAVE, MAKING PALEONTOLOGICAL STUDIES EXTREMELY DIFFICULT. NOTICE THE LEG BONE ON THE BOTTOM. B: THE CLAW OF A GIANT SLOTH. C: THE FIRST FOSSIL DISCOVERED IN THE CAVE BY SOFI, A MOLAR OF A MAMMOTH.

water will begin to be pumped out during this year's dry season. Such development is now unavoidable given the local community's needs. But the cave system has four entrances. Luckily, the pipe will extract water only from the smallest entrance, which, after just a couple of meters, is blocked by a sump. The cave system's other entrances lead to the principal fossil galleries. The parcels surrounding these cave entrances are unsuitable for agriculture and even pose hazards to livestock. Purchasing and fencing these areas could secure access, prevent vandalism, and protect the cave's core resources. Interested readers may consider donating to GoFundMe (www.gofundme.com/f/the-crypt-of-the-megafauna).

A third initiative centers on public engagement through partnership with the Museo Regional Huasteco A.C. in nearby Ciudad Valles. Many of the paleontological treasures we've uncovered have been kept hidden in a dark, forgotten basement, accessible only to a handful of researchers. Our purpose is to bring these extraordinary fossils into the public eye and return this heritage to the community to which it belongs.

Educating the local community about the value of its natural resources is essential for building a sustainable future. Through awareness and shared knowledge, we can cultivate responsible

stewardship and ensure that these irreplaceable resources are protected for generations to come. To achieve this, we proposed that casts of selected specimens, particularly those of exceptional scientific and visual appeal, be presented within a high-quality, immersive museum experience. This exhibition will invite both residents and visitors to discover and marvel at the megafauna that once roamed the region during the Ice Age, transforming hidden discoveries into a source of pride, learning, and sustainable cultural development.

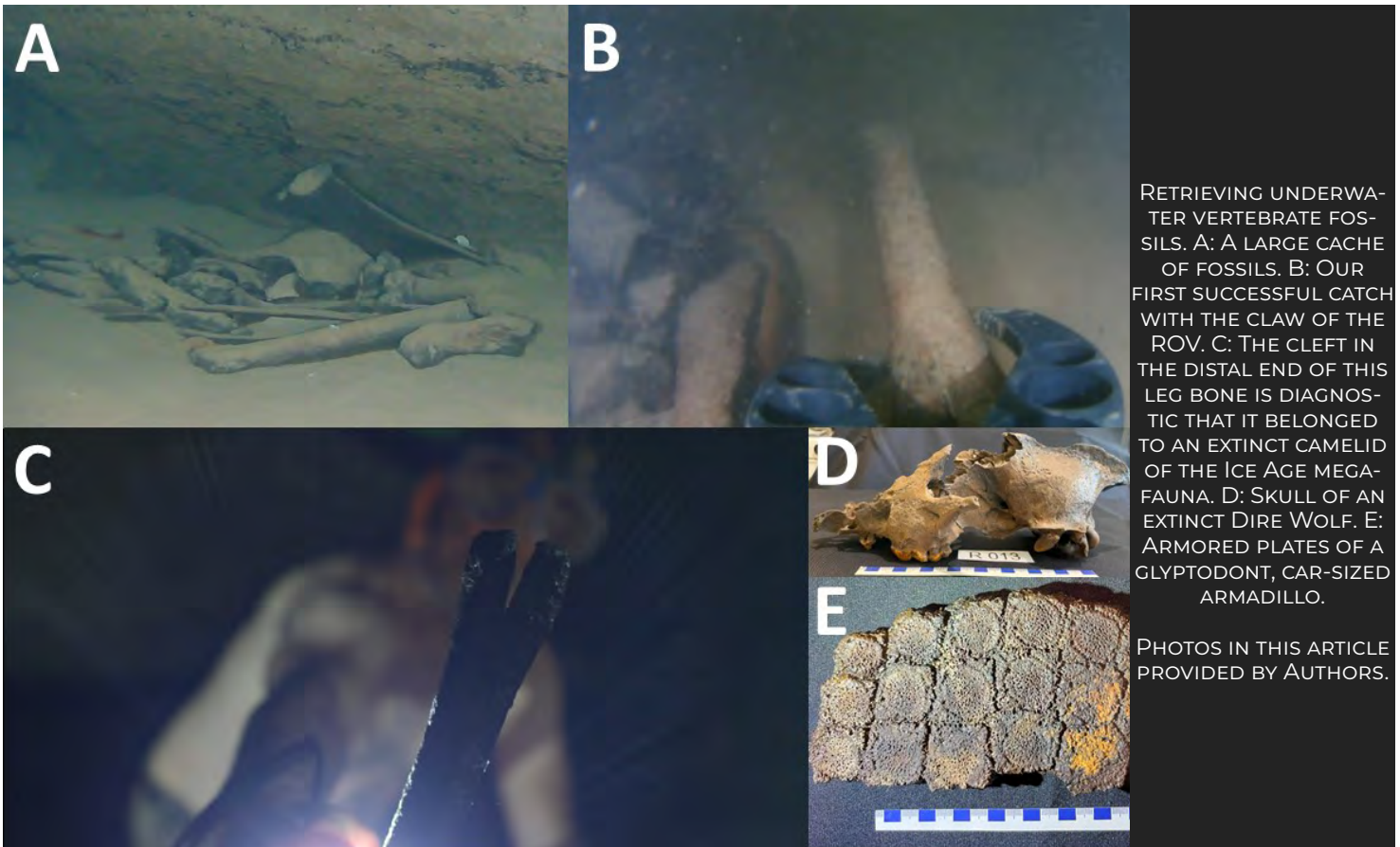
Bringing this dream to life, however, is not without its obstacles. The main one is securing the financial resources needed for exhibition design, making casts of fossils, display cases, lighting, and interpretive materials. The Museo Regional Huasteco, unlike many state-supported institutions, operates largely as a private civil association and does not receive regular government funding. Because of these limited resources, the museum has had to organize its own fundraising activities rather than rely on institutional support.

