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Back Cover — Government Canyon SNA Project - Christopher Francke assisting Nicholas Scalercio at 6-152 dig (Leslie Bell photo)

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The TSA is an internal organization of the National Speleological Society and represents the greater caving community in Texas. The organization holds business meetings 3 times a year, organizes an annual convention for Texas cavers, and sponsors caving projects and events throughout the state.

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# The TEXAS CAVER

*Written by Texas Cavers FOR Texas Cavers*

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Introduction

I received an E-mail from Peter Sprouse in September of 2010 stating that he would be skipping Muzquiz over Thanksgiving because of current border issues. Instead, he was putting together a small trip to Akumal, Quintana Roo, Mexico, which is on the Caribbean coast. The E-mail said, "First two people who buy plane tickets get to come along!" 41 minutes later, I was ticketed from Fort Lauderdale to Cancun, a direct flight via Spirit Airlines for only $365 USD. (I later found that this price was deceptive—two checked bags, round-trip, added an additional $120 USD to this price—but a direct flight can't be beat.)

Over the next several weeks, I procured gear and planned how to get it there. While a "dry" cave in Quintana Roo requires no SCUBA equipment, it doesn't mean there is no water. I purchased a shorty wetsuit, snorkel, mask, flippers, Darren drum, and a waterproof light. I hoped I was prepared.

Protagonists

Peter Sprouse — Texas
Paul Bryant — Texas
Joe Datri — Texas
Tone Garot — Florida
Shane Fryer — California
Cyndie Walck — California

2010 November 19 — Friday

I flew from Fort Lauderdale, Florida to Cancun, Quintana Roo, a neat, tidy direct flight. Apparently TSA hadn't yet instigated the new, and controversial, millimeter wave and backscatter imaging units. Nor was I patted down.

Mexico customs hassled me a little when I showed them an existing FMT tourist permit that I had gotten in Nuevo Leon some five months past. The official at the desk stated that, although the tourist permit is good for 180 days, I must return it each time I go back to the USA. I had never done this via land travel. Looking around the web, this seems to indeed be the required procedure.

Having secured my luggage, I headed out of the airport when suddenly a young woman stopped me, "do you speak English?" "Yes." At this point, I thought she was peddling transportation. She caught me off guard by saying, "Is that your wife?" "Um . . . no." She laughed at the way I answered. We started a brief conversation. When she asked if I was even married I replied, "not that I know of," When she asked if I was on vacation and I answered that I was going caving. She naturally assumed the tour caves, and said so; after which I smiled and replied, "no, we go into the wild caves—we're professionals!" She said that sounded like fun and asked how she could get involved. She took my E-mail address and told me that she would write—"expect a message from Curly Carla."

Fernando Dorantes, who represented Easy Way Rent a Car, met me outside and drove me to the office. Since Easy Way Rent a Car was out of Tsurus (which I reserved), I was upgraded to a Suzuki Grand Vitara. The representative at the desk told me that Easy Way would arrange to pick up this Suzuki in Akumal, at our convenience, around Sunday or Monday. (This never did happen. Had we known, Shane and Cyndie wouldn't have needed the second rental car.) Easy Way Rent a Car had me sign a blank credit card slip, at which point I balked, stating that this made me very uncomfortable. I had never signed a blank credit card receipt before. Unfortunately, I was pretty much over a barrel, so I signed. I looked the representative square in the eye and said that if anything happened, I would be looking for him. He laughed saying, "you can look for the company, my friend." I said, "no. I'll be looking for you." That probably didn't sound good.

Since this vehicle was slightly larger than our intended, we were able to use it exclusively for most of the trip. I became the designated chauffeur. One of the interesting points the Easy Way Rent a Car representative cited was that "partial theft" was not covered by the outrageous insurance ($25 USD/day) we were paying. When I later mentioned this fact to the guys I added "so . . . if our hubcaps are stolen, I'll be driving the truck into a cenote."

I drove the 66 miles south along highway 307 to the Centro Ecologico Akumal (CEA). This took about two hours due to construction and rush-hour traffic. Our group was given dorm-style lodging for the very reasonable rate of $12 USD per person per day. This included electricity, Wi-Fi, and a communal kitchen. Nearby was a reasonable little restaurant, Loncheria Akumalito, at which we breakfasted most days. It was a quick walk from the room to a beautiful beach!

When I arrived in Akumal, I was introduced to Carlos, the accountant for CEA. Carlos showed me around the
CEA campus, and we eventually happened upon Cyndie and Shane at Loncheria Akumalito. Cyndie and Shane had arrived the day before from California.

I mentioned to Carlos that I needed to pick up the rest of our assemblage later that evening, so Carlos asked if he could catch a ride as far as Xcaret. The pronunciation of this Mayan word is interesting. The "x" is pronounced "sh", but has the briefest of an "i" sound because a consonant follows the “x”. Since there are only two syllables, it's closer to say (i)shka-ret rather than ish-ka-ret.

After I sent a quick E-mail to my parents letting them know I had arrived safely, Carlos and I departed. As luck would have it, Carlos had an extra ticket to a wine tasting and concert at Xcaret, and knowing that I had some time to kill, he invited me. It was called El Bicentenario con el Vino Mexicano. I felt a little underdressed in my caver clothes, but c'est la vie. After about an hour, the wine stopped so that each vendor could give a short speech. Multiple contiguous "short" speeches combined to a long time, thus, it was announced that one of the songs would be clipped from the concert. Carlos said that this is the way it is in Mexico.

We watched the concert inside a cenote! I do admit that, due to the fatigue of travel, I fell asleep during portions of the concert. The concert was very well received, so, as an encore, it was decided to add back the removed song. Carlos and I did not stay for that song since I really had to get to the airport. Carlos tagged along instead of catching a bus back to Akumal.

We met Peter, Paul, and Joe at the airport at Terminal 2.

