

A hiker wearing a light-colored t-shirt, shorts, a cap, and a backpack stands on a rocky mountain trail. He is holding a long wooden staff in his left hand. The trail is composed of large, light-colored rocks. In the background, there are mountains and a forest. A dead tree stands on the left side of the trail. The sky is blue with some clouds.

The Cascade Caver

v57.n1

Interplanetary Journal of Vulcanospeleology



The Cascade Caver

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[Cover - Page 1] **Mark Fritzke stands above a new cave he discovered in the Marble Mountain Wilderness** [Rob Lewis]

[Back Cover - Page 35] **Rob Lewis inspects a lead** [Mark Fritzke]

Coming Events

Grotto Elections!

Nominate your pick for 2019 officers by emailing grottoelection@gmail.com. All positions are up for re-election. Our esteemed Chair Madeline Schaller is stepping down as she is, unfortunately for us, moving to the east coast in 2019. Election ballot will be posted soon with voting into January. All paid members will get an email with the ballot with instructions.

12/18: Grotto Meetup, 6pm-8 pm- Kenmore - The Hangar at Town Square, located at: **6728 NE 181st St, Kenmore, WA 98028**

<https://www.kenmorehangar.com> The Hangar is a beautiful public meeting space, replete with a Diva espresso/cafe inside, adjacent to the meeting space. Join us for this "Northside Unit" meet up where will have a presentation wrapping up this years' events and previewing what is in store for 2019! Then, of course we will follow with a bunch of caving tall tales from the summer. All ages.

Winter SRT training:

Karl ("Dusty") and Daryl plan to lead some training activities for ropework in Seattle at the Mountaineers Program Center, Ravenna Park bridge, and/or Mt. Vernon over the winter months when most of our close by caves are inaccessible. Rumor has it Dusty is about to sponsor a "Haul-a-Palooza," a ropework summit of sorts. Details to come, in the meantime enjoy the snow and the Happy Holidays! (All of the holidays!)

Events:

All publicly-accessible Grotto events are posted at the webpage:

<http://facebook.com/CascadeGrotto>

(you do not a Facebook account to access this page)

Cascade Grotto Information

2018 Grotto Officers:

Chair: Madeline Schaller

Vice Chair: Daryl Greaser

Secretary: Nick Bertucci

Treasurer: Talon Swanson

Stay Connected!

Website: <http://cascadegrotto.org>

Facebook Page (public; events) <http://facebook.com/cascadegrotto>

Facebook Group (private) <http://facebook.com/group/cascadegrotto>

Yahoo Groups email: request access via cascade_grotto@caves.org

Meetings

We host meetings about 9 months of the year, typically on the 3rd Friday of the month at 7pm at: Tukwila Community Center, 12424 42nd Ave S, Seattle, WA 98168

The schedule is published at cascadegrotto.org/meetings

Meetings are open to the public and consist of a business segment from 7-8pm, and a program or learning activity from 8-9 pm. Following the meeting from ~9:15 to ~11pm we usually meet at Azteca (Tex-Mex restaurant) in South Center for food, drinks, and tall tales! Join us!

Questions?

Email us at cascade_grotto@caves.org

or visit cascadegrotto.org for more information!

Update

by Daryl Greaser

Hello cavers! I present: *The Cascade Caver*, **Volume 56 Number 1**. Let's think about the fact that Cascade Grotto has been active for around 67 years! To pay homage to the history of the grotto, I styled the masthead as it appeared for the first time on the February 1971 cover. In this newsletter, the grotto planned a Memorial Day trip to Papoose Cave!

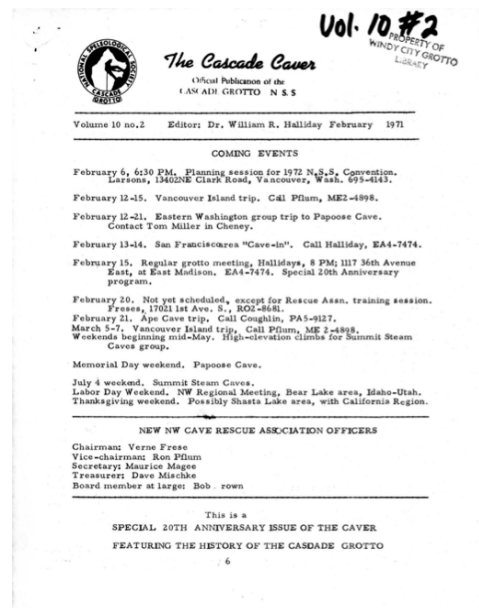
In this issue, I bring you stories of caving in the Marble Mountains Wilderness in Northern California, home of Bigfoot (cave); cave hunting using LIDAR in extreme (!) northeastern Washington near our state's "show cave", *Gardner Cave in Crawford State Park; and finally, a report on outreach activities in Scouting and school science fairs coordinated by member Kathryn Wilson with additional volunteer help from several of our members.

In the next issue of the *Caver*, I will bring you a 2018 year-end wrap-up of the major activities that occurred this year in the grotto! (You still have time to send in your stories!) We've been busy! As of this writing, **we have 78 paid members** who have participated in dozens of grotto activities this year, including the first-ever Montana NSS Convention, in Helena in July. At least seven Cascade Grotto members attended, as well as several frequent Southwest Washington cavers from Oregon-based grottos.

Grotto Announcements:

- The grotto would like to recognize Eric Jorgenson who just hosted a *Cascade Caver* read-through in Seattle and has taken possession of grotto library materials from Cory Bantam. Thanks to Cory for your service! The newsletters are treasure troves. The grotto would like to recognize this selfless commitment to our good cause!
- The NSS has approved an introductory membership for anyone under age 26! This is a regular electronic membership (no printed publications) and is 50% off regular price. Details to come, the NSS is at: caves.org
- The NSS has opened the "Slack" site to all members. It is basically a new version of a members' forum. go to: nsscaves.slack.com to learn more!
- A trip to Windy Creek Cave is planned for late June, timing dependent on snowpack.

*https://en.wikipedia.org/wiki/Gardner_Cave



LIDAR lead hunting near Gardner Cave

September 2018 by Matt Skeels

With less than a month before moving from the area, I arranged a trip to check out some lidar leads I had accumulated. After scouring through some geology books on the Pend Oreille area, most notably "Geology of the Bead Lake District, Pend Oreille County, Washington", I localized the limestone areas and then began a search of the terrain using the Washington Lidar Portal.

The first thing I noticed is the heavily glaciated terrain surrounding the Metaline area. Back from where I come from in central Oregon, glaciated terrain obliterates any trace of lava tubes that may have existed prior, and you have to search outside of the glaciated areas. For the Metaline area, I didn't know if this still applied, but I located areas that seemed to be less glaciated and concentrated my search there. This happened to be more along the summits of the mountains west of Metaline.



Gardner Cave is in Northeastern Washington

The geology books placed a lot of emphasis on the lead mining in the Pend Oreille area. It was no surprise to me when I began identifying what appeared to be mine adits, and I confirmed this using topography maps that identified some of their locations. The local mines of the area seemed to have trails or roads crisscrossing the hills near the mines, often leading to the entrances. This helped me isolate locations for cave leads that appeared to be in virgin territory and natural information.