We are currently seeking sponsors who would benefit from being associated with the public unveiling of these extraordinary discoveries. By supporting this initiative, partners would contribute to a concrete and meaningful cause while strengthening their public

profile. Many companies have demonstrated that aligning product sales with a clear, authentic mission can enhance both brand reputation and commercial success. In the outdoor and caving sector, companies such as PML, known for its ropes and vertical equipment, and Scurion, recognized for its high-performance caving lamps, illustrate how technical excellence combined with strong community engagement can reinforce brand value and long-term growth.

Dear reader, if you are interested in supporting our work as a generous patron — or if your company could benefit from the exposure of having its name associated with the museum unveiling of Crypt of the Megafauna — we would be thrilled to explore the most beneficial option for you: direct financial sponsorship, equipment donation, or linking a portion of your sales to our project fund.

The first stages of the project were supported by North America overland, Marist University, Scurion, Pigeon Mountain Industries-PML, Stenlight Advanced Lighting Products, New England Explorers, and Sandone Films. Would you or your company be interested in sponsoring the next stage of research and conservation, while gaining visibility and recognition through its support?



RETRIEVING UNDERWATER VERTEBRATE FOSSILS. A: A LARGE CACHE OF FOSSILS. B: OUR FIRST SUCCESSFUL CATCH WITH THE CLAW OF THE ROV. C: THE CLEFT IN THE DISTAL END OF THIS LEG BONE IS DIAGNOSTIC THAT IT BELONGED TO AN EXTINCT CAMELID OF THE ICE AGE MEGAFAUNA. D: SKULL OF AN EXTINCT DIRE WOLF. E: ARMORED PLATES OF A GLYPTODONT, CAR-SIZED ARMADILLO.

PHOTOS IN THIS ARTICLE PROVIDED BY AUTHORS.

VOYAGE TO MICTLAN

Luis Espinasa, Jordi Espinasa, Kevin Torres, and Caitlyn Healy

“Careful ahead—there’s tigers in those woods.”

A local campesino warned us about jaguars (often called tigers in rural Mexico). We thanked him and pressed on into the spine-festooned, tropical dry forest of the Sierra de El Abra, in San Luis Potosí, Mexico. Our goal was to follow the dry riverbed upstream from the spring feeding El Nacimiento. Cave systems fed the spring, but the dry riverbed cutting across limestone terrain was the true lure: during the rainy season, overflowing subterranean waters might emerge above ground through an unknown cave — perhaps a doorway into the underground.

Soon, we saw a tree marked with deep claw gouges at eye level; signs of a massive feline’s territory. However, this is a caving story, and disappointingly — or perhaps fortunately — we never saw a jaguar.

Around the Bend—What is That?

Initially, the riverbed was scenic; broad limestone slabs sculpted by flowing water. But soon, the forest closed in.

Bristling on all sides, the *uña de gato* — cat claw vines — shredded clothing and skin (oops... I had thought no more feline talk.). The flat ground gave way to a honeycombed, karst landscape where every step threatened a twisted ankle. Eventually, the dry riverbed ended in a meadow choked by spiny undergrowth, visibility limited to a few meters. We were on the verge of giving up, convinced that water simply seeped out through small fissures, when a shallow depression revealed a climbable pit descending 3.5 meters.

At the base, I peered into a black void: a belly crawl barely 0.5 meters high, over jagged rocks. Upstream seemed impassable without protective gear; downstream was slightly better, though still constricted. *“No wind whatsoever.”*