2010 November 20 — Saturday

Our entire group went to Río Secreto to meet with Gustavo Vela Turcott, a caver whom I had met only a few weeks prior at the Texas Cavers Reunion (TCR). Apparently Gustavo had just finished mapping the cave. Unfortunately, Gustavo's status as cave-mapper did not extend admittance to his friends for free; however, we did receive preferential treatment—a tour twice the normal duration! It was well worth the $20 USD. Our tour guide was Tania Ramirez, who graciously gave up her day off to show us around. We also met Fátima Tec Pool, Carlos Duarte, and Roberto Rojo.
who joined us on the tour. We donned our wetsuits and went through the cave.

Initially, Río Secreto was dry, so the walking was warm. Soon we reached a point where our leader zipped up her wetsuit, thereby indicating that we were going to get wet. From this point on, there was much wading and some swimming.

After the underground water tour, most of us met at a beach restaurant in Paamul. The price differential between a beach restaurant and a restaurant west of highway 307 (opposite the beach) was substantial. This was true in most every town we visited. During dinner, we met Gil Harmon who discovered Río Secreto. He would later join us in our adventures.

Speaking of highway 307, it was a most unforgiving highway. If you wanted to take a left turn, or turn around, you might go two to five km before an opportunity presented itself.

That evening, we went to Soriana—a large grocery chain in Mexico—in Playa del Carmen for a few goods. Playa del Carmen was a fairly progressive town for the area, sporting a Soriana, a Wal-Mart, and multiple fast food restaurants. I still hadn't converted dollars to pesos yet, but when I saw a cambio in the Soriana mall, I didn't do the exchange. I guess I had a moment of incredible non-lucidity, figuring that I could do better than 11.6 to 1. I should have changed money at the airport.

That night, most of us went for our first night snorkel. Later, Paul mentioned that something went wrong with his Sten light—probably due to the corrosive nature of salt water on the wire connections. My Underwater Kinetics flashlight performed admirably.

2010 November 21 — Sunday

Before the trip began, Peter had secured a project from the Quintana Roo Speleological Survey, QRSS, called Sistema Del Tercer Ojo. This survey had begun by a caver named Jim Coke who mapped the initial 370m. Our on-site contact was a really nice guy named Armando. Steps led into the cave, then it was immediately necessary to swim.

After initial searching for prior station points, Cyndie, Shane, Joe, and I went to the lake room to start our survey. Fátima and Carlos, who had joined us for this day of survey, assisted Peter and Paul.

The lake room was quite interesting—waist deep at the deepest with substantial roots from ceiling to water. Thus, the lake room was dubbed "El lago de las raíces." We had been told to avoid the roots as they caused itching, similar to Mala Mujer. In addition to roots, the lake room also had a skylight called the Venado entrance. Little fish loved to swarm a person. Although the fish didn't bite flesh, apparently the fish did nibble through Joe's waterproof bag, containing a camera flash, thereby compromising it’s waterproofness.

After survey, we stopped for a snack at Casa Cenote. I wasn't overly hungry, but since Paul wasn't feeling well, I received one of his chicken quesadillas. We then went for a snorkel in the Ocean just beyond the restaurant. This was an interesting experience because we swam near, and sometimes over, the interface between the ocean and the cenote. The current was minimal, but even if it hadn't been, the current pushed instead of pulled. The water from the cenote was warm! After we departed the ocean, Cyndie and Shane decided to enjoy the cenote, and they paid $20 pesos to go inside. That's just shy of two bucks—the price a cenote should cost!

Dinner was in Pueblo Akumal, on the non-beach side of the highway. The prices were much better than a beach restaurant; however, Peter noticed that even so, the prices had gone up since he had been there several weeks earlier. There were little stickers covering the original prices. Obviously, prices rise during tourist season.
That night, Joe and Paul photographed some of the creatures found in or near the cave. This included a scorpion and a tarantula. Cyndie was none-too-pleased that the photo shoot was occurring in the dorm room. While placing the critters in the refrigerator for 15 minutes slowed them, we were all entertained when the scorpion warmed and climbed up Paul’s glove. Perhaps Paul wasn’t as entertained.

2010 November 22 — Monday

Monday morning saw us at Casa Valentina to inquire about potential cave leads. Casa Valentina is a resort get-away, off the beaten track and really quite nice and comfortable. After some conversation, a date for ridge walking was finalize for Saturday. We then went back to Sistema Del Tercer Ojo.

This was our second day of mapping. Cyndie, Shane, and I again went to the lake room to continue our survey while Peter, Paul, and Joe went to a different area of the cave. Most of the survey beyond the lake room was dry, thus my wetsuit was rapidly becoming a liability. Eventually I ditched it. The cave was warm enough to survey in only my swim trunks, although I certainly looked a filthy savage at the end of the day. No problem—we went through water to get out. Due to the low crawl spaces (think Airmans cave), elbow pads would have been useful in this particular cave. Kneepads were, of course, essential. I was fairly wiped out from scurrying in these low, tight passages.

Dinner was at a place in Pueblo Akumal (not Playa Akumal) run by a nice couple of Canadians. I was finally able to exchange money next door to the restaurant for 11.5 to 1—about as good as I was going to get in this region. Cyndie, Shane, and I had margaritas. The margaritas were not cut with any sweetener, so each sip was akin to biting into a lime. I referred to it as a "taste explosion." Cyndie went to the bar to do something about this battery acid cocktail. The proprietor added a syrup sweetener to cut the acid, and that made all the difference.

Evenings in the room at CEA were fairly typical: someone would read the day’s survey data to Peter who typed it into Walls; I collated and sized images for Facebook that I posted each night; Joe and Paul photographed insects, spiders, or what have you. Having Wi-Fi on a caving trip shows a sign of the times. Some nights we had guacamole. Some nights we went for a snorkel. We quickly settled into an enjoyable routine.