One of the very first places I looked at closely was the Gardner Cave area. Strangely, the available lidar does not show the entrance to Gardner Cave, but instead shows a depression just west of the parking lot. Before I had visited

Gardner Cave, I thought this depression was the entrance to Gardner, but it is not, as the entrance is located north of the parking lot on top of a small hill.

My search took me to Russian Ridge to the southwest of Gardner where I located my very first and obvious lidar lead. A large sink was present here that was almost the exact same size as the depression seen west of the Gardner parking lot. I then combed the area and identified another smaller sink east of it by about 100 feet. Even more searching revealed three more sinks or anomalies worth checking out.

More searching followed, with a few more leads cataloged, but they seemed to be further out of reach and higher up in the mountains. I'll identify them later in the article. As for the first set of leads I had, the biggest one was located where a stream seemed to come out of nowhere and go downhill, and it was also just down hill from a stream area that seemed to disappear into the ground. It screamed cave to me!

On September 8th, my family drove up to the Metaline area and drove me up the dirt and gravel road on Russian Ridge as far as they could. A gate stopped us from going the last mile, so I got out and hiked the rest of the way. On my return, I discovered the gate was unlocked and my trip would have been much easier if I didn't have to hike that last mile. But it was no big deal, I loved this chance to get out into the wilderness and smell the fresh air.



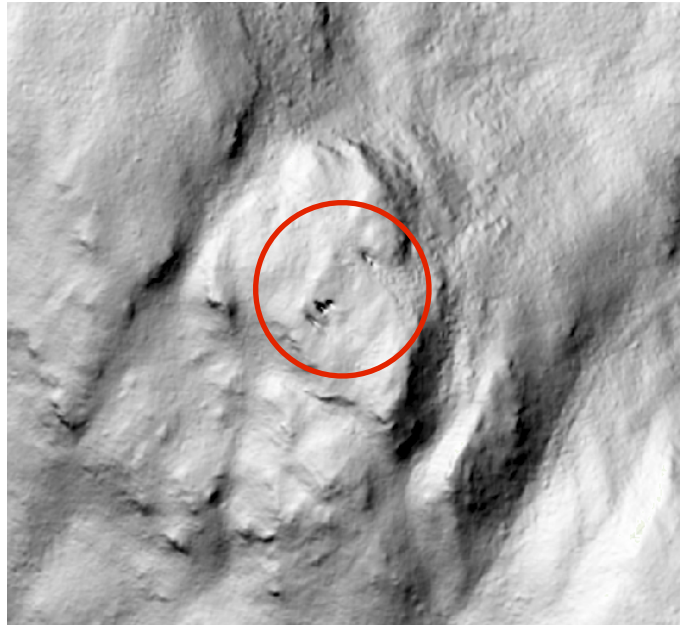
The best lead that day was this conical pit about 20 feet deep. -Photo by Matt Skeels

The first and best lead was my target. I hiked from the dirt road down through dense undergrowth made up of lots of little downed trees. When I got to my GPS waypoint, I saw the deep pit and got excited, got close to the edge and peered into a mostly featureless conical pit with dirt, moss, and forest litter. There was no hole nor rock face to suggest an entrance was just beneath the surface. But I half-

slide into the bottom of the pit to double check. When I got down at the bottom, I was surprised that it was not a cold sink either. I pulled back a few branches and saw a little bit of rock, but not much. If a cave passage was below the detritus, it would require some serious work.

That bummed me out, but I had more leads, so I clambered through the underbrush to the nearby lead about 100 feet away. It was another pit, maybe half as deep, but with a bit of rock exposed on the west side. Some small holes at the very bottom were beneath the branches so I began pulling those out a bit to see if it lead anywhere. They didn't. No blowing air, no cold sink to suggest a cave, just the sink.

I was disappointed, but I had more leads. So I hiked back up to the dirt road and tried locating a spot to visit my third lead. The third lead was about 1,000 feet from the dirt road, and when I got close to the departure point, the forest looked super dense and much thicker than the last portion I was just in. I decided to hike further down the road to locate a better spot, found a cricklet with less brush and left the road there. It was fairly easy going, until I had to cross the creek and hike up an embankment. That's when things began slowing down a lot.



Area southwest of Sherlock Peak. Lidar suggests a series of 4 cracks or fissures, possible vertical pits

I had about 2 hours left before I had to start hiking out to meet my family on the road (there was no cell service), so I was trying to rush it a bit. I groped and wrangled my way over tons of little down trees and eventually found the area of the lead but didn't find anything. I made a loop around the area and found nothing, and chocked it up to being a lidar artifact. Sometimes lidar does funny stuff when there is dense vegetation. This appeared to be another case.

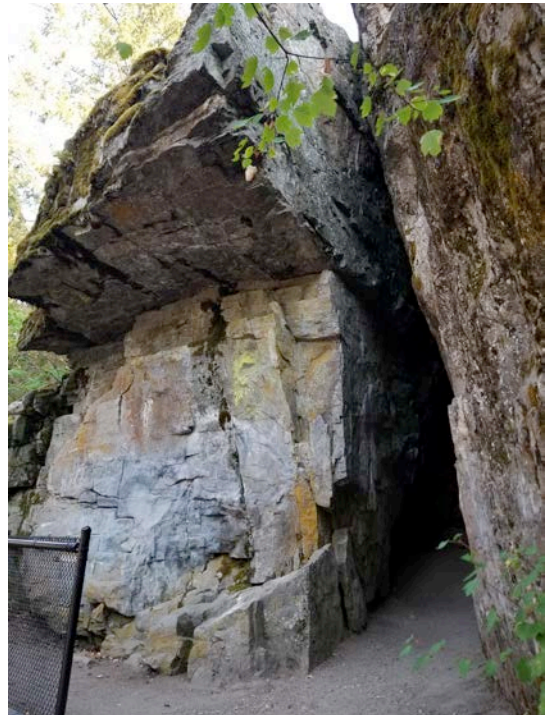
My next target was my final lead and was actually two small indentations about 2,500 feet away to the east of me, with no easy access point. I decided I would cut straight east through the forest. It was difficult, very difficult, and I hit the creek again and decided to follow that for a ways. But the creek had plenty of downed trees too and the underbrush was moist making my denim jeans a little bit soggy.

I figured that at the rate I was going, the direction, the lack of time, and my lack of energy, that I wasn't going to make it in time, so I bailed on the last lead.

I hiked back out up the hillside through more intense undergrowth and eventually came to the dirt road again where I collapsed on the welcoming spacious road. My feet eventually carried me back down and I looked at the rocks on the way out, noting what appeared to be an assortment of many kinds, probably most of them glacial erratics.