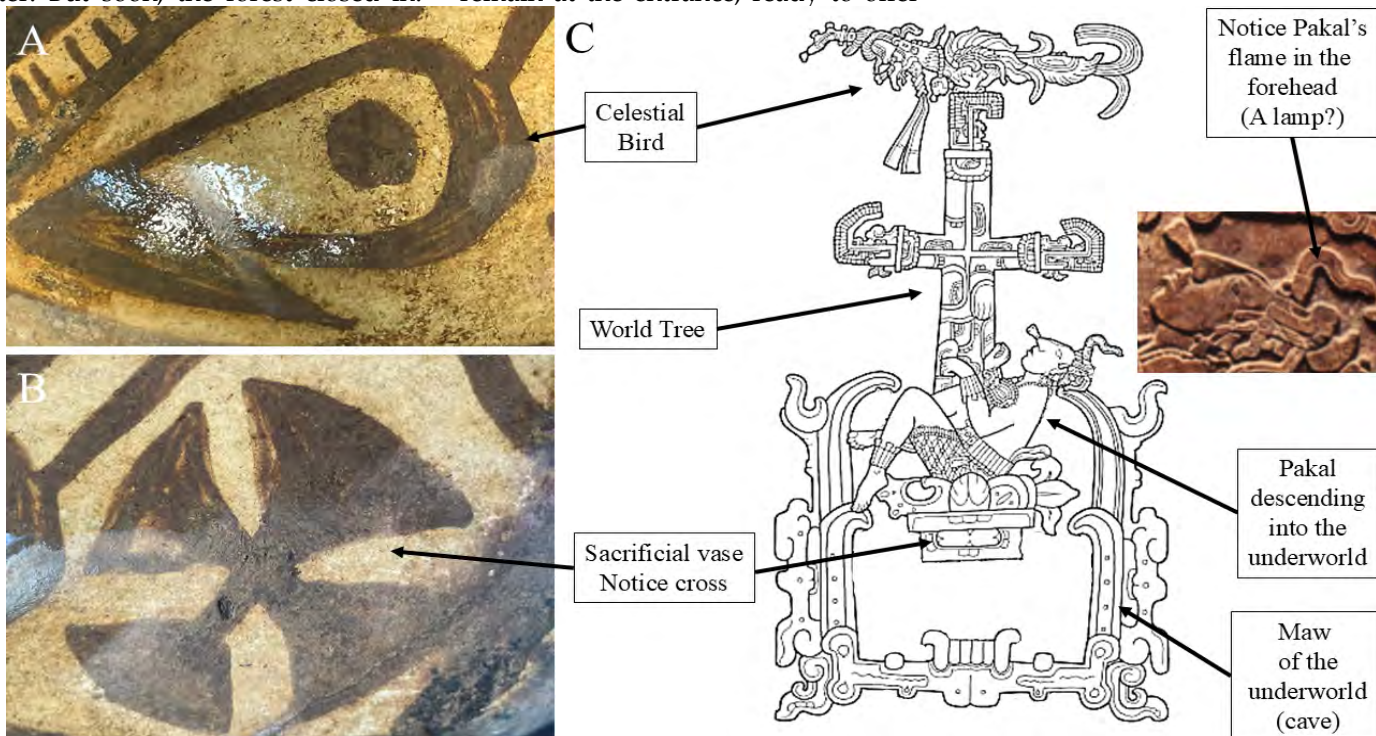
Not promising. Not promising at all.

Mexico has many large caves, and extreme crawls are often not worth the time and effort. Locals can typically point to far more promising virgin pits nearby. Yet I decided to look “just one bend farther.” Jordi, my son, chose to remain at the entrance, ready to offer

psychological support if needed.

The first bend revealed only five meters of miserable crawl. Beyond the next bend were another 2.5 meters of even nastier passage. Stagnant, ceiling low, floor spiked; I negotiated a final turn, head tilted sideways, shoulders scraping walls. Then something caught my eye. *“What is that? It looks like a soccer ball. A soccer ball with patterns.”*

It was not a soccer ball. Jammed where the ceiling and floor converged was a large ceramic vessel, nearly 50 cm tall, globular with a flaring neck. Its yellow-ochre surface glowed with my headlamp. Dark black lines formed geometric patterns and stylized figures. Two eye-like images seemed watchful. Angular, stepped designs traced the middle register. An elegant, vertical handle rose from one side. The neck bore scars: abrasions, mineral stains, and a crack from floodwater that had battered it for centuries. Miraculously, almost intact, the vase radiated meaning. This was no stray object. It was an archaeological message from another time.



A: THE ICONOGRAPHY OF THE VASE INCLUDES A FEATHER, PERHAPS SUGGESTIVE OF THE CELESTIAL BIRD. B: A FOUR-PETALED CROSS SIGNIFIES THE COSMOLOGICAL DIVISION OF SPACE INTO QUADRANTS, THE QUINCUNX, ENCOMPASSING THE NORTH, SOUTH, EAST, AND WEST OF THE UNIVERSE, ORDERED AROUND A SACRED AND GENERATIVE CENTER. C: THE VOYAGE OF PAKAL TO THE UNDERWORLD. ON HIS SARCOPHAGUS LID AT TEMPLE OF THE INSCRIPTIONS IN PALENQUE, HE IS DEPICTED WITH A FLAMING TORCH EMERGING FROM HIS FOREHEAD AS HE DESCENDS INTO THE JAWS OF THE UNDERWORLD TO DEPOSIT A SACRED VESSEL CONTAINING THE FRUITS OF HIS SELF-SACRIFICE. FROM THIS ACT, THE WORLD TREE RISES.

What to Do? This is a Real Find!

Removing it then, ourselves, was illegal and unthinkable. We left it where it had lain and notified the authorities. We contacted the coordinator of the Museo Regional Huasteco AC (Asociación Civil) in nearby Ciudad Valles, with whom we were working at the time on a different paleontological project (Collecting permit No. 401.1S.3-2025/147 from INAH). She, in turn, reached out to Adriana Hernández of the Instituto Nacional de Arqueología e Historia (INAH) in San Luis Potosí. We shared photos and detailed descriptions and noted the vase's precarious condition. Seasonal floods and nearness to a town posed immediate risks due to natural destruction or human vandalism. The cave's extreme confinement — a maximum ceiling height of 50 cm — made conventional recovery impossible. Only highly specialized personnel could safely extract a fragile object. Our team, experienced with extracting ice-age animal fossils from a nearby cave, was available. Though only briefly, before returning to the US, so urgent action was needed.