The official length of Sistema del Tercer Ojos, as of this night, was 1490m. It was still growing!

2010 November 23 — Tuesday

Cyndie, Shane, Gil, and I continued survey in Sistema Del Tercer Ojo. Both groups entered the cave through an alternate dry entrance, which had us pass a pen, probably used for wild pigs. Peter jokingly suggested that the Alux’ob used it. An Alux (pronounced Aloosh; plural Alux’ob) are a type of Mayan sprite or spirit in the mythological tradition of certain Maya peoples from the Yucatán Peninsula and Guatemala. An Alux is a suggested to stand only 30 – 50 inches, having a furry body, and apparently like to steal your caving gear. I personally did not see an Alux this trip.

Gil, who founded an NSS chapter in this region (Gruta de Paamul), and who doesn’t wear a

Shane traversing Sistema Del Tercer Ojo; Joe’s camera in a waterproof bag
helmet while caving, seemed to enjoy scouting points for us. I switched from smart end to reading instru-
ments. (Shane: that really was the worst “50” I have ever seen—you even dotted the zero!)

Peter’s team finished surveying their part of the cave, but we didn’t finish ours. It was probably around this time that Joe and Paul contracted purple spots. I later received several of these purple spots, but not to the degree that they did. While the purple spots weren’t initially bothersome, Joe requested information from Will Harris who wrote:

"I did get a bunch of spots (over 50) while down there last year. After 3 or 4 days, they started itching. After a few more days, they started scabbing over and hurting a little while still itching. They finally started to heal after about a month, but the spots didn’t go away for several months."

After survey for the day was done, Gil directed us to a cenote near a house with a multitude of dogs. Although it was late in the day, we were still charged $30 pesos to see a small, rather uninteresting, cenote. Joe composed some photographs at the back of the cenote—Shane, who was in the water, said that it was fairly gross back there. Back at Akumal, we went for another night snorkel.

Peter, Paul, and I set out for a morning snorkel but were distracted by a very karstic coastline with tidal pools. There were interesting creatures, flotsam, coral, and even a few holes that acted as geysers as the waves rolled in. Photographic opportunities abounded, and I wished I had something better than a point-and-shoot.

Gil was waiting for us at Río Secreto when we arrived. Canadians had already mapped the first cave to which Gil brought us, so we didn’t bother to go in. The next cave that Gil wished to show us was tricky to find. We all did a bit of ridge walking—“jungle” style. Ridge walking, of course, yields new cave leads, and eventually someone happened upon a cenote with rather insistent bees. Having had several bad interactions with bees, I kept clear of that lead. This cenote might have been dubbed “Cenote Snake Pliskin,” except that Peter later determined that it was already name “Cenote Recovery,” named because a snorkeler died under the overhang. So, the name “Snake Pliskin” is still available if you have a cave to name.

We finally found Gil’s cave, which he had named Gruta Escondida de Tara, and we started mapping around 3 p.m. with the premise to stop at 6 p.m. for dinner. This cave was very, very nice containing decorations, an abundance of cave pearls, and much walking passage.

While surveying the cave, Gil suggested that we simply follow the road East to return to the highway rather than the longish drive we had done. He said there was a chain across the road, but normally it was down in the evenings. Although the sun had already set, sitting in the dark were a man and woman at the chain. Peter talked with the man—or rather listened to the man—for...
a good ten minutes before he finally let us through. The conversation, in Spanish, apparently dealt with us getting permission or going back.

We went to Playa del Carmen for dinner. Peter suggested a restaurant within a cave, and this seemed unique and fitting, so we all agreed. The place was named “Alux,” named after the aforementioned Mayan mythical creatures. As I descended into the restaurant, I soon realized that it was fairly posh, and I was hopelessly under dressed in post-caving attire. It was definitely the most expensive restaurant to which we went on this trip. Entrees were $280 pesos and up. After some consideration, it was decided that we would instead go to the bar for a drink; then we would find dinner elsewhere. Seated in the lounge on couches and beanbag chairs, a waiter gave us all bar menus. When the waiter hadn't returned after 15 minutes, we decided to skip the drink after all and find a different venue. It was an interesting place, to be sure, and I was glad to have seen it and snap some photos.

We tried a little restaurant across from a Zoomba gym, which added some flavor to our entertainment. Peter procured a few king-size bottles of beer from a nearby tienda. I had the chicken mole, the sauce of which was amazingly delicious! I do so much love good mole! The total price for my dinner, including a soda, was only $40 pesos! Plus, it was the best meal I had on the trip. This is one of the reasons I love Mexico.

Finally, we stopped at Soriana for a few more groceries including avocados and onion for guacamole. You simply must have guacamole while in Mexico! Joe picked up a few blank CD-Rs so that we could have alternate tunes from the sole Meatloaf CD Peter brought. There was a request for variety.

2010 November 25 — Thanksgiving!

We met Gil at his place in Paa-mul. He and his wife have a pretty tricked out palapa/mobile home there. After he and Peter discussed computer related caving things, we left to continue mapping Gil's cave, Gruta Escondida de Tara.

That evening, as I drove back to the highway along the non-chain-route, I nearly ran over a snake. I stopped the vehicle, drove in reverse, and uttered the single word: snake to appease the curiosity in the vehicle. Several peeps got out to take a look while I put on my flip-flops. As I approached the snake, Peter said, “someone should get a camera.” Fortunately, my cave pack was toward the top of the gear pile, so I was able to snap a few shots of the rather sizable snake before it slithered into the jungle. The snake was a Fer de Lance—the first (and only) that I have ever seen. I had heard that these snakes are dangerous, so I looked them up. The Internet (which is always reliable!) suggested that the Fer de Lance is the most dangerous snake of Central and South America, causing more human deaths than any other American reptile. Yesterday we were clomping through the jungle—it sure makes you think.