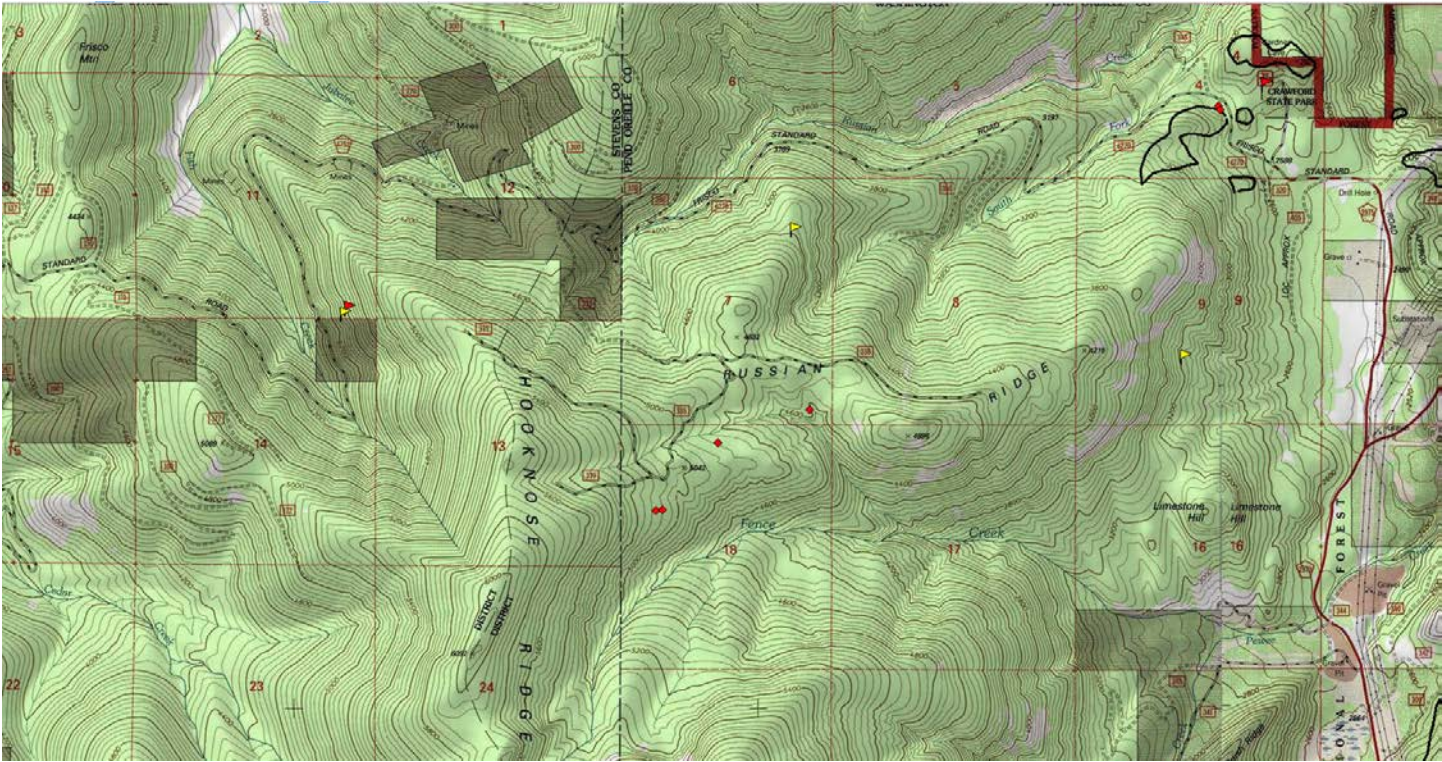
When I was later picked up by my family, we drove down to Gardner and checked it out. It was after-hours and the gate was closed, but I got a chance to see what the surface rock looked like. It wasn't like the stuff I was hiking around earlier. It was a single type of marbled limestone. When we left Gardner, we drove back up the road we had just been on, only 1,000 feet, and I checked a couple smaller depressions near the road. They were just dirt pits too.

My family and I then drove out and explored other non-cave related items to end our little vacation. As promised, the other leads I located in the area are near Sherlock Peak. One set of four gashes are easily spotted southwest of Sherlock Peak on its flank. These are probably vertical pits or cracks into limestone. They are the best leads for the area, but would require a different approach from the west and a few miles of hiking to get to. A few other leads are nearby, with a notable sink to the north in an isolated valley. It appears as a short stream sump disappearing into the ground and then reappearing about 500 feet to the north.



*Post Falls cave, name unknown
-Photo by Matt Skeels*

In conclusion, I'm adding a shelter cave to this story so you can see the entrance. I became aware of the cave in a history book on the Spokane area. Early settlers traveled down Spokane River and saw the little cave on the southern bank. It is located where present day Post Falls is, just west of the southern dam and along a hiking trail at Q'emiln Park. This shelter cave has cold air, but it's short at about 30 feet long and 6 to 8 feet wide. The interior wall is bolted for climbers and an overhang lends itself as an ideal rock climbing spot.



Topo map of the are Russian Ridge area with leads marked by red diamonds

A screenshot of the Washington LIDAR Portal web application. The header includes the Washington State Department of Natural Resources logo and the text 'WASHINGTON LIDAR PORTAL'. Below the header is a search bar with the placeholder text 'Search for project names, counties, zip codes' and a 'Search' button. On the left side, there is a 'Projects In Map View' panel with a 'Download Current View' and 'Show All / Hide All' options. The panel lists three projects: 'Colville 2015', 'Colville 2016', and 'Ne Wa 2016'. Each project has a list of layers: 'DSM Hillshade', 'DTM Hillshade' (checked), 'DSM', 'DTM', 'Metadata', and 'Point Cloud'. The main area of the screenshot shows a 3D perspective view of a terrain, rendered in shades of gray. On the right side of the map, there are navigation controls including a zoom in (+) and zoom out (-) button, a home button, a location pin, a help (?) button, and a full screen button. In the bottom left corner, there is a scale bar showing '50 m' and '200 ft', and the coordinates '48.8549 ; -117.519'.

Access Washington's LIDAR portal at: <http://lidarportal.dnr.wa.gov>





Marble Mountains July 2018 by Larry McTigue. Photos by Rob Lewis.

Over 32 miles of surveyed caves in the Marble Mountain Wilderness now. Bigfoot Cave, itself, makes up over 16 miles of that total, after the many separate caves that have been connected into it. The connection with Meatgrinder Cave back in about 1975, put Bigfoot at over 1,200 feet deep, making it the deepest cave in the United States at that time.

Rob Lewis and I rejoined the Cascade Grotto after many years absence while on a grotto trip to Papoose Cave, in Idaho, in early June of this year. We were both planning to go to Bigfoot Cave for the annual KMCTF (Klamath Mountain Conservation Task Force)

Rob Lewis pushes a new lead [Previous page]. **Marble Mountain Karst** [Above] [Rob Lewis]

trip they hold each year around the July 4th holiday. So, Daryl asked us to send in photos and a trip report after we got back that he could publish in *The Cascade Caver*.

Rob and I drove down separately with me arriving a day ahead of him on Friday June 29th. I was the first to get to camp in Marble Valley, as most wouldn't be coming until Sunday. I arrived at camp late in the afternoon, after hiking in from the trailhead at Lovers Camp. I got up early the next day and hiked up north on the Pacific Crest Trail which goes right past our camp area, only about 250 feet east of our group's fire pit.

There is a clean spring of water that comes out of the marble and runs all summer, located about one mile north of camp. I stopped here first to take another look at it. But nothing had changed since the last time I was there, so I continued on.