After a joint evaluation of environmental, logistical, and risk factors, the museum coordinator confirmed that the best course was immediate, carefully controlled extraction, preserving both the artifact and its context. We then proceeded to do the following pre-extraction studies:

1) Cave Survey – A full topographic survey of the cave.

2) Immediate Context Assessment – Nearby areas were examined for other artifacts. Seasonal flow suggested anything else had likely been swept downstream; no additional items were found in the primary context.

3) Systematic Photographic Documentation – High-resolution images were taken to produce 3D models of the vase in situ while still in the cave. These can be used for study and consultation of in situ conditions. They are available at <https://skfb.ly/pGpO9>

4) Filmed Extraction – The recovery was recorded from first contact to removal, supplemented by dozens of photographs.

After a full day of heavy and careful work, I am glad to report that the vase was extracted intact. It is now housed at the Museo Regional Huasteco AC, a civil museum in the nearby city of Ciudad Valles. The piece consists of a vase from the Huastec Culture. Preliminary identification suggests a late phase, called the Tamuin Phase, dating from 1200 to 1500 AD. A 3D model is available at <https://skfb.ly/pFMuq>.

Dream Journeys into Mictlan

I now describe my personal journey into Mictlan. My mind happens to work peculiarly at night. In the darkness, neuronal connections ignite. In the liminal state between sleep and waking, thought arranges itself with startling clarity. When I am asleep, I travel to Mictlan.

The night after the recovery, I pondered the vase's pictographs. Were they abstract doodles, or symbolic imagery, a language, a story? The museum coordinator had identified in those pictographs the symbol for spines, possibly evoking maguëy thorns used in auto-sacrifice. By its side, there are also two sets of rectangles within rectangles, suggestive of the xicalcolihqui motif: stepped, angular forms representing orderly change, structured movement, and the regulated unfolding of time and space. Could spines somehow contribute to the unfolding of the cosmos?

The vase has three chalchihuitls — concentric circles with inner disks. In Nahuatl, it means "precious stone," but symbolically refers to precious water or blood, the vital fluid offered in sacrifice to sustain the cosmic order. There was also the cross of San Andrés, a four-petaled flower common on vases of this type. In Huastec cosmology, a four-petaled cross represents the division of space into quadrants or quincunx: the north, south, east, and west of the universe with a sacred center. By the side of the cross, there was a symbol of a feather. Perhaps a stylized representation of a bird?

In my dream and voyage to Mictlan, the vase emerged as a ritual map: a cosmogram carried into darkness, deliberately placed for a sacred purpose. Our cave had been a threshold, a womb, the entrance to the underworld. To deposit a vase in a cave, marked with chalchihuitls, xicalcolihqui, and quincunx, was a deliberate and ceremonial act.

A: THE CHALCHIHUITLS, CONCENTRIC CIRCLES WITH INNER DISK, IN THE VASE. CHALCHIHUITL MEANS "PRECIOUS STONE," BUT SYMBOLICALLY REFERS TO PRECIOUS WATER OR BLOOD, THE VITAL FLUID OFFERED IN SACRIFICE. **B:** BLOOD FROM SELF-SACRIFICE, GATHERED IN WOMEN FROM THEIR TONGUES AND IN MALES FROM THEIR FORESKIN, IS GATHERED IN A SPECIAL SACRIFICIAL BOWL (NOTICE THE CHALCHIHUITL SYMBOLS). **C:** SACRIFICIAL BLOOD IS USED TO COMMUNICATE WITH THE GODS OF THE UNDERWORLD (IMAGES FROM YAXCHILAN).



The underground, blood, direction, and time, all intertwined.

My thoughts drifted to the Temple of the Inscriptions in Palenque, where Pakal's tomb lay sealed for more than a millennium. On the sarcophagus lid, Pakal is poised between worlds. From his brow rises what some interpret as a flame. I could not help but think of carbide headlamps once worn by cavers. Perhaps ancient ritualists entered caves with a candle bound to the head, a flickering flame illuminating the underworld.

Pakal descends into the gaping maw of the earth monster — the portal to Xibalba in Maya belief and to Mictlan in Nahuatl cosmology. In his passage, he carries a vase containing the essence of sacrifice: blood, life-force. The spine, evoked on our vase and the vase carried by Pacal, was an instrument of auto-sacrifice, drawing blood to nourish the gods. From this offering emerges the World Tree — axis mundi — Wacah Chan, "Raised-Up Sky." Atop it perches the Celestial Bird, Itzamna-aj. The tree binds roots in the underworld, a trunk in the terrestrial plane, and branches that hold the sky aloft. The universe is upheld, sustained by human blood.

Time in Mesoamerica was cyclical yet perilous. At the end of major calendar rounds, most famously the 52-year cy-

cle, the cosmos risked collapse. Rituals ensured orderly maintenance. What if our vase was the vessel for the reenactment of the Hero Twins myth and their sacrificial voyage to the underworld to maintain cosmos stability? Perhaps blood from a captive or from the auto-sacrifice of a high-status individual, a priest or ruler, was kept in the vase. They entered the cave to deposit this blood or life-force. Not hidden, but delivered to the gods of the underworld. An act to sustain the cosmos. This, I admit, is the speculation and educated guess of a caver, enamored with Mesoamerican archaeological mythology. History demands evidence, not reverie. Future studies — iconographic, contextual, chemical — will determine how much of this vision holds true.

Conservation is Our Main Priority

Our current goal is to unveil the vase at the Museo Regional Huasteco AC through a museographic experience telling the full story: cave, cosmos, sacrifice, and renewal. Not an object in a case, but a narrative illuminated by context.