That night we ate in Puerto Adventuras. I had quesadillas with chicken.

Shane, Cyndie, and I went for a night snorkel. We saw: a lionfish, a parrotfish, a flounder, and a sting ray. How cool is that?

2010 November 26 — Friday

Friday morning I had some issues with one of my contact lenses. The left eye progressively got worse as I drove on. Finally, I tried a trick of which I had heard, but had never yet tried: put the lens in your mouth, then back in your eye. This actually worked pretty well, except that, shortly after, my eye started to burn. It must have been residual habanero from breakfast. I tossed the lens—the day would be a day with glasses.

At Playa del Carmen, Peter obtained permission to see
caves near an all terrain vehicle (ATV) tourist place. We drove to the ATV campus and met Gil there. The business model of this place is to explore a rather largish jungle estate and see certain destinations such as a cenote (we didn't see) and a cave (we did see) with a skylight, archeological “throne”, and lake room.

With the proper permission, the man onsite, Diego was very friendly and hospitable, giving us a map and telling us where things were. He said we could go anywhere we wanted as long as we were out of sight when the tour occurred, between 1:00 p.m. and 3:00 p.m.

Diego informed us that the caves in this area weren't named. I believe Peter called the overall area Sistema Kana Kiwi. We scouted a few smaller cave offerings, and then we decided to map the largish cave with skylight, throne, and lake room mentioned above. There was a large electric light, just inside the cave, undoubtedly to illuminate the lake room for the tour. I would have liked to see it in operation, but there was no battery when we went inside.

Peter's group surveyed the entrance area while our group started past the lake room. There was a lot of passage. Since our group was a little light on sketching paper, Cyndie erased some data already entered to free up paper. We had fun labeling our points with an “X”, using the Mayan “sh” sound. “What point am I at?” “sh-twelve.” I guess you had to be there.

Dinner was at “Tu Parador,” a restaurant that served bread instead of corn chips and salsa. A caver friend, Vickie Siegel, once told me that any restaurant that had paintings of the food they served painted on the side of the building would necessarily be good. The largish margaritas were in plastic tumblers—only one was needed. This restaurant was a little more upscale than some—a man took the napkins apart for us!—but the prices were reasonable. I had to admit that, although the ambiance and presentation was excellent, the food wasn't as delicious as the $40 peso mole I had two nights before.

Peter had heard that there was a cave entrance somewhere nearby, so he asked the owner of the restaurant about it. The owner told us he knew of the cave, and it was just a quick walk down the sidewalk. After dinner, we went in that direction to take a look. Our caving gear was still in the vehicle, so no one had a light, thus our search was ineffective. Still, we poked around anyway. It was at this time that a woman, apparently waiting for a bus, gave us the third degree regarding getting appropriate permissions, etc. She was a very officious, meddlesome, sour woman whose attitude brought me down.

2010 November 27 — Saturday

The decision was made that Gil would take several of us cavers back to Casa Valentina to meet a guide and ridge walk. I opted to go back to Sistema Del Tercer Ojo with Cyndie and Shane to mop up the remaining passage we hadn't finished. We thought this would take only a few hours, then we could do touristy things: Tulum to see ruins and/or cenotes for snorkeling. The cave, however, just wouldn't stop!—and it was all tight, twisty passage. We didn't finish our survey until 3:45 p.m., and then we hurried to get out of the cave. Needless to say, we never made it to the ruins at Tulum, and although we made a dash to hit a cenote, there were none to our liking in the immediate vicinity. One of the cenotes we checked, Labna-ha, cost $30 USD to do one
of the tours, or $70 USD for all three (snorkel, dry cave, and zip line). We balked at the tourist prices. Mexico isn't like it used to be.

Driving back to CEA in Akumal, we continued farther to see the bay beyond. We found the Yal-ku Lagoon, which was really quite beautiful with interesting sculptures. Having only 45 minutes before they closed, we asked if we could take a look at the cenote. The guy said we could, “but don’t go in the water.”

Our peeps had already returned when we arrived back at the room. They had seen six or so caves.

After a quick shower, I made an enormous batch of guacamole in the kitchen. Carlos, the accountant, was there frying fish in a curry-flavored oil. I shared some tequila with Carlos while we both prepared our food. After I was done making the guacamole, Carlos gave me a fish fillet to share with my group. His generosity was incredible! I invited him to join us for guacamole, and that he should bring the fish since my hands were full. When we reached the room, he invited the group to join him in his room where he added tortillas, rice, carrots, etc. to the fare. He put on some chill tunes, and we had a nice time munching and conversing.

My hunger was sated, but the rest of the group went to get tacos.

Toward the evening, I noticed that I was starting to get poison ivy. Foo. Little did I know what was coming.

2010 November 28 — Sunday

Peter, Paul, Joe, and I awoke much too early at 3:50 a.m., finished packing our gear, and then hit the road. Around Playa del Carmen, we were tapped ~$40 USD for not having the rear window visible. Of course, the officer only saw this after he had pulled us over—he was looking for an excuse. Originally, the officer wanted $3000 pesos, stating that the judge mandates this amount, but thankfully Peter was able to talk him down. This is just price of going to Mexico, I suppose; but I can't help but think that this is bad on many levels.

After dropping Peter and Paul at Terminal 2 of Cancun International, Joe and I drove down to Puerto Morelos for breakfast and to kill some time on the beach while waiting for our respective flights. I had huevos a la Mexicana once again, and it was good. I was a little unsure of the location of Easy Way Rent a Car, so Joe tried to get a Wi-Fi signal at different points within Puerto Morelos. Joe later showed me an E-mail that stated the data rate for his AT&T phone: $19.95 USD / MB while in Mexico. That is why we searched for Wi-Fi. He finally got a signal from a beach house. I was able to capture a few interesting pictures at the
beach before the rain started—then we headed back toward the airport. It turned out that Easy Way Rent a Car was very easy to find. One exit past the airport I recognized the nearby Pemex and turned in. I put only $50 pesos into the tank, which didn’t really raise the needle much, but the rental car guy didn’t charge us. He was a nice guy who didn’t speak English. There was no charge for a dirty vehicle either. He dropped us off at the airport where I made sure to get back the blank credit card slip I had signed when I rented the car. At the airport, Joe and I parted ways, at least for a few hours.