Marble Mountain Karst [Rob Lewis]



I stopped in the shade on the trail to rest for a minute and looked at a marble outcrop to the left and above me. It seemed to have a couple sinks in it. I hiked off-trail to investigate.

I was right. One of the sinks had a small, tight cave entrance in it. I checked my map of the area and I was sure from the razor sharp marble fins protruding from the tight crawlway that this must be *Nicked Jagged Cave* which is near *Bruise Springstream Cave*, both named tongue-in-cheek after Mick Jagger and Bruce Springsteen. Not wanting to get sliced and diced by the razor sharp marble, I decided to continue on, up the trail.

I headed to Resurgence Cave which is on the north side of Black Mountain, a dark non-carbonate volcanic dike that pushed up through the limestone and is the tallest peak nearby. A great place to go if you want to hike up to the top of it. From there, you can

[Rob Lewis]



get a 360-degree panoramic view of the Marble Mountain Wilderness and the karst areas below the peak.

That wasn't my goal for the day though, so I continued on the PCT to the north side of Black Mountain and found snow blocking the trail ahead that still had not melted. I worked my way down off the trail to the marble karst pavement to the west of Resurgence Cave. The cave comes out of the marble cliff to the east and has a constant flow of water issuing from the entrance all summer long. It apparently comes from snow melt accumulating in an underground perched water table reservoir.

While suiting up at the entrance, I noticed there wasn't any airflow coming out and the entrance area was quite warm from the sunshine beating down outside. Then, after about 15 minutes, all of a sudden I could feel the cold air flowing out of the cave. Apparently this is a breathing cave, like some of the other caves that have been found in the Marbles.

Marble Mountain Karst [Rob Lewis]

I pushed my way into the tight crawlway lead on the left, at the back of the entrance tunnel, and found a small room with a skylight which apparently had dim sunlight coming into it. On the floor of the small room I found a pair of someone's lost sunglasses. They must have fallen down from the skylight above.

Later, I hiked above the cave and found the pit that goes down to this outside skylight, where the sunglasses must have been dropped from. Going into this nice cool cave on a hot summer day is quite refreshing and worth a side trip if you are hiking up the Pacific Crest Trail near Black Mtn. It is about 2 miles north of our normal camping area with lots of colorful wildflowers along the way. So, it makes for an easy day trip and the views are worth it also. So, bring your camera!

After exploring Resurgence Cave, I headed back to camp and made an easy day of it. But, I noticed it wasn't quite as hot this year. Usually the marble rocks on the ground at camp are so hot from direct sunlight that you can dry all your wet and muddy cave gear in a matter of minutes by laying them on top of the hot rocks. But the ground and air temperatures were probably at least 10 degrees cooler than most years, since I first started going to the Marbles back in 2006. I ended up having to hang all my gear on broken branches on nearby tree trunks so the flow of air across them would dry the gear more quickly.

Also, most years in July it gets so hot in the morning that by 8 a.m. you have to bail out of your tent to escape the heat. But this year I could comfortably sleep until 9 a.m. before it got too hot and I had to get out of my tent.

Camp is at about 6,000 feet elevation, so it can get cool at night but usually warms up into the 80's or more during the early morning and afternoon. It's a bit cooler on Labor Day than on July 4th, at night, but still usually gets hot in the early morning and afternoon, once the sun comes up.

Rob arrived in the late afternoon on Saturday and we were still the only ones in camp, so far. There were some goat herders down below us who were using the wilderness cabin. But other than that, we had the place to ourselves.

The rest of the cavers from Oregon and California began trickling into camp late the next morning with the mule packer they had rented to haul in their gear. More cavers arrived on Wednesday from the Bay Area and the Eugene/Springfield, Oregon area. When the final tally was taken by Steve Knutson, we had another record number of cavers show up. It was something like over 30 cavers by the end of the week. (Although some left to head home before the late arrivers showed up so not everyone was in camp at the same time.)

Since I didn't get around to typing up this trip report until late August, I may have some of the events out of sequence. (Sorry about that Rob, if you happen to read this.) I usually don't procrastinate this long. But, I had other issues to deal with after returning from the Marbles in July.

For the energetic types that didn't have to pack in their gear, but had it hauled in by mule, some went into Planetary Dairy Cave (named after moon milk deposits in it) and Toothpaste Tube, etc. that are near camp and not too long or deep, after arriving in camp, on Sunday. I think Rob, I and Steve Knutson stayed in camp with Mark Harder and Louisa Hooven.

Rob had hoped to get into Yellowjacket Cave to start surveying. But, I don't think Mark Fritzke showed up until Monday, so he opted to remain at camp instead. The others including Sonia Meyer, David Weaver (and his daughter, Nora), Chuck Lee and many other cavers from the Bay Area headed into either Bigfoot Cave or the smaller and less deep caves closer to camp.

Or maybe it was Sunday that David and his daughter hiked up to Sky High Lakes so she could go swimming. My memory has faded a bit, in regards to who did what and when. Anyway, most everyone was enjoying themselves doing what they wanted.

On Monday, Fritzke made an appearance and the long-planned survey trip into Yellowjacket finally happened. Mark, Rob, Sonia, David Weaver and a few others headed up to Yellowjacket.



Mark “ *didn't show up until Monday* “ Fritzke pokes his head out of his newly discovered Yellowjacket Cave [Rob Lewis]

I wanted to hike several miles over to the karst area west of Bigfoot to try to find the dig that Knutson and Tom Kline had worked on several years ago - they could see a room below the pit entrance, but a large rock was blocking the way on. Steve agreed to hike over with me, so off we went.

About three hours later we arrived at our destination. But, Steve could not find the pit. He did manage to find two new pits and a resurgence spring coming out of the marble. I free climbed down into what appeared to be the most promising hole, but it belled out under the left wall of the vertical fissure at the bottom and we did not have a rope with us, so I climbed back out of it.