Bringing this vision to life faces obstacles: exhibition design, display cases, lighting, interpretive materials, and conservation infrastructure require funding. Unlike state institutions, the Museo Huasteco Regional AC operates largely as a private civil association

with limited resources. Fundraising is essential.

We are seeking sponsors who would benefit from association with the public unveiling of this extraordinary discovery. Countless companies have shown that aligning a brand with a meaningful cause not only elevates public perception but can also boost commercial performance. Patagonia, for instance, channels a portion of its sales to environmental initiatives, seamlessly connecting its mission to marketplace impact.

Dear reader, if you wish to support our work, as an individual patron or through corporate involvement, we welcome discussion of direct financial sponsorship, equipment donation, or sales-linked contributions (Please contact the museum or luis.espinasa@marist.edu).

From cave to cosmos, from darkness to careful conservation, and from conservation to museum display, this story is ready to be told. With your support, the vase will stand illuminated in the gallery, embodying both its ancient significance and the shared dedication of a caving community committed to preserving this treasured work of art—and, in a very real sense, raising the sky out of a cave.

*THE CONCEPT OF MICTLAN, IN NAHUATL, OR XIBALBA, IN MAYA, REPRESENTS A TREACHEROUS, NINE-LEVEL UNDERWORLD RULED BY DEATH LORDS. IN THE POPOL VUH, THE HERO TWINS JOURNEY INTO MICTLAN, FACING DEADLY TRIALS AND DECEITFUL GODS. THROUGH WIT AND SACRIFICE, THEY DEFEATED DEATH, RESTORED COSMIC BALANCE, AND BROUGHT ORDER AND LIGHT TO THE WORLD. IN ANCIENT MESOAMERICA, THE JOURNEY TO MICTLAN WAS RITUALLY REENACTED. SOMETIMES, THEY USED THE DEEP, DARK CAVES THEY THOUGHT WOULD EVENTUALLY LEAD TO THAT CHTHONIC REALM. THESE CEREMONIES WERE THOUGHT TO UPHOLD COSMIC BALANCE. YET, DEATH WAS AN EVER-PRESENT REALITY FOR ITS PARTICIPANTS.

RIGHT: RENDITION OF ALL THE PICTOGRAPHS DEPICTED ON THE VASE. MOST OF THESE IMAGES REMAIN UNDECIIPHERED. NEVERTHELESS, THE SYMBOLIC PROGRAM APPEARS TO ARTICULATE A VISUAL LANGUAGE.





SOCIETY NEWS

NSS Conservation Memberships

Gift the caves and yourself ... or gift the caves and honor a friend or relative with an NSS Gift Membership! Any type of Membership can be gifted. Find all NSS Member categories at: <https://members.caves.org>

Regular Gift Membership – full membership privileges, including an electronic subscription to the NSS News for a total of \$40.00.

Conservation Regular – combines a Regular NSS membership with electronic NSSNews, plus a \$90 donation to cave

Submit Abstracts for Conservation & Management Tuesday NSS Convention in Corydon, Indiana – July 6-10, 2026

Calling for presentations, PowerPoints, workshops, or panel discussions for NSS Conservation & Management Tuesday Talks. Send abstracts to conservation@caves.org

Limit abstracts to 250 words. Include the title of your presentation and the authors' names, professional affiliations, mailing addresses, and e-mail addresses. For later publication in the Journal of Cave and Karst Studies, abstracts must draw a conclusion or explain the upshot of your study or project in a concluding sentence.

Equipment will be available for PowerPoint presentations.

We invite abstract submissions for Cave or Karst Conservation or Management talks addressing stewardship, outreach education, cave management, resource inventory and monitoring, minimum-impact caving, or restoration. Please send Val Hildreth-Werker a quick email with your abstract and request to present: conservation@caves.org

Group Cave/Karst Conservation Awards

Accepting nominations for Grottos and Groups in recognition of conservation activities. The NSS Conservation Division offers two annual awards recognizing conservation efforts of Groups. Winners will be announced at Convention and receive a certificate that can be framed.

Candidates for the Group conservation award may be any of the following: an NSS Conservation Task Force, NSS commission, committee, subcommittee of a committee, division, conservancy, expedition, project, region, section, survey, affinity group, institutional member, or a subunit of any of the

conservation, for a total of \$140.00.

Conservation Life – \$1,000 goes to endowed funds for Life Membership in the NSS, in addition to a \$1,000 donation to cave conservation, totaling \$2000.00.



above. An Internal Organization (IO), Group, or Grotto to be nominated for these awards should be in good standing with the NSS. For more info, see the NSS Conservation Web pages: <http://caves.org/conservation/conservationawards.shtml>

Send an Article for the Next Annual Conservation Issue of the NSSNews!

Submit articles for our Annual Conservation Issue each year!

This Annual Conservation Issue provides an overview of worldwide conservation research, projects, outreach, evolving current best practices, and networking efforts. Val Hildreth-Werker serves as Conservation Editor for the NSS News. Send submissions to Val at conservation@caves.org by January 15 each year.

- We include conservation pieces from one paragraph to several pages.
- Please do not exceed 2500 words (or a 15,000 characters+spaces count).
- Send only text in Word docs. Include title, captions, and bylines, but no photos in Word doc.
- DO NOT embed or place images into Word documents! Send as separate files.
- Send images as tiff, png, or jpeg files to valhildrethwerker@caves.org AND nssnews@caves.org
- Send maps and illustrations in PDF format.
- Please follow the NSSNews Submission Guidelines and Style Sheet.