It turned out that Spirit Airlines doesn’t allow check-in until three hours before a flight, so I made my way to Starbucks for a grande coffee—$36 pesos. There was Wi-Fi, but I had no pressing need, so I sipped my coffee and fleshed out this trip report.

A few hours later, I checked my bags and passed through security. It is my general practice to bring an empty bottle through security so that I can fill it at a drinking fountain before getting on the flight. Oh yeah, I was in Mexico. I tossed my water bottle and decided to simply buy a liter on the other side. This was the MOST EXPENSIVE WATER I have ever bought in my life. $59 pesos. That’s a $5 USD liter of water. Dios mío!

The flight was rather uneventful (in my opinion, the best kind), and I slept for about 45 minutes. An hour later I was back in Florida, and a few hours after that I was back home.

**Post Trip**

On the downside, I contracted the worst case of poison ivy I have ever had. Some might remember my perpetual oozing/crusty pant-leg from my last Laguna de Sanchez trip. I would trade that episode for this one in a heartbeat. Still, I can’t complain too much. There is a saying, “you can’t make an omelet without breaking a few eggs.” Similarly, you can’t make huevos a la Mexicana without breaking a few eggs.

I asked Joe about the purple dots, and he stated:

“The doctor had some fancy name for them, and said they could be many things. Though, since I had no other symptoms, and everyone else got them, he says they are most likely bug bites. I have been calling them Mayan chiggers or the stay the f*** out of our caves curse. They are doing exactly as Will said they would and are quite annoying.”

**Conclusion**

It is unfortunate that border issues between the US and Mexico exist and have impacted caving, and tourism in general. Over the past several years I have gained not only an appreciation for Mexico, but also a certain fondness. Like many adventures to Mexico, this was rather unique and novel. I am happy to have gone, and I am thankful that cavers persevere despite obstacles.
Troop 366 Explores Caves of Colorado Bend State Park

Submitted By: Cole Greene; Star Scout, Stingrays Patrol Leader

On Saturday, January 8th of 2011, Troop 366(along with Mr. Mark Alman of the Texas Speleological Association) hailing from Denton, Texas, went camping at Colorado Bend State Park. It took an agonizingly long time to get to our destination at 4 hours. We found it to be entirely worth it.

Once we finally made it to the park, we basically set up camp and went to sleep. Psych! Many people sat up telling scary stories and jokes for hours. Thankfully, we weren't screaming like a bunch of Girl Scouts. Now to the interesting part.

The purpose of this camp out was to explore a few of the glorious caves that this park had in store for us. Before we did this, we chose to participate in a service project. What would we do, you ask. Well, we cleaned and cleared the Gorman Springs and Gorman Falls trails of trash and plants that made the trail obscure. We did this to help others enjoy the trail in the future as much as we did. First, we cleaned the trail along the springs. Surprisingly, we found only 3 pieces of trash!

Next, we sat down for lunch near the mouth of the trail at a small picnic area. We then walked the trail to Gorman Falls and found not a single piece of trash along it. We gazed and were amazed by the falls that seemed to have caves of its own. Cave time!

We spelunked in only two caves, but we found it to be time consuming and well worthwhile. We enjoyed both Turtle Shell Cave and Lemons Ranch Cave greatly. Many found entertainment in having everybody turn off their lights inside the caves. We also happened to stumble upon a few bats, which were each about 1 inch long.
Exhausted from caving, we returned to our campsite at the Cavers' Camp to relax for the afternoon. Sadly, we got reports of snow and very cold temperatures that night. It left us no choice but to come home that night.

We packed up in 20 minutes flat with 5 adults and 6 campers and were on our way at 7:00. We didn't get home 'till at least 11:00.
The year 2010 of the Government Canyon Karst Survey Project was characterized by the arrival of several dedicated new project members who were very helpful, along with the faithful old-timers, in finishing up some long term surface dig projects, working on leads in two promising caves – Lost Pothole and Dancing Fern, and in surveying and mapping caves.

A total of 8 trips were made to the State Natural Area in support of the project. During most of these trips teams were sent to work on karst feature digs. 14 features were investigated without finding caves. Several of these had started as promising looking sinks. One of these, feature 6-151, had been worked on during numerous trips and had intersected a bedding plane void that was fairly wide but only a few cm tall. The floor, however, was loose dirt fill and so several more trips were devoted to digging into this void to see if a larger space could be found. A lot of digging yielded a couple of meters of advance into a space with a few more cm of headroom. Unfortunately, the way ahead did not open up any further. Another meter+ of digging would be required to see further. There was no airflow and not much promise of ever getting into anything bigger so we quit.

Josh Rubenstein walked up on a feature close to 6-151 – a vertical hole in bedrock that had been dug on previously, but had been discounted as being too small to be able to work in effectively. Josh was with Leslie Bell and Christopher Francke and all three got excited by the feature and started digging. Leslie and Christopher came back for two more trips to dig on it. Leslie can fit down into the slight bell below the entrance but Christopher digs standing on his head. They still need to find the cave somewhere below.

