

Western Cave Conservancy

Protecting the West's Last Frontier

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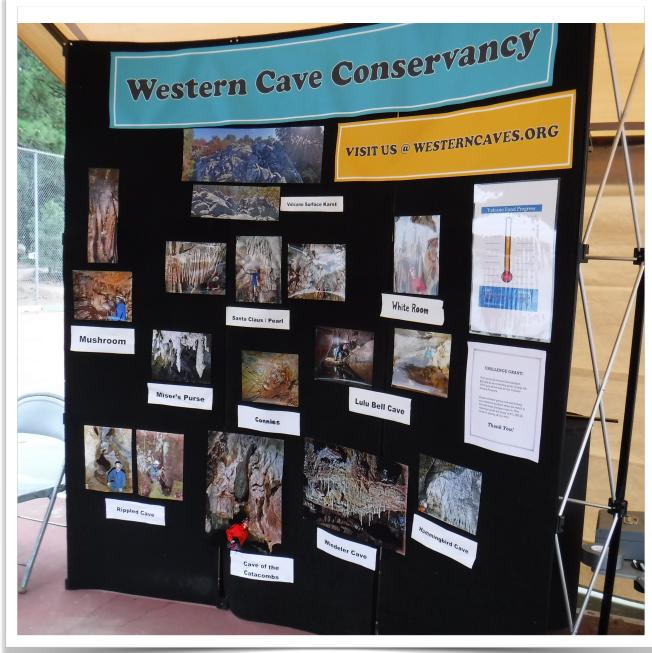
WCC At The 2021 Western Region Speleo-Ed

Marianne Russo

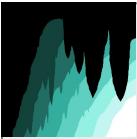
The 2021 Speleo-Ed was a roaring success. Matt Bowers and his hard-working committee of volunteers did an outstanding job of creating an event that was fun, educational and provided a very much needed opportunity for cavers to socialize and get back underground. The timing, in late July, proved to be the perfect opportunity for the WCC to share information and photos of our newest acquisition, the Volcano Natural Preserve. We announced a challenge grant of \$25,500 put up by several generous WCC members. When we meet this challenge by collecting the same amount from other donors, we will be \$51,000 closer to paying off the Volcano Natural Preserve!

The event was billed as both a Speleo-Ed and an opportunity to partake in the virtual NSS National Convention. The venue, the campus of the College of the Siskiyous, included a lovely theater which was anticipated to be used by attendees to view virtual presentations and other offerings of the national convention. Initially, the plan was for the WCC to set up a display and interact with people coming and going from the theater. However, after I arrived it became apparent that this was not going to be the hub of activity.

One of the big reasons this event was well attended and successful was the massive effort expended by the Shasta Area Grotto (SAG) to provide an abundance of caving opportunities. There were leader-run trips people could sign up for and numerous self-guided trips as well. SAG members spent countless hours preparing information ahead of time and then staffing the trip table throughout the week. As a result, the campus was practically deserted by cavers



WCC Display at Speleo-Ed.



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for most of every day. Certainly, there were some excellent live presentations on cave surveying, photography, and other topics but were attended by only a small portion of the participants.

After discussing things with Matt, and learning that the tennis courts would be the main gathering place, Steven Johnson and I decided to set up the WCC display under one of the regional tents. I could park my vehicle right behind it, making the nightly packing up easier. We set up our display on Sunday. In addition to the large stand-up panels with photos of all our caves and other information, we also had a variety of thank you gifts for donations and of course the WCC popcorn machine was on hand and working hard. In addition, WCC advisory board member, Jim Lakner, arrived with a large selection of handwoven southwestern decorative rugs and carbide lamps from the Ray and Gale Beach estate. These items were to be sold as a fundraiser.

By early evening every day people returned to the college and soon showed up at the tennis courts! A portable stage had been installed and a local brewery brought their traveling beer truck. It was a very cute, bright yellow panel van dating to what I estimated to be the late 1940's. On Monday evening the event provided a welcome dinner and entertainment from a great band called "Rose's Pawnshop". For several hours Steven, Jim, and I were able to share WCC news, collect donations, and sell items.



"OK, maybe there's a **little** poison oak on the hike to the cave, but it's not too bad, honest!"

Wednesday evening was the WCC benefit dinner. I had new WCC volunteer T-Shirts (designed by our treasurer Mike Spiess) to hand out to the people working the serving line. Almost everyone attending the event had paid the extra fee and showed up for the dinner, beer and afterward more music with another live band. Of course, this provided another opportunity for purchases, donations, popcorn, and general schmoozing about WCC activities. Friday provided a final evening of visiting and collecting final donations, at the sponsored “farewell dinner” and one last party with live music.