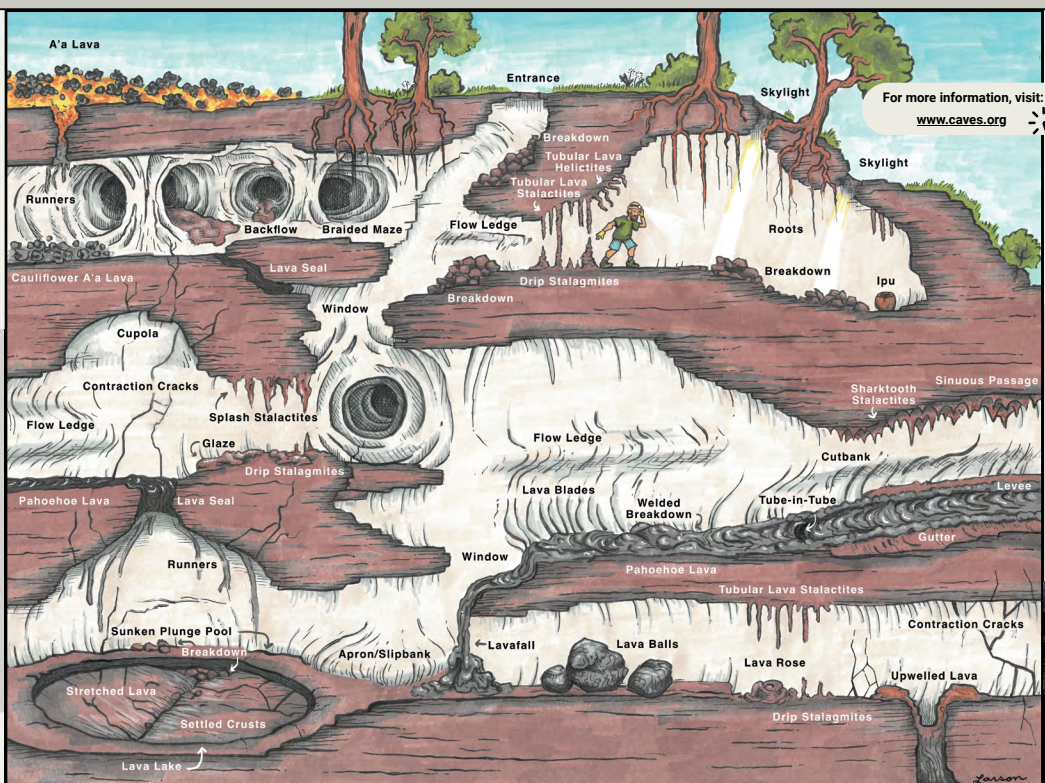
NSS-AGI Poster Project

In 2025, the NSS partnered with the American Geoscience Institute (AGI) during Earth Science Week (October 2025), which was themed "Energy Resources for our Future." The NSS Geology Section developed a poster featuring lava tubes, as an engaging way to highlight the way geothermal energy sources connect to caves. The poster shows lava tube speleothems and formation mechanisms. Thanks to members who helped make this happen - Dave Bunnell allowed the use of imagery, Adam Weaver designed the poster with artist Ella Larson, and Katie Schmid coordinated liaising with AGI and poster copy. The poster was shared on Instagram, Facebook, X, LinkedIn, and BlueSky. The poster was re-posted by AGI during Hawai'i's Cave Week in January 2026, and the Instagram post received >2,100 views, 39 clicks, and 103 likes. You can download the poster for free here. The NSS is discussing how we might partner with AGI on their 2026 theme "Critical Minerals for a Thriving Society." If you want to get involved with this partnership, contact emilyp@caves.org.

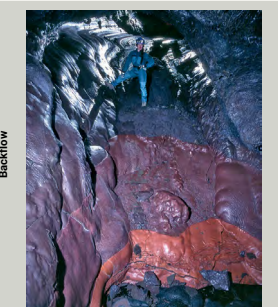
LAVA TUBES AND GEOTHERMAL ENERGY POTENTIAL



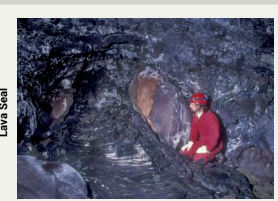
LAVA TUBES FORM WHEN FLUID LAVA FLOWS DOWN THE SIDES OF VOLCANOES. THE UPPER LAYER BEGINS TO COOL AND SOLIDIFY, AND THE LAVA BENEATH CONTINUES TO FLOW IN TUBULAR CONDUITS BENEATH THE LAVA'S SURFACE. DUE TO THE INSULATING EFFECTS OF THE HARDENED LAVA, MOLTEN LAVA CAN TRAVEL A CONSIDERABLE DISTANCE UNDER THE SOLID LAVA ABOVE DURING LAVA TUBE FORMATION.



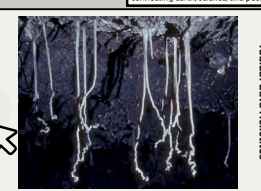
A'a Lava Flow
A'a lava flow is composed of rough, jagged chunks, sometimes welded together but often loose, where the fragments are sometimes called clinkers. Often a lava flow begins as pahoehoe lava and grades into A'a as pieces of it start to cool and are carried along in the flow.