Lost Pothole is a cave that was discovered in 1994, the first year of the project. It was surveyed once and then a resurvey was started in 2003 but never finished. Finally, during one of the 2009 Kerrville convention trips, a team went to the cave to finish the survey but there was too much to do and a limited amount of time. However, a new lead was found in the cave and worked on. This past year, in June, a team entered the cave, finished the survey up to the new lead, and started working on enlarging a narrow slot in solid rock that opens into what looks like the bottom of a dome-pit. There is good airflow through this hole. A trip this past December worked on the same objective without making much
headway. The lead remains!

Another cave with good airflow that finally started yielding some secrets is Dancing Fern Cave, the middle cave of the as yet unconnected Dancing System. Various trips over the years have tried to determine the source of the airflow. In 2007 I identified a possible digging lead but did not notice any air. When we finally started working on this lead in earnest during the March, 2010 trip there was strong airflow from the hole in the floor and I knew we had picked the right place. Several rock breaking trips have managed to open up a meter-long crawl space that then turns 90° to the left and, past some new obstructions, might open up some.

Trips were made to Goat Skull Cave and 10K Cave to clarify sketch details and maps were drawn of the caves. Ellie Watson surveyed Little Rocks Cave, along with Joe Scheartl, and drew the map. On the May trip Sam Viera and I surveyed Indian Cave, a small cave surveyed to 6.5 meters long and 2.6 deep.

Several things hold promise for 2011. A biological survey team found a vertical cave in a recently acquired area of the park. Caver access has been awaiting approval of a management plan for the area. There are rumors of a spring resurgence in a canyon close to the northern boundary of the park and a blowing crack on the southern slopes of Black Hill. These intriguing leads will be followed up in the near future. With increased participation we will also start systematically ridge-walking some of the thousands of acres still unwalked.

The 100th trip of the project will be happening in March. We will observe this milestone with a celebration of what has been accomplished and an anticipation of all the caves still waiting for us.
Below: Josh Rubenstein entering Lost Pothole

Jim Danner in Goat Skull Cave

Formations in Blacktail Cave

Below: Sam Viera in Indian Cave
Jogging The Gypsum—
Jester Cave Trip, February 12th.

Report by Mark Alman.
Photos by Brandi Hyre, Jennifer Sanford, and Mark Alman.

Participants: Trip leaders Diana Tomchick and Bill Steele, Andy Harris (COG), Brandi Alman, Jennifer Sanford, Mark Alman, Will Harris and other members of the Dallas/Ft. Worth Grotto, SMU Outdoor Club, Boy Scouts, the Canine Cavers (Mattie and Bandit), and a Cast of Dozens.

Initially, when I received Diana’s announcement about the DFWG’s annual trip to Jester Cave, I recalled the agonizing stoop walk section of Jester and my aching neck decided for me, “Nah, I think I’ll skip this one”. The last time we were at this cave was about five years ago, when my 17 year old daughter was much younger and much shorter and not as affected by the dreaded stoop passage as I was.

Then I got to thinking about how much fun my lovely daughter-in-law, Brandi, had leading the Girl Scouts caving at Colorado Bend State Park in January, along with her new-to-caving friend, Jennifer Sanford, who also helped at CBSP.

Leading the Girls Scouts that weekend was Jennifer’s first taste of caving and, I believe, it has taken hold big time. She now loves this stuff! She took particular delight in January in visiting Circurrina Cave, a damp, tight, and warm cave at the park and one that’s not very high on my “Must Visit” list. She must have the same genes as my friend, Gerry Geletzke, as he led all three trips into that cave that weekend.

So, Diana’s message was forwarded, rather than deleted. With an emphatic, “YES!”, from the ladies, plans were made to attend, after all. Reservations were made to “rough it” at the Best Western in Altus, gear was loaded, and off we went on Saturday, the 12th.

Fortunately, we were able to avoid a late night Friday drive, as the SMU Outdoor Club would be unable to make it to the cave until early Saturday afternoon. This made the trip a lot easier and cheaper, as we only needed one night in a motel. Besides, I’m a very poor late night driver and do much better in the early morning hours.

We made remarkable time and got to beautiful downtown Lone Wolf in 3.5 hours (Google stated it would take 5) and we had lunch at the new (and only) place in town for lunch. It was slow at first, but, I guess the locals say us eating and thought it must be safe, so it got rather busy shortly after we ordered. We took particular pleasure in counting the number of pickups versus cars in the parking lot. The ratio was about 15:1.

After enjoying a couple of delicious handmade burgers, we loaded up and headed to Quartz Mountain Lodge to rendezvous with the rest of our contingent.

Went caving and a parade broke out!
We met up with the folks listed to the left, except for the Boy Scout Troop. Bill had escorted them through the cave that morning, so he was lucky enough to be able to make not just one, but two through trips that day!

Waivers were signed, introductions were made, instructions were given by Diana and, after a stop by the owners house to drop off the waivers (see parade photo on left), we proceeded out to the empty ranchland where Jester lies.

For those that don’t know, Jester Cave is the second longest gypsum cave in the world, the longest being in Russia and a little difficult to measure. Jester is over six miles long and Andy Harris, a Central Oklahoma Grotto caver from OKC who joined us on this trip, has been instrumental in mapping and surveying this excellent cave. For those of you who have been to Parks Ranch Cave in NM, near Carlsbad, Jester is just like it, except bigger and longer. Parks
We were met at the gate to the property by Bill, who had hiked there after leading the Scouts through the cave. Our caravan crossed into the property and we headed back to the meadow where the parking was. We all disembarked and proceeded to gear up. Eventually, we all wondered, “Hey! Where’s Bill?!”. Sad to say, the last vehicle in had neglected to pick up Bill after entering the property and Bill closed the gate! We were about to go back and get him, and then we saw him dejectedly walking down the road towards us. He had made pretty good time, considering!

Bill shouted to me after getting back to his truck that he had Michael Cicherski’s helmet AND his $700 Scurion light in his truck and was wondering if I wanted to use it. “Hells, yeah!” I exclaimed and donned it. This worked out well, as my son had not supplied his lovely bride with his Princeton Tec Apex light and was about to use a Walmart special. I had two with me, so Jennifer used one and Brandi used the other and I was forced to use the Scurion. Thanks, Michael!