All in all, it was well worth the effort we put into attending, preparing the display, and spending our time promoting the conservancy. Steven and I learned a lot from several discussions with Bill Putnam who has been involved in the very successful Southeastern Cave Conservancy for many years. We were also able to attend the virtual Cave Conservancies Roundtable, an annual event at conventions.

I think being able to announce the challenge grant at Speleo-Ed really helped stimulate more donations and having some wonderful photos of the Volcano caves (including some taken by famous cave photographer Dave Bunnell) didn't hurt. Between outright donations, the popcorn “tip cup” and purchases from the Beach estate, we collected \$5,481.00 during the event. The WCC benefit dinner raised another \$1,210.30 for a total of \$6,691.30. This event was an excellent start to meeting the challenge! Thanks to everyone who visited the display, made donations, paid for the WCC dinner or bought some of the lovely rugs or carbide lamps from the Beach estate. At least one more generous donation arrived later from folks that learned about the WCC at Speleo-Ed.



Rose's Pawnshop rocked the stage!

News from the Volcano Natural Preserve

Paul Greaves

I thought I'd write a quick update on what has been happening up at the Volcano Natural Preserve. We've had several trips up to the property to re-familiarize ourselves with it, and to improve some of the trails. I had a general idea of where I thought the most useful locations for trails should be, and it turns out that there were paths already there (perhaps human or animal) that were relatively easy to improve a bit by trimming some branches or brush (especially poison oak) and mark with cairns (or fix existing cairns) to aid in following them. In addition, I've been able to lead three orientation trips for potential trip leaders from several grottos in the area to familiarize them with the property, how to get around it, where to park, and various logistics involved for leading trips out there. (I'm willing to lead more trips to do this for cavers that have the interest and availability to lead trips there for interested cavers in their areas; please contact me.)



Doing some trail work.

I've also had a chance to start getting an inventory of what is actually out there on the property. I was able to join one trip of cavers interested in the same thing, and have also gone on a couple such trips on my own (joined by a couple local cavers that were also interested). I have to say, there is a lot to see out there! I vaguely remembered that



there were lots of good-looking outcrops and holes out there, but I am even more impressed now. I now have 42 interesting holes to check further (most looked enterable with little or no effort), 17 pits which are new to me (most still need checking) and 22 additional entrance holes that looked good enough that I marked them as "possible cave." I am sure most of these won't be major caves, but a few have already proved themselves worthy of the title of "cave" (big enough to enter, and extensive enough to get into the "no light" zone). Most of those even had some formations. In addition, Cyalume Pit has been relocated, and looks like a nice pit to drop for fun or practicing rope work. We are fortunate to have such a great natural resource available for responsible cavers and protected by the WCC.

There have been seven recent trips led by various other cavers in the area. They have all used the on-line permitting system, and it does seem to be working well. One of the recent trips out to Pearl/Santa Claus found the register to be wet and unusable... this has been remedied, thanks to the cavers that found it and notified me. I'd like to encourage any other visitors to send me a quick note after their trips just to let us know if there was anything noteworthy that they saw or needs attention. Even just a quick note to say that everything

Brody checks out an interesting pit. was fine and they had a good time is welcome!

The flat land behind the cemeteries is being worked on to remove most of the dead trees and thick brush. This land is not owned by the WCC, but the owner has given WCC visitors permission to walk across it. This is quite useful when going directly to the trail that leads up toward Pearl/Santa Claus or Lulu Bell caves. Removal of the dead trees will likely keep the trails easier to use in the future, as one such tree fell across the trail from near the cemeteries going west up to the central area, but was passable by ducking under it when I was last there.

Another thing that everyone may not be aware of is that there is a public parking area in town that is on the left on Emigrant Trail Road (just behind the Union Hotel). This is the road that continues on to the cemeteries. This is generally the best lot to use since it is closer to the caves and farther from most businesses than the one closer to the Post Office.



So many interesting holes to explore!

Help the WCC Pay Off The Volcano Natural Preserve!

We will happily accept any donations of any size. (And don't forget, it's tax deductible!) You can always donate online at www.westerncaves.org/donate. Or send a check to: Western Cave Conservancy, P.O. Box 230, Newcastle, CA 95658

Microbial Study at Rippled Cave

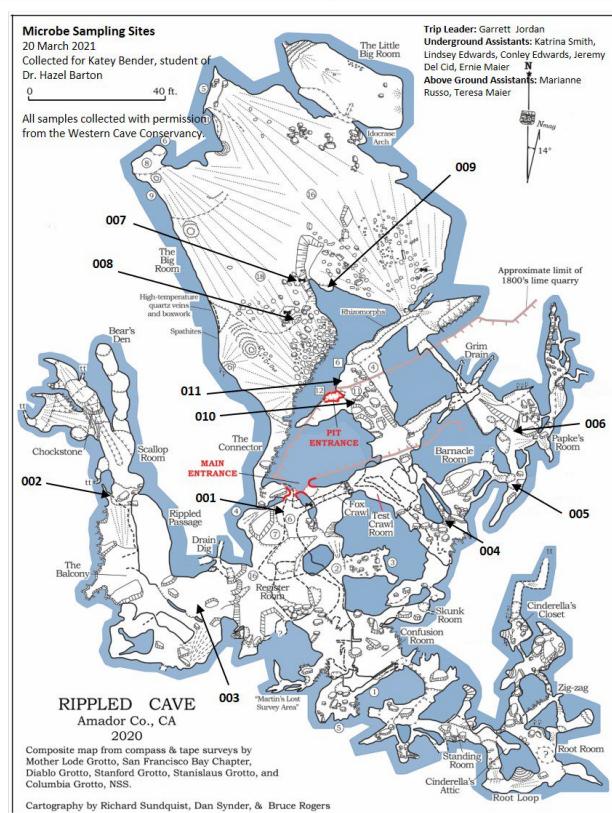
Garrett Jordan

M.S. Biology, Tennessee Technological University

B. S. Forestry & Natural Resources, California Polytechnic State University

Wetland Biologist, Olsen Environmental, LLC (Vancouver, WA)

At the beginning of 2021, I was contacted by Hazel Barton, a well-known cave microbiologist and professor in the Department of Biology at the University of Akron in Ohio. I met Hazel when I volunteered to help her sample the microbes of Tennessee's largest cave system, Blue Springs Cave, in the fall of 2020. With our past sampling experience in mind, Hazel asked me and other Tennessee cavers if we would like to volunteer to sample other caves' microbial communities for research being undertaken by her Ph.D. student Katey Bender. Katey's research focuses on increasing the diversity of bacteria isolated from cave environments so that we can better understand them through culture-based approaches. She has applied this to screen cave isolates for novel antibiotics, but this work is to isolate new bacterial strains that can dissolve calcium carbonate.



The current method of industrial cement production involves heating calcium carbonate to make lime, which releases significant CO₂. Cave microbes are exposed to high levels of calcium in their environment and are well-adapted to deal with potentially toxic Ca²⁺ ions, making caves an ideal study site to look for microbes that might be able to combine carbonates into a solid mass (via heat and pressure) without releasing as much CO₂ in the process.

While most of the cavers Hazel and Katey contacted for volunteering were in Tennessee, I had moved back to California after finishing my Master's degree program. I initially had thought this might be an inconvenience, but Katey and Hazel saw it as an opportunity to sample caves in the western US that they would not be able to visit themselves. Eager to conduct scientific surveys again and contribute to this research, I contacted the Mother Lode Grotto, and asked members if I could sample at one of the WCC preserves. Rippled Cave was requested due to my familiarity with it and its proximity to most members of the Grotto. With the permission of Marianne Russo, manager of the Weller Natural Preserve, I scheduled the sampling date and found five volunteers to help conduct the sampling. These volunteers were Jeremy Del Cid, Lindsey Edwards and her son Conley Edwards, Ernie Maier, and Katrina Smith. Katrina is a student at Humboldt State and has conducted cave microbial surveys. Joining us to open the gate to the property, and to monitor the initial operations from outside the cave, were Marianne and Teresa Maier.

Before entering the cave, I gave a brief talk about how the sampling would be conducted. It was a very simple procedure with just a handful of utensils involved: sample test tubes, cotton swabs wrapped in aluminum, gloves, plus a pen and paper for note-taking. (Teresa provided a Sharpie for marking the test tubes and Ziploc bags for storing completed samples. Thank you!) Some of the sample test tubes were empty, and others were filled with a few milliliters of either water or a buffer solution. The procedure was simple and diagrammed by Hazel: put on gloves,



Carefully taking a sample at Site 002.

open a tube, get a swab, moisten the swab with water from the water tube, sample the surface, deposit swab in the tube, close tube, and label tube.

Marianne helpfully suggested the order at which samples were deposited in test tubes so that we could reuse a single water tube to saturate all the swabs for a site, and Katrina optimized how sampling duties were delineated to the volunteers as we began sampling, so thanks to them both for helping to solidify the sampling procedure.