Pahoehoe Lava Flow
Pahoehoe lava flows are characterized by roly, billowy, bulbous textures, whether on the surface or on the floor of a cave. It is a Hawaiian word that literally means "smooth." It is the type of flow most likely to produce lava tubes. Lava tubes are usually floored with pahoehoe, but that pahoehoe often grades into a more frothy, cauliflower A'a flow.



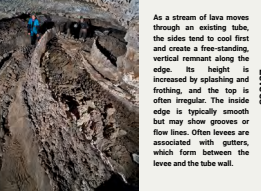
Lava Seal
Smaller conduits carrying lava into a larger passage often seal off completely as the lava cools, if they haven't drained completely. In some cases a seal may form when breakdown blocks a passage and the flow is insufficient to overflow or carry off the breakdown.



Tubular Lava Helictites
Helictites are an eccentric or "verrilliform" form of stalactite that twists and turns rather than growing straight up and down. They typically begin as tubular lava stalactites, but crystallization of the emerging lava as it cools pushes the lava in different directions. Often groups of these helictites will bend in the same direction down the passage, suggesting an influence of wind moving through the tube. Helictites rarely have drip stalagmites rising underneath. Most likely, the crystallization at the ends of the tubes that redirect the flow also reduces it to the point that little material is ejected to fall on the floor beneath. These formations are extremely delicate and caution must be taken when exploring near them.



Sharktooth Stalactites
Unlike tubular lava stalactites, which are extruded by escaping gases, the sharp sharktooth stalactites grow by accretion. In most cases, as the level of flowing lava inside an active tube fluctuates, it coats protrusions on the ceiling with a thin veneer of lava. The original protrusion may have been a small droplet formed as the molten ceiling cooled. This results in a broad stalactite, usually tapering to a point. A cross-section of such a stalactite will show successive layers, just as tube passages contain linings that may be several layers thick from successive flows.



Levees
As a stream of lava moves through an existing tube, the sides tend to cool first and create a free-standing, vertical remnant along the edge. Its height is increased by splashing and foaming, and the top is often irregular. The inside edge is typically smooth but may show grooves or flow lines. Often levees are associated with gutters, which form between the levee and the tube wall.



Lava Fall
Like flowing water, a lava stream flowing underground can form 'falls' if the terrain on which the tube forms is suddenly steeper. Such falls can range from a few feet to over 70 feet high, requiring rope to negotiate. But typically they are small and climbable. Many of the erosive features associated with waterfalls also occur with lava falls, with the hot lava thermally eroding into bedrock and back cutting. As the lava fall retreats upstream, it leaves a high-ceiling chamber downstream of it. Larger falls often have lava lakes formed at the base, where turbulence creates a deeper basin or plunge pool. Plunge pools can be quite deep, especially if the falls were not back-cutting. Studies indicate that their depth can be as much as twice the pool width. Turbulence also results in passage widening at the base of the falls, typically with breakdown of the undercut walls above the growing plunge pool.



Tubular Lava Stalactites
Tubular lava stalactites are common in many lava tubes and have a concentric tubular shape, are (initially) hollow, and range in diameter from .4 to 1 cm. They are formed by 'segregations' extruded by expanding gas into cave passages' (Gillett & Alfred, 1998) as the lava tube cools. In the cooling walls of the cave, some minerals solidify first, forming a coarse, porous matrix. Rolling causes gases to force the remaining segregated liquid material out of the walls, forming tubular lava stalactites. Growth rings are found on the sides of the stalactites, each ring formed from dripping. Considerable material may be carried out of the stalactite and pile up on the floor beneath, forming a drip stalagmite.

- Things to think about:**
1. Where do you think the hottest areas of a Lava Tube are?
 2. Are you more likely to find hot areas in old lava tubes or where lava tubes are forming?
 3. What are some challenges in producing heat energy from a volcanic area?
 4. Is geothermal energy currently being produced from lava tubes anywhere in the world?

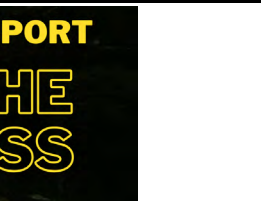


Image courtesy of Dave Bunnell from his book The Virtual Cave

Poster above: "Lava Tubes & Geothermal Energy Potential" Poster for Earth Science Week 2025.

Note the original artwork for this poster, on its original canvas, will be sold at the 2026 NSS Convention in Corydon, Indiana at the NSS Convention Auction. The funds from its sale will go to support the Save-the-Caves Fund for Cave Conservation.

SUPPORT THE NSS

- Explore
- Protect
- Study

Donate or bequeath to the NSS permanent endowment fund
President@speleofoundation.org

GRANTS

Introduction of a New NSS Grant Program!

The NSS is launching its first new grant program in years, which marks a significant expansion in support for scientific research. The Conservation & Science Division is proud to announce the **Dr. Albert & Ethel Ogden Geosciences Research Fellowship**, created to encourage and foster academic study and research in cave and karst-related geosciences. This fellowship aims to support the research careers of undergraduate and graduate students and advance their work in this specialized field.