After another set of short instructions, Andy and Bill wanted to check out the spring to see how the water was flowing. SW OK has been in the middle of a pretty good drought, as illustrated by the low levels at the frozen over Lake Altus.

We travelled across the frozen tundra (or what seemed like it) around and through a couple of sink-
holes until we arrived at the spring. To get to the spring, we had to pretend we were hockey players, without the benefit of skates, and make our way across a frozen pool/pond in order to get where the spring seemed to emanate from a seemingly solid rock. Andy stated that the spring had been pushed but was too small to follow. Heck, I don’t see how anyone got into the football sized hole to begin with.

After posing for a gratuitous group shot, Bill and Andy decided that we would enter the cave via the Jesse James entrance, the exit on our last trip. Rumor has it that the James Gang hung around this part of Oklahoma for a while and Jesse, Frank, and the Boys used Jester for a hide out. Jesse is also reputed to have carved his name into the cave wall at this location, but I have never been able to find it and it has not been verified that it was his.

The Jesses James entrance, is quite spacious and makes the cave very easy to enter. We had to cross, yet again, another frozen pool before we were in a large entryway with a couple of skylights. One is so large, it could double as a second entrance. (Did I mention that this entire area almost resembles a golf ball, with depressions, pock marks, and sinkholes littering the entire area. May explain why it was never developed and left to the cattle).

On a previous trip with Bill and Diana and Pete Lindsley, we discovered mountain lion tracks not too far from this area. This is probably due to the myriad of entrances to this cave (over 60!) that make a good lair for many a critter.

Having posed for more pictures, we made our way across this impressive room and entered the cave proper. The temperature began to increase and, as it did, we began seeing cluster after cluster of hibernating bats, thankfully, WNS free, but the species eludes me.

Due to the size of our group, probably around two dozen, the caving lights and flashes disturbed the bats and they began to fly around. I thought experiencing “Bats in 3D!” was pretty cool, but, Brandi did not. Experiencing the bats flying around here was one thing. Actually flying right towards her face was not something she relished. Jennifer and I were relishing it!

Carefully moving through bat alley, we were amazed at the large colonies and how many of them there were. I didn’t remember seeing any five years ago, so this was a pleasant surprise to see so many in attendance and, apparently, thriving.

Jester is a relatively easy cave, broken up with dry area and intermittent water areas of varying depths. Longhorn Caverns or Honey Creek it is not. Some areas of water barely cover your shoes and others come up to your crotch, or higher, if you’re vertically challenged. Talk about exhilarating!

Diana and I were discussing what folks thought of when you mention this cave and the first thing that occurs to me was nigh upon us: The !@#$% Stoop

Our intrepid trip co-leader, Diana Tomchick, picking up the rear with yours truly, to insure I didn’t get lost!
Area! The ceiling height starts to decrease ever so slowly, so unless you’re a child, like Ed Goff’s daughter who accompanied us this weekend, you must endure contorting your body into an upside down capital L and walking for what seems like a mile. Going in and experiencing it right off the bat wasn’t too awfully terrible and the ceiling opens back up after several hundred yards. My vivid memories of this passage was probably due to the fact that we came out this way last time and I was tired and more than ready to exit the cave, only to have to endure THIS!

We got past this Chiropractor’s Delight until we encountered a nice soft sandbar that was also remarkably dry and decided to take a short break, as everyone else in front of us had stopped, too. More photography ensued.

Shortly after this area is the first of a couple large break down rooms. This first wasn’t too terribly difficult to traverse, as the stream passage veers to the left and you can avoid climbing over the slippery rocks, if you don’t mind getting your feet wet (or wetter). Since I was already wet, I just trudged through the water. By this time, our two canine caving companions, Mattie and Bandit, scarcely resembled dogs and appeared more closely to be some prehistoric inhabitants of the cave.
We continued down the water filled passages, discussing a variety of topics. The bats and graffiti had totally disappeared as we, apparently, were too far in for critters of the flying and vandalizing categories.

We came upon a very steep and mud slickened slope that appeared to have leads at the very top of the ridge. Several members of the SMU Outdoor Club quizzed Bill as to what lie beyond the tempting leads up yonder hill. Bill replied, as I am prone to do when leading youth groups caving is to state, “I don’t know. Go check it out!” We, obviously, only do this when we know no harm can befall the intrepid explorers if they happen to take a look.

Several of the college age cavers attempted to make it up the slope and some actually succeeded. The ones that didn’t make it up the slope also happened to be the ones who wore tennis shoes (!) on the trip. I guess they didn’t see the excellent message Diana sent out about the what to bring and not to bring on the trip.

About this time, I placed my pack on the ground to extract the camera and get off some group shots. I got several, but they were either too blurry, murky, or the breaths of all that were gathered obscured the image.

Bill and I shared a large bottle of Gatorade, while taking a break (they also make excellent pee bottles). I was sure to buy bottles beforehand in either red or blue flavors, in order to not get them confused with a “recycled” bottle, if you know what I mean. Imagine the horror of that!

After quenching his thirst, Bill began to serenade Bandit by howling into the dark. She was quick to pick up the tune and the two began howling into the void, much to everyone’s delight. It was very funny to watch, as I usually don’t cave with our dog. He’s too much of a homebody and a bit anti-social.

It also was about this time, I suspect, that my inattention to my cave pack was taken advantage of. I didn’t discover this until Sunday, but while I was enjoying the reverie on the slope and Bill and Bandit were harmonizing, that some lowdown prankster deposited two rather sizeable rocks into my pack. Feeling dirty and, somehow, violated I ran through my head Sunday about who could perform such a dastardly deed and came up with several suspects. Three have been ruled out, but, I will find you and exact me revenge!