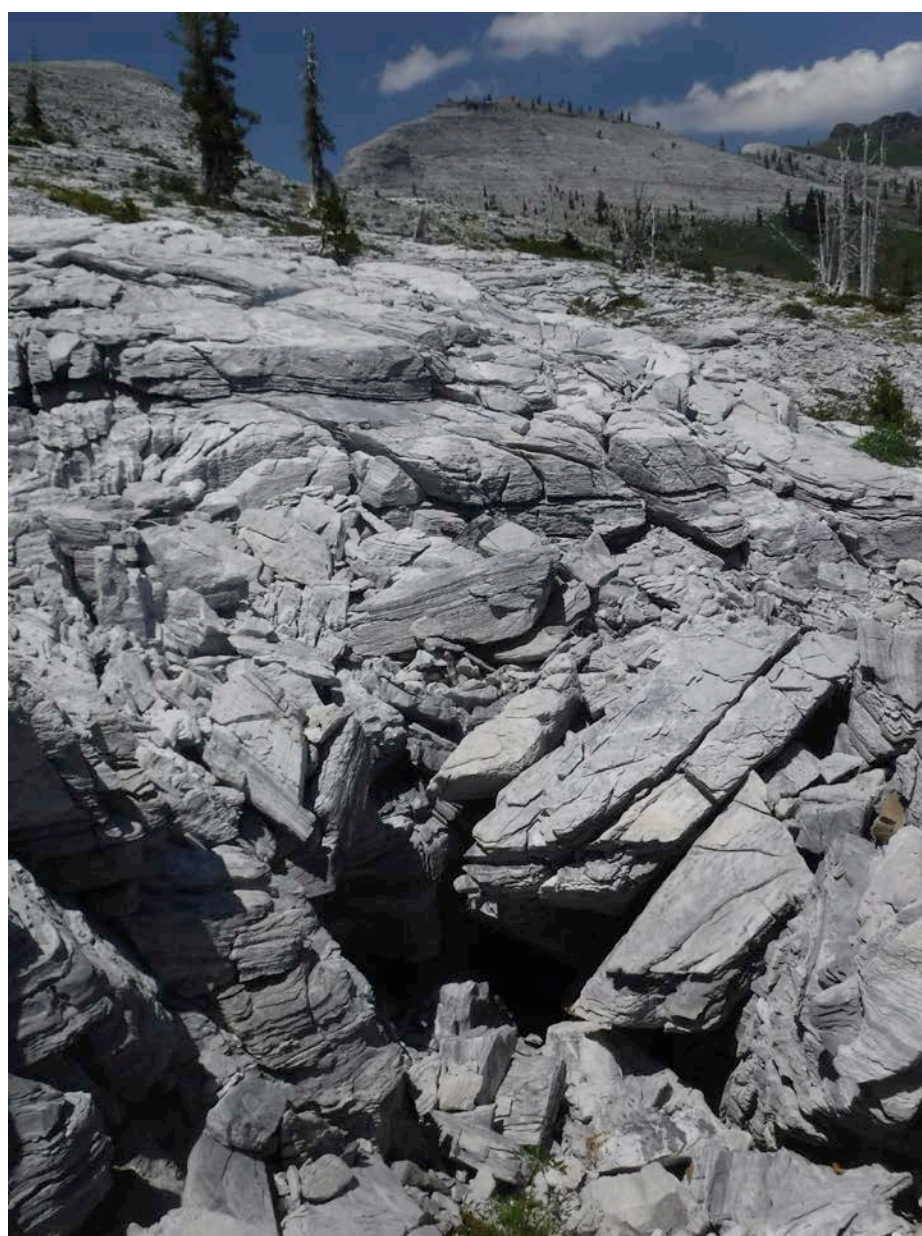
After looking around a bit more with no further luck, we headed back to camp. We

arrived back at Marble Valley at dinner time, just as the sun was getting ready to go down behind Marble Mtn to the west of camp.

On Tuesday, Mark and Rob headed up to the upper karst above camp to look for new pits to drop in the hope of getting into some new caves. They found six new pits that they opened up by pulling rocks out, but had no rope with them! They got back to camp late that night and were excited by their new discoveries. They planned to go back with ropes in a couple days.

I wanted to go back over to the pits Steve and I found on Monday. But, the only volunteer I could find planned to go to Trail Junction Cave that day. So, I again ended up hanging around camp for another day.

About mid-morning I think, Perry Smith and his two climbing buddies from Eugene, Oregon arrived in camp. They wasted little time with introductions, as their main goal was to go into Bigfoot Cave and out to the far west end of "The Illusion" and then back on a parallel set of



Karst everywhere. [Rob Lewis]

crawlway passages heading east to the far end of the Kneegrinder. This is undoubtedly the most remote underground area of any cave in the far western United States. Some have taken as much as 24 hours to go out there and back again.

They planned to try to do it in 18 hours or less. They left camp at around 12 noon on Wednesday and got back to camp at 6am on Thursday, after their 18 hour trip! Perry left a note by the campfire pit to let everyone know they got back ok and then the three of them went to bed for some well deserved sleep.



Mark Fritzke and Steve Knutson [Rob Lewis]

There is a pit at the end of the Kneegrinder that needs pushing and they plan to go back there over Labor Day weekend and try to push that pit. They found the two ropes and flat pry bar that Cynthia Ream and Rich Sundquist left out there at the pit when they were there way back in 1998.

No one had been way out there since then, so it had been 20 years since the last trip out there! Cynthia Ream retired from caving some years back, but in her hey day, she was without doubt one of the best female cavers in the far western United States. She was on at least one, if not more, of Knutson's cave exploration trips to Peru.

I decided to hike up the Pacific Crest Trail to the south of camp and take the rim trail at the junction of 4 corners and head west to a sink Rob had found earlier that he thought I should take a look at. I like to dig, so he said it might be a good digging lead for me to work on. Since it was only about an hour and a half hike from camp, on the trail that Steve Knutson and I hiked on our way back from the Wooley Creek drainage on the west side of the ridge, I gladly volunteered to go check it out. It was a nice leisurely hike with great views of the surrounding mountains and valleys with colorful wildflowers in bloom.



There's no scratching this itch [Rob Lewis]

Unfortunately, the sink was plugged with a thick layer of sediment that would require an extraordinary amount of digging to open up. An old saying in the Cascade Grotto from years ago is that this is what we used to call a "steam shovel" cave, because it would take a steam shovel to open it up!



So, I left that lead for future generations of cavers and hiked back to camp. Before I got to 4 Corners at the junction with the PCT, I ran into Louisa Hooven, who was out looking for some sort of rare butterfly or moth that hadn't been seen in many years and had perhaps gone extinct. But there were rare reports of people seeing it and so she was out hunting for it. I bid her good luck and headed back to camp.

I should mention here that two other groups had gone into Bigfoot on Wednesday before Perry and his two buddies went to the Kneegrinder. I think one group went to the Lurking Fear crawlway and down to the lower end of Bigfoot Cave. The other group led by Ethan Donahue from Spokane, WA went up the Discovery Creek passage and over to the north end of the Chuthulu passages and up north to the Monkey River Passage and out the Monkey River entrance of Bigfoot. There are about 12 different entrances to the Bigfoot Cave System.

On their way back from the lower end of the cave and the Lurking Fear, the other group exited via the Discovery entrance and found the lower rope on the last drop at the

Marble Mountain Karst [Rob Lewis]

bottom of that entrance had been damaged. The Discovery Entrance is a pit series that goes down 200 feet on two separate ropes. Since they had no other rope with them, they had to tie off the bad part to make climbing the rope safe. But by so doing, they left a big knot in the rope that had to be climbed past to exit the cave, so when Perry and his group got back from their 18-hour Kneegrinder trip, the 3 of them had to negotiate this additional obstacle to get out of the cave! Apologies were extended but it was an unfortunate and unexpected problem.



Typical Marble Mountain Fissure [Rob Lewis]

We are collecting cash donations to purchase more new rope to replace this rope and some of the other old rope in the cave. If anyone wants to contribute any new 10 mm static rope or cash, please contact Chuck Lee in California. Or, I can put you in touch with him, if you contact me.

Mark Harder, Louisa Hooven and Steve Knutson headed home on Wednesday. On Thursday, I think some of the California cavers may have hiked up to try to go into Upstairs/Downstairs Cave, up north of camp near Black Mtn. I think Rob ended up hanging around camp and rested up for a bigger cave trip the next day.