Background and Purpose

Dr. Albert Ogden, who has previously promoted small research grants to students on his own, has generously contributed funds to the Society to ensure the sustainability of future research projects. The new fellowship joins the existing suite of NSS grant programs that focus on scientific research, including the Ralph W. Stone Graduate Fellowship and Small Research Grants (generally less than \$1,000). The NSS Research Advisory Committee within the Cave Science Department will review applications and award grants.

Eligibility Requirements

- Applicants must be undergraduate or graduate students currently enrolled at a college or university. Domestic applicants receive priority consideration.
- Applicants must be NSS members.
- Cave and karst research projects should focus on the geosciences, including (but not limited to) geology, hydrogeology, geomorphology, geochemistry, and geophysics, but could also fall into interdisciplinary fields that intersect with but also demonstrably advance the geosciences, such as geography, GIS, environmental science, or ecology.

Grantee Obligations

- Grant recipients are required to submit a progress report within one year of receiving the fellowship. Additionally, they must actively promote their research by participating in one or more of the following:
- Delivering a presentation at a conference or the NSS Convention
 - Publishing an article in the *NSS News*
 - Being party to or leading published research, with a final copy submitted to the NSS Research Advisory Committee (RAC)
 - Submitting an article to the Journal

of Cave & Karst Studies or a similar deliverable approved by the RAC.

Application Process

The Committee will make funding decisions twice annually, in January and June. Proposals may be submitted at any time, but must be received at least one month in advance (by December 1 or May 1) to be considered.

For the inaugural year (2026), the deadline has been extended to June 1st for a July decision. For more information, please refer to: <https://caves.org/nss-grants/odgen-geosciences-fellowship/> Applicants are required to submit the following electronically:

- A proposal containing a project description outlining the rationale or impact of the research on the intended research area(s) (maximum 1,000 words).
 - A resume or CV including their NSS membership number.
 - A copy of the student transcript or letter from their institution indicating current enrollment and program.
 - A letter of recommendation from the Thesis or Research Advisor who will oversee the student's project work.
- Proposals should be sent to the NSS Research Advisory Committee at dmc-farla@jsd.claremont.edu.



The Cave Conservancy Foundation is accepting grant applications to support cave and karst related research, conservation, and educational projects.

Large grant applications must be submitted before the March 1 or October 1 deadlines.

Grant requests for less than \$1,000 may be submitted at any time.

Information on how to apply for grants may be found at www.caveconservancyfoundation.org

804 - 798 - 3432

2026-2027
Charles W. Maus Fellowships
in Karst Studies

Doctorate Fellowship \$20,000
 Master's Fellowship \$10,000
 Undergraduate Scholarship \$6,000



A broad range of karst and cave related research is considered for funding.
 All applications are due on or before the June 1, 2026 deadline.

Information on how to apply for graduate fellowships and undergraduate scholarships may be found at www.caveconservancyfoundation.org
 804 - 798 - 3432

CLASSIFIEDS

SPELEOBOOKS.COM 518 295 7978. Cave and bat gifts, books, clothing and jewelry. Prompt personal service since 1973.

West Virginia Cave Books
www.WVASS.org

If your grotto or region is looking for great caves to explore in the Virginia area - look no further! RASS Grotto can offer a complimentary place to camp in Bath County, VA - where more than 100 caves are located within an hour's drive. We support cave conservation and education. Some COVID restrictions still apply. Contact Richie Ellison at rellison1120@gmail.com

The Richmond Area Speleological Society (RASS) supports cave conservation, education and research by offering grants to assist projects aligned with these goals. To receive a grant request application please email us at rass-grants-committee@googlegroups.com. Applications reviewed quarterly.

New WV Cave Books: Bulletin 28 — The Caves and Karst of North-Central Greenbrier County, WV by William Balfour, Bert Ashbrook, Gregory S. Springer, & George Dasher; June 2023, 198 pages, 214 caves, 57 maps, 106 photos. \$30 color. Bulletin 29 — The Caves and Karst of Central Greenbrier County, WV by William Balfour, Gregory S. Springer, & George Dasher; January 2024, 242 pages, 208 caves, 96 maps, 170 photos. \$30 color. Contact: WVASS, Attn Nick Schaer, 13 Sleepy Creek Rd. Hurricane WV 25526

Complete cave photography outfit: Sony Alpha 6500 camera with Sigma 18-50 f2.8 lens, charger, extra battery. Camera instruction book by David Busch. Two Godox TT685 II strobes and radio remote slave unit. Very good condition. All fitted in foam in waterproof Pelican box 13.5x12x6 inches. All for \$800 + postage. Dick LaForge, dick.kathy@yahoo.com.

Personal Collection of cave items for sale in part or all. Bill Cotrofeld, NSS 3986L. 150+ books; 200+ vintage cave postcards; 100 vintage cave brochures & booklets; some souvenir items; 20+ carbide lamps; early battery headlamps. Ask for a complete list of items. PO Box 235, East Arlington, VT, 05252. 802-375-6782, 10am-6pm.

NSS News reserves the right to re-print member comments and correspondence in its cooperative educational and promotional material.

NSS News (USPS 277010) is published monthly by National Speleological Society. Periodical postage paid at Huntsville, AL. Membership Cost \$50.00 per year. Comments or questions regarding material in this publication may be mailed to Adam Weaver, editor of NSS News, c/o NSS News, 6001 Pulaski Pike Huntsville, AL 35810, or e-mailed to nssnews@caves.org. Postmaster: Send address corrections to NSS News, 6001 Pulaski Pike, Huntsville, AL 35810

April 2026