We began our sampling on the wall on the right-hand side of the first room past the Main Entrance. Bruce Rogers, the Science Coordinator of the WCC, recommended this location for sampling based on the creamy-white biofilm present on the wall in the winter/wet season. This first sampling site was also an opportunity to practice the entire sampling procedure and establish a rhythm for collecting samples. Among the other sites we sampled in the section of cave beyond the main entrance was a moist wall with yellow-gold biofilm in a room adjoining the Register Room; dried calcite formations with a reddish tint in the Balcony; a chalky white surface formed near where tree roots descended from above in the tight passage just before the Barnacle

Room; and two moist areas with white and gray biofilms in and near Papke's Room, the prettiest and most formation-packed chamber in the cave.

We wanted to collect the remaining samples in or near Rippled Cave's largest chamber, the Big Room. (Cavers from the Eastern US will scoff at a room with dimensions of roughly 60' x 25' x 20' being called a "big room," but it's a big room for caves in this region of California.) The Big Room is accessible by the Connector Passage, but as this passage was narrow and not optimum for transporting equipment and people, we took advantage of the Pit Entrance and put on our vertical gear. We used a line set up by Jeremy and Ernie to descend into the 12-foot-deep abyss, and, after a short passage, slid down the muddy slope into the Big Room. One sampling area in this room was recommended by Bruce, a small floor-level tube below the room's main signature wall that contained some old bones coated with a thin layer of black biofilm. The remaining sampling areas were collected in quartz veins and calcite formations in the room, and at two points of different depth in the Pit Entrance.

Everyone ascended back up the Pit Entrance and was out of the cave by six o'clock, but Conley wanted to practice ascending the cliff face above the entrance with Katrina and so we helped him get his practice. We then packed up, I gave everyone my sincere thanks, and we took off in our separate vehicles, a solid day of scientific sampling behind us. I shipped the samples to Katey's address, and the grotto eagerly awaits word from Katey on what unique microbial communities may inhabit Rippled Cave.



The hard-working crew.

Help the WCC Pay Off The Volcano Natural Preserve!

We will happily accept any donations of any size. (And don't forget, it's tax deductible!) You can always donate online at www.westerncaves.org/donate. Or send a check to: Western Cave Conservancy, P.O. Box 230, Newcastle, CA 95658

WCC Properties and Visitation

Steven Johnson

The WCC now has enough properties that it may be difficult to remember them all and know who to contact to gain access. Here's a quick update for all our properties as of the end of 2021.

General

There are a few things to keep in mind that are in common to all of our properties:

- **Clean Gear is required.** All gear being used in caves must be free from any possible WNS contamination, using approved sterilization practices as necessary. Any gear that has any visible dirt, grime, etc. will be assumed to be possibly contaminated and thus unacceptable for use.
- **All underground visitors must be vaccinated against Covid-19.** As of the end of 2021, the WCC is continuing to require this in the interest of public health. Trip leaders are required to verify the vaccination status of everyone on their trip, via vaccination card (physical or photograph) or equivalent documentation.
- **Contact the Preserve Manager ahead of time to be sure the date(s) you want are available.** No one enjoys visiting a cave that is so crowded that you're in each other's way! Some of our preserves are really just too crowded with more than one group per day. Others have visitation restrictions that are placed on us by the landowners. So be sure to contact the Preserve Manager ahead of time to make sure that there's space when you want to go. (Contact information for each preserve is given below.)
- **Permits must be obtained in advance via our online permit system.** Like many other organizations, the WCC is moving to a digital system for maintaining permits and liability waivers, which we hope will make things easier for everyone. When you contact a Preserve Manager, they will direct you to our permit system. (Note that, during this transition period, some of our properties may still be asking for the older paper waivers/permits instead; the Preserve Manager will make it clear which option you need to follow.)

Weller Natural Preserve

This preserve (near Sutter Creek) contains Rippled Cave, which is a classic beginner / first-timer suitable cave, with interesting squeezes for the more seasoned caver. No hike and generally fine to visit year round. The cave property is gated and requires a key; if your grotto doesn't possess one, the Preserve Manager will arrange to have someone with a key meet you there. Please contact Marianne Russo at weller-preserve-manager@westerncaves.org to arrange a trip.