(Note: In all seriousness, I thought that the gag was funny and don’t have a problem with this. Although

Mark (wearing Michael Cicherski’s Scurion light), Brandi, and Jennifer. Cold, wet, and tired, but we still had fun!
It took us quite a while to get across this area and soon after, we were met by a rather deep pool that we had to cross. The dogs seemed quite apprehensive and, maybe, tired by this point, so I grabbed one of them to transport across through the chilly pond and one of the girls grabbed the other pooch.

We finally caught up to the rest of the party and were greeted by a large crowd and a lot of whooping and hollering.

We had reached the Runaround Room.

This area is a sharp 90 degree angle passageway in the cave, with a sloping mud bank on the outer curve of the room and a fairly deep pool in the inner portion of the curve.

There are two ways past this point. The first, and preferable way, is to get a running start and leap onto the outer slope and run/jog across the muddy slope, thus, allowing centrifugal force to carry one through and out the curve. Most of the cavers made to around the curve OK, either completely dry or just getting their boots wet.

The second way, and least favorable, is getting a running start, but to either lack enough speed or to slip on the slope and into the water. Yours truly managed this technique. I got about halfway around the curve, lost speed and G’s, and went into the water.

Did I mention Jennifer was recording this the whole time? Hopefully, this will end up on YouTube at some point. We all got a good laugh and, since I was already wet an din the pool, I carried Jennifer and Brandi’s packs across so they could attempt the run. I also came back to continued videotaping and I’m happy to report that they made it around the dreaded pool OK.

We all reconnoitered after the curve and continued our trek. About this time, a chill was beginning to
On frozen pond, near the exit.

creep into the air. We discerned that we were getting near the exit and we also began seeing more clusters of hibernating bats again. We saw a lot more formations of the frozen water variety and exited the cave. Up a long slope we began our chilly trek back to the vehicles, with a setting sun and a breeze beginning to pick up.

The trucks were well over a mile away and, since we were at the back of the pack, we had to move fast in order to not lose sight of those in the lead. Dodging barbed wire and maneuvering around a few sinkholes, we got back to the trucks in the nick of time, as the sun had set and we were chilled to the bone. The girls piled into the back of the truck and I closed the topper lid. They proceeded to peel off their wet clothes as I scurried to the front of the truck and went to work as fast as a NASCAR pit crew, peeling off the cold wet clothes down to nada, bagging them, and finding and applying the warmest clothes out of my bag that I could manage to locate. I also had the truck running so we could pile into a heated cab. Man! That’s the coldest I’ve ever been caving!

About this time, the Backdoor Steakhouse in Blair, OK was sounding very inviting, indeed! We said good bye to the SMU folks, who were camping at the state park that night. Yikes! We then loaded up and headed into town. The Backdoor was very lively and busy and it took us a while to get seated and our orders placed. It is always a very good place to eat, but, is not known for speedy service.

We finished up, said our goodbyes and headed to our primitive hotel rooms in Altus.

One side note: About 2:30 AM, someone started banging on Jennifer and Brandi’s room and was trying to get in. They were obviously rattled and bolted the door, just in case. The confused and, more than likely, drunk patron finally gave up. We were amused at check out the next day when the clerk said they had a complaint about the lock on the girls’ door not working. We knew filed that complaint and said, “Yeah, they had the wrong room. Duh!”

We had a good laugh, a great breakfast (the Best Western is highly recommended and affordable and I’m not afraid to use my AARP discount!), great company, the girls had fun, and a great and safe trip!

All in all, a wonderful way to spend the weekend on a caving trip that almost wasn’t. Can’t wait to go again!

Two rocks and one pack. One culprit?
I feel so dirty and violated!

The End?
Honeycreek!

A montage of photos by Lori and Michael Harris from their February 5th trip.

The Shaft Entrance

Rick Corbell

Lori Harris
Lori Harris

The Creek Entrance
Carbon Dioxide and Low Oxygen in Texas Caves.
Submitted by Jerry Atkinson & Butch Fralia

Elevated CO2 is a common occurrence in Texas caves with the highest levels typically being found in caves developed in the Ellenburger or Austin Chalk formations. Both of these formations have low permeabilities, and it is conjectured that this impedes the ability of CO2, once it accumulates, to absorb back into the rock/water portion of the formation. That said, even caves developed in formations with higher permeability and/or restricted air flow may have elevated levels of CO2; usually not in amounts that cause physical distress.

As to the cause of high CO2 levels, there are several possibilities:

1.) microbial decomposition of organic matter
2.) excessive degassing of CO2 from formation water at the water/air interface
3.) degassing and/or breakdown of carbonates due to hypogene fluids moving up from depth (these fluids may be related to hydrocarbons or igneous activity)
4.) Excessive human respiration in restricted passages

Bill Elliott and Butch Fralia conducted oxygen (O2) and carbon dioxide (CO2) studies in several Texas caves and found that the amount O2 and CO2 in the cave air usually added up to approximately 21% of the total composition of the air no matter what the relative proportions of the two gases were. Normal air contains 20.9% O2 and 0.04% CO2 by volume. In caves with bad air, the CO2 typically displaces the O2 proportionately so that if CO2 levels approach 4%, then O2 levels are usually 17%. It should be noted that this relationship does not always apply!

To test for CO2, use the BIC lighter test that Butch Fralia published some years ago:

"I've followed the air quality measurement comments of the last few Digests with great interest. Over the last nine years I've participated in a volunteer cave research project at a Texas State Park. Of the 150+ caves on the park, the majority have some level of measurable CO2 accumulation ranging from detectable to deadly. Over the course of this project, the state has furnished air quality instruments for our use. One is an electronic oxygen meter and a Draeger device. Using these instruments, we've taken literally thousands of air quality measurements