Alyssa Scott from the Bay Area hiked over with me to the west of Bigfoot, while I hauled a rope, vertical gear, caving gear, food and water, etc. in a fairly heavy pack. But, even

though I acted as tour guide (since this was her first trip up there), pointing out the various mountain peaks in the distance as we hiked the rim trail to the west of camp, we still managed to make good time and arrived at our destination in just three hours.

The only drawback was we got a rather late start that morning from camp, as is usual. So, not having left camp until about 11am, we didn't arrive at the pits and resurgence until 2pm. So, we had to make the most of the remaining time we had, before the sun got too low in the sky and went down behind the mountains, to the west of us.

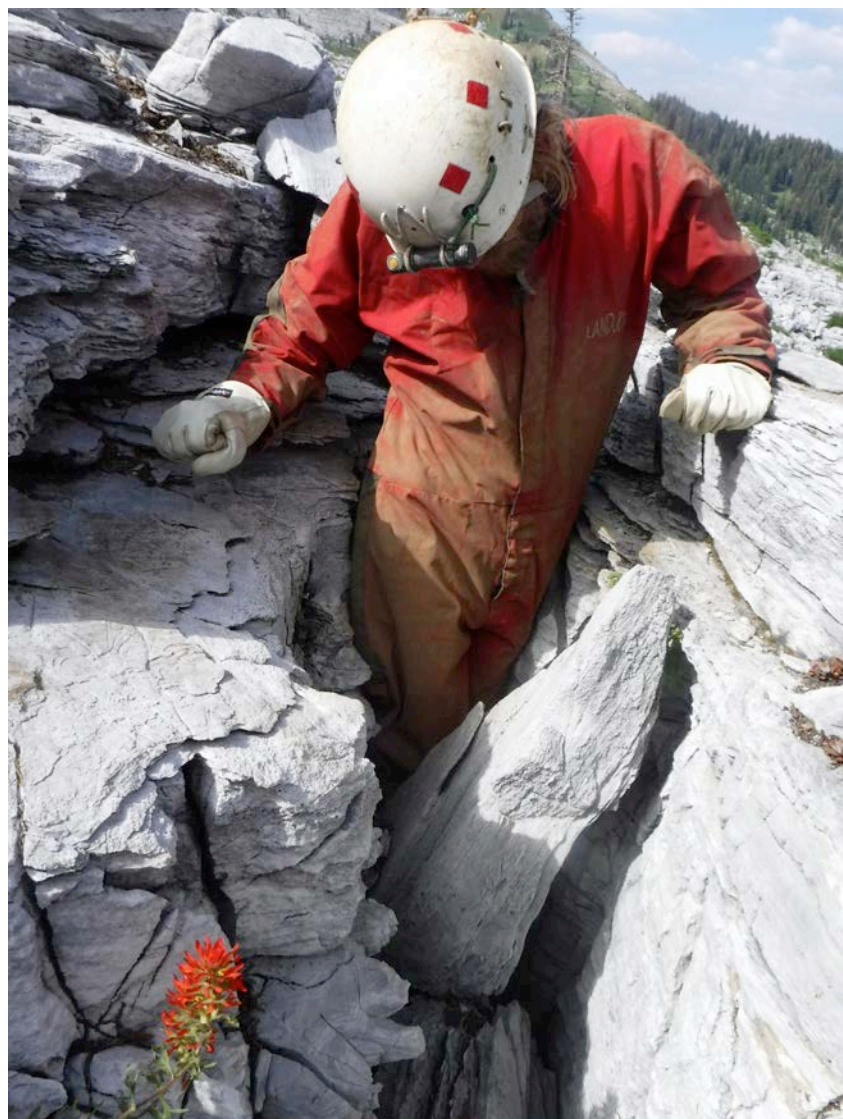
Alyssa found a vertical fissure full of loose rocks that Steve and I hadn't noticed when we were there, on Monday. I started pulling out all of the rocks that weren't too heavy for me to handle by myself and she helped me with some of them. It appeared to be opening up into either a pit needing rope, or a climb down. But, there were still some larger rocks wedged in the fissure that were too big to safely lift out and would require some slings or some rock shaving to remove them.

So, we left that for another time and headed over to the pit we would be rigging with the rope I brought along. I let her rig it, since she needed the practice, while I gave her suggestions as to how best to go about it. Wherever the rope rubbed on sharp marble, I took a rock and pounded the sharp edge down, to a smooth surface so the rope wouldn't get cut.

I changed into my cave suit and vertical gear and rigged in my bobbin to the rope and climbed down to where I had been on Monday. But, as it turned out after all that effort, it was still too narrow to pass the constriction at the bottom of the pit without becoming tightly wedged into it. So, I climbed back out and we de-rigged the pit. Some rock shaving will have to be done at the bottom to continue on.

While I got out of my vertical gear, Alyssa went to check the other pit that Steve and I found on Monday. It was obviously too tight at the bottom. But she suggested I take another look at it.

I climbed down into it as far as I could go and I noticed that it appeared to continue down into another hole in the



Rob Lewis checks a tight lead [Mark Fritzke]



Rob Lewis, Mark Fritzke, and Sonia Meyer at the entrance to Yellowjacket Cave [Rob Lewis]

bottom, past the constriction. I had her hand me her headlamp and I could see that it did indeed continue on down further. So, I asked her to hand me a small rock to toss down. The first rock was too small and didn't go far so I asked for a bit larger one. This time when I tossed it down, I could hear the rock bouncing down a steep slope until the sound grew too faint to hear it anymore. So, there is obviously a cave passage down there and this pit may prove to be the way down to the nearby resurgence spring and connect with the other two pits near there.

By now it was getting late and the sun would soon be setting and we still had a good three hour hike back to camp. I told her I would take her back via Big Elk Lake, along the loop trail that connects with the PCT. About an hour later we arrived at the lake and since I was running low on water due to the hot day and hike in, I filtered some water from the creek at the lake and ate some food. The sun was still up but was going down fast and we still had two hours of hiking to do to get back over on the east side of the mountain.

By the time we got down near the junction of the trail with the one going up to the PCT, it was already dusk and getting harder to see. About halfway up the mountain we got out our headlamps and started using them to see our way along the trail. When we crested the ridge at the junction of the PCT, we could see three other headlamps across the valley, down by the entrance to Yellowjacket Cave. As it turned out, it was Mark



[Rob Lewis]

Fritzke and two other cavers who went with him that day to do some more work in Yellowjacket.

Alyssa and I got back to camp at 10pm and Mark and his group arrived about an hour later at 11pm, after bushwhacking across Little Marble Valley in the dark with only their headlamps to see by.

Rob had a hot meal ready for me to eat when I got back. Thanks Rob! :)

On Friday, I took the day off to rest up at camp after hiking 10 miles the day before with Alyssa over to the new pits across the ridge to the west.

Also on Friday, Chuck Lee and his group from California headed over to Little Marble Valley to do Corkscrew Cave. This is one of the bigger, longer caves that are parallel to Bigfoot but located to the southeast of it, over on the other side of the ridge and down in the valley below it.

On Saturday, Mark Fritzke and Rob Lewis took two long ropes and their vertical gear and hiked back to the Upper Karst area above camp to push the new pits they opened up above the upper end of Bigfoot Cave. They hope to someday connect them into the Bigfoot Cave System which would increase the depth and length of that cave.