Mountain Ranch Natural Preserve

This small preserve in Mountain Ranch contains a single cave, Cave Of The Catacombs. This is a small but interesting cave that is very beginner friendly, and has no hiking required. Note however that a substantial portion of the cave is flooded during much of the year; if you want to avoid swimming, you should consider arranging a visit in September or October. The cave is gated and requires a key; the Preserve Manager will (usually) arrange to have someone with a key meet you there, or to provide a key by other means if that isn't possible. Please contact Ernie Maier at mtranch-preserve-manager@westerncaves.org to arrange a trip.

Volcano Natural Preserve

Our most recent (and by far our largest) karst property! This is located near the town of Volcano, CA and has a number of interesting caves on it (most notably, Santa Claus Cave aka Pearl Cave), plus lots of interesting ridgewalking possibilities. None of the caves are gated, so no keys are necessary. Finding the cave entrances can be

quite challenging if you haven't been before. Most of the caves have vertical drops of some sort, but a couple are suitable for non-vertical cavers. Please contact Paul Greaves at volcano-preserve-manager@westerncaves.org to arrange a trip.

Windeler Cave

This beautiful cave in the Mother Lode is managed by the WCC on behalf of the USFS, and thus access is quite restricted, with a very limited number of trips available per year. Due to the delicacy of the passages and decorations, only experienced cavers may visit this cave. Vertical proficiency and full gear are needed to negotiate the entrance. Currently there are yearly trips available for several California grottos, plus an "at-large" trip for out-of-area or unaffiliated cavers, all of which must be led by an approved trustee. Please contact Mark Bowers at windeler-preserve-manager@westerncaves.org to find out more information.

San Vicente Redwoods

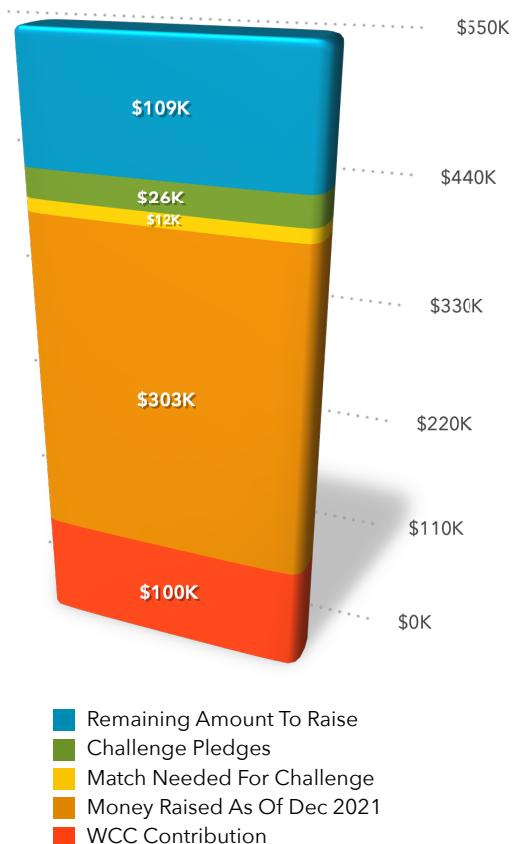
The WCC has been working with the landowners of this area near Santa Cruz for a number of years in order to provide access to various interesting caves there; unfortunately, various factors beyond our control (including recent wildfires and pandemic concerns) have made underground access unavailable for the time being. We continue to work with them on this front and hope to be able to regain predictable and sustainable access to this delightful resource in the not-too-distant future. Contact Mike Davies at svr-preserve-manager@westerncaves.org if you want to find out more detailed information about current conditions.

Volcano Natural Preserve Fundraising Update

Marianne Russo

The response to our fundraising efforts has been wonderful. Over the course of the last couple of years, since February of 2020, we have raised over \$303,000. I would never have thought it possible, yet here we are. Because of so many generous cavers, we now are the owners of around 150 acres of exciting karst land, with at least 10 known caves. The WCC is contributing \$100,000 from our acquisition fund which brings us to a total of \$403,000. The price of the property was \$550,000, which leaves us with about \$147,000.00 left to raise.

In July, just before the Speleo-Ed in Weed, we announced a special "Challenge Grant". Ten very generous conservancy members pledged a total of \$25,500 if we could match that amount from other contributions. As written elsewhere, we started off with a bang at the Speleo-Ed event, raising \$6,691.30. Since then, more donations have streamed in, for a total of \$13,161.30. We now have met over half the challenge, we only need to raise another **\$12,338.70** to complete our match. As soon as that happens the pledges will be collected and we will have reduced our debt to \$109,600. We will still have a couple of years left to finish raising these funds before the note is due in full.



Volcano Natural Preserve Fundraising