Rob Lewis in a going lead in the upper karst [Mark Fritzke]

I decided to head home that day. So, I spent the morning packing up my gear for the hike out. It was a long week. But, we had all accomplished quite a lot, in finding new pits and leads and mapping the new cave, Yellowjacket.

When Mark and Rob returned late Saturday night from the Upper Karst, all of the rest of us had left for home. So, they had the camp area all to themselves. On Sunday morning they also hiked out and headed home.

Future Projects

If anyone is interested in a trip to the Marble Mountain Wilderness area and Bigfoot Cave, in northern California, let me know - I could certainly use help, on my digging leads and I could use a couple other cavers to help me survey new cave that I find down there. If anyone has a rock shaving kit, please contact me.

Only a little shaving could easily open up a big, new cave system, over on the west side of the ridge from Bigfoot Cave. I estimate there is well over a hundred miles of cave

passages yet to be discovered down there, if people are willing to make the effort to push the hundreds of pits and other leads we have, both above ground and down inside the 32-plus miles of caves that have already been partially surveyed and explored. There are also innumerable digging leads that could be worked on, both above ground as well as down in the dozens of caves that are already known in the Marbles.

Bigfoot itself has maze areas that are extremely complex and remote that no one has pushed for over 40 years. You could be the first one to find a big new borehole or miles of new passages. The caves are multi-level with pits and crawlways going in all directions. Much remains to be pushed, explored and mapped, all over that big karst area, as well as to the west of there, across the ridge.

I also have numerous cave projects that I am working on, here in Washington State, including Cave Ridge, at Snoqualmie Pass, as well as in other states, including Oregon, Idaho, Montana, mainland British Columbia and Vancouver Island.

I need help pushing leads, surveying new cave passages that I and others have found, that still haven't been mapped. I could also use cavers with rock climbing experience to check out high leads in ceiling fissures and dome climbs that require bolting, as well as cavers willing to help on digging projects. I can train you to survey, if you don't know how. I can use both vertical cavers as well as horizontal cavers who have no vertical experience.

Rob and I also do a lot of ridge walking looking for new caves here in Washington and elsewhere. Most of our projects are with limestone caves, but we also have some new potential cave areas in lava flows that we found a few years ago that no one else has investigated before.



Mark Fritzke at the entrance to a going lead [Rob Lewis]



Rob Lewis and Mark Fritzke after finding new cave, on the upper karst, above Bigfoot Cave. They are hoping for another new connection into the Bigfoot System, to push it even deeper and longer that it is now. [Rob Lewis]

There is also a large fissure cave that still needs pushing and mapping and will require ropes and vertical gear to descend to its lowest levels. It is a complex fissure cave with multiple levels that has never been completely explored or surveyed by the Grotto, or anyone else that I am aware of.

If you are interested, in any of these projects, please let me know;

You can contact me at:

Larry McTigue

PO Box 6373

Kent, WA 98064

cavdgr@gmail.com

(I only check my email about once a week, usually on Saturday afternoon. So, if you need to get ahold of me sooner, call and leave a message, my phone number is 253-520-4734 (leave your name and phone number if I don't answer and I will return your call later) Thanks! :)



Mark Fritzke examines the “thinly bedded limestone” [Rob Lewis]

This is an old joke with Steve Knutson. When he was looking for a new cave area to explore in the early 1970's, he read the geology report for the Marble Mountains and it said the limestone was "thinly bedded". Steve took this to mean that the deposits were small and thin and wouldn't be thick enough to make any caves.

So, when he finally hiked into the area in 1974 and found a huge mountain of marble, he was understandably quite surprised! Now with over 32 miles of caves explored and surveyed so far and with Bigfoot over 1,200 feet deep, that "thinly bedded" limestone definitely makes big, deep caves!

Bigfoot at over 1,200 feet deep, making it the deepest cave in the United States at that time.



Cascade Grotto's "Mock Cave" Outreach Program Delights Thousands

Photos and story by Kathryn Wilson

How does one teach about caving to students who have never been in a real cave and may not have the time or resources to ever go visit one? In Cascade Grotto's case, the answer is often by bring the cave to the students. What started as a small program reaching just a few hundred students per year at two or three elementary schools in one



city has expanded to an interactive, hands-on "mock cave" exhibit in seven or eight communities ranging from Shoreline to Aberdeen. This year (2018) we reached a record number of people with several thousand participants in both school and community settings, and established partnerships with several new schools and other civic organizations.

Even before I joined the grotto in 2011, Cascade Grotto had regularly participated in school and youth outreach activities to educate students about caving. These programs started small but informative with a table set up in an elementary or middle school setting alongside multiple other science, conservation and community organizations. The grotto's exhibit featured cave equipment, maps and photos; a rope tied to a basketball hoop to show how ascenders and descenders worked; and the expertise of

longtime caver and Cascade Grotto member Ron Zuber (and possibly other volunteers) who would talk to participants about caving. The events usually ran about two hours with 300-500 people in attendance. The schools were primarily in the Shoreline School District (a remnant from when the grotto used to meet monthly at Shoreline Community Center).

About five years ago, in 2012 (after I became the primary contact person and organizer for such events), we expanded to include a mock cave for participants to navigate through to make the exhibit more interactive and kid-appealing. Since we had no budget for outreach (as most of our membership dues went to pay for meeting space rental), those caves were usually made of ordinary household materials (cardboard



Cascade Grotto's Science Night Exhibit with Robert Mitchell stationed on the rope swing portion.

boxes, tables, chairs, ladders, saw horses and 2x4s, covered with blankets and tarps, etc.) with some crawling areas to give a taste of what it is like to go caving. Grotto members **Mark Sherman**, **Talon Swanson**, **Robert Mitchell**, **Sid Creutz**, **Nick Bertucci**, **Katlin Combs**, **Madeline Schaller**, **Chris L.**, **Jeff Wilson**, myself and others have helped station the exhibit over the years.

The mission of the exhibit is to teach kids to a) “cave safely” and to b) “cave softly.” To accomplish the first goal, volunteers provide participants with helmets and headlamps, and discuss issues such as why one should one wear a helmet, how many lights they should bring with them caving (a minimum of three per person), and what other equipment one should have in a real cave. To teach how to cave softly, we set up obstacles to avoid in the cave such as Lincoln log or pool noodle “stalagmites” or objects such as fragile spiral pasta noodles suspended from the cave ceiling to represent

stalactites. Also, over time, we added elements such as sound and scent activities to mimic how bats communicate; static and video displays of real Washington caves; and to teach good conservation skills, such as protecting and documenting cave animals, we tape up various photos of cave animals and send kids in with the mission to count how many hidden pictures they can find. Almost no one finds them all, especially the first time through, just like in a real cave.

The highlight of the exhibit, and the kids' favorite part by far, is when we let kids swing



briefly on a rope suspended from a beam or basketball hoop as they navigated a cave “crevice.” The purpose of the swing is mainly to give kids the opportunity to slide an ascender up the rope and demonstrate how an ascender can support their weight without it sliding back down the rope.

While it sounds simple, the hands-on aspect of our obstacle-course-style program makes it very popular with students and teachers. As word of our program grows, we sometimes get requests from other elementary schools for Cascade Grotto to attend their Science Nights, including other schools in Shoreline as well as Edmonds, Lake Forest Park, Auburn, and Gig Harbor. Due to scheduling conflicts (or lack of volunteers), we generally have to decline two or three schools per year.

But 2018 has been a banner year, in large part due to partnering with Cub Scout Pack 27 of Fox Island, WA. As part of both community service and pack recruiting efforts, several leaders of Pack 27 built a 30-foot long plywood “cave” which they dubbed the “Cave Exploratorium” to teach basic cave safety and to give people a taste for cave exploration. It was designed by den leader and pack committee member Paul Anderson

who attended several of Cascade Grotto's Science Night programs to get some input and inspiration. It was built by Anderson, den leader Mike Constanza who donated the use of his woodshop, and several other dads and their sons.

Ranging in height up to four feet, the cave includes various crawling areas: tight, low or narrow squeeze sections; obstacles to go over, under or around; multiple route options,



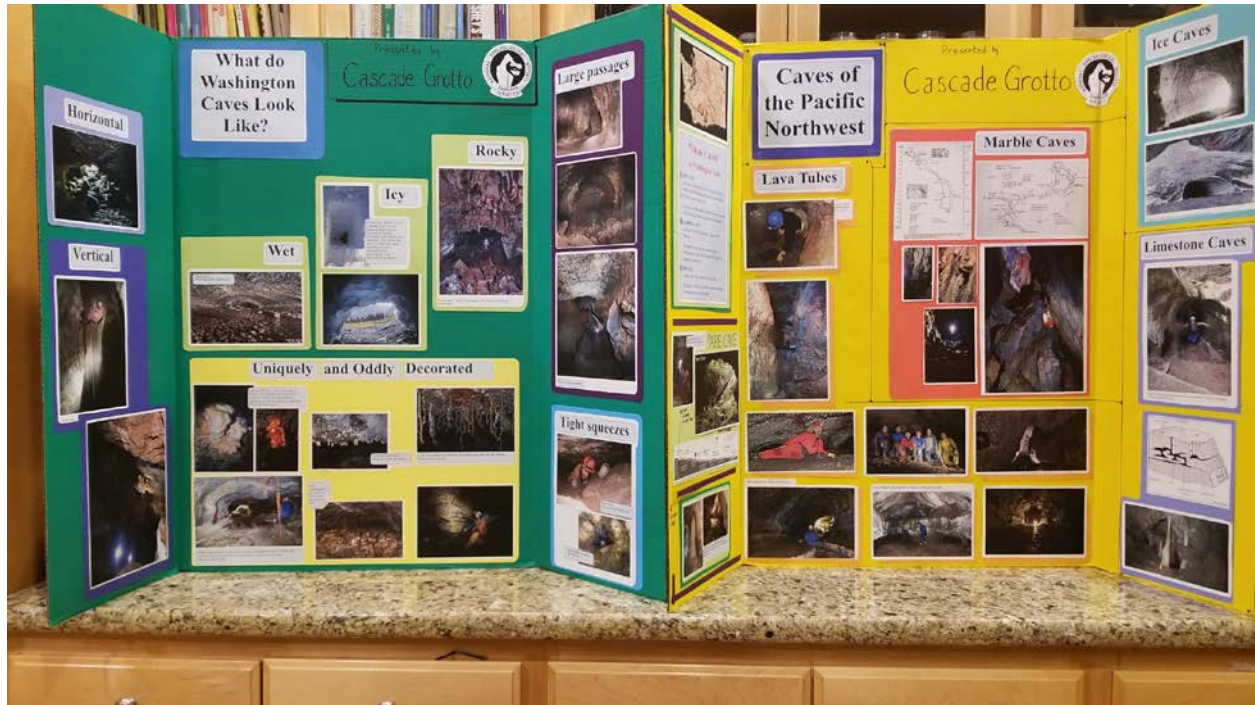
From inside Pack 278s Cave Exploratorium

and, of course, the popular rope swing element suspended from an overhead portable wooden beam (which the pack also built to use in situations before a beam or other support is not readily available). The largest section of the cave is a room about four feet high and three feet wide; the smallest sections are only eighteen inches high, but contain wooden stalactites to navigate under, making the actual height even lower. Those sections can be a little evil, and especially challenging, though most physically fit adults can successfully navigate them with a bit of wiggling and determination. Anderson also designed the cave with easily interchangeable parts so that it can be reconfigured for different-sized spaces, and easily detachable in case anyone who goes through becomes claustrophobic.

“It was a simple design challenge,” said Anderson. “What is educational, adventurous, clever, and can be used to promote and serve multiple groups of people, while giving them access to genuine physical and mental experiences few ever get to have? Any resulting inspiration is just gravy.”

Like some real caves, there are several openings, and kids can choose which way to go, including exiting early, so claustrophobia hasn't been a problem.

Cascade Grotto and Pack 27 have already run more than a thousand kids through the



wooden mock cave this year (in addition to the grotto's couple thousand run through the cardboard version). It debuted at Pacific Harbor Council's day-long Scout-o-Rama event at Pacific Lutheran University in Tacoma, WA in April, 2018 where we ran kids continuously through the cave for six hours straight; it also won the People's Choice Award (by a landslide) for best exhibit at the event. Two weeks later, Anderson and I drove two hours (with our kids) to set up and run the cave exhibit in Aberdeen, WA for a four-hour Scout-o-Rama event at a local mall where it was also popular judging by the number of kids who asked to do it again. Grotto member Talon Swanson and I introduced part of the wooden cave at a new school this spring, combining it with cardboard elements as we didn't have time to set up all 30 feet of the wooden cave. The full wooden cave takes about three hours to set up, another hour or so to set up the interior and exterior displays that complement the cave, and several volunteers to run it.

Most recently, the full cave was featured at the FICRA Fair (a community summer festival) on Fox Island, WA on Saturday, August 11, 2018. We have one more school event scheduled for November, 2018 where we will run another hybrid wood and cardboard version.

The Fox Island event was the first time we had set it the wooden cave outdoors, and Mother Nature provided an extra challenge, or a delightful taste of realism, depending



on your perspective. Because part of the cave was not under the large canvas tent, we got a few puddles inside the cave from the several brief downpours leaking through cave openings in the ceiling, so some of the kids got a bit damp, just like they would in some real caves.

A pair of girls named Azlynn and Tenley went through the cave together at that event and afterward said, “It was cool, but a little wet, especially in that tall room.” After a few minutes reflection, they both decided, however, to go through it several more times.

One boy said, “It was tight, especially that lower section,” but he, too, elected to go through again.

“My favorite part is the crevasse swing, especially since you have to go through the first parts of the cave to get to it,” said Cub Scout Chase Anderson who helped set it up and who went through it more than a dozen times.

When lines are long, volunteers running the exhibit may only have a few minutes per person to convey the basics of caving, but they can often have repeat customers, so they can quiz them to see if the messages sank in, and provide more in-depth interpretation which makes the event more worthwhile and rewarding to everyone, especially in the case of volunteers who sometimes have to drive one or more hours to attend the events, depending on where they are located.

If you wish to volunteer with future cave exhibit outreach programs, please contact Kathryn Wilson as difoxfire@gmail.com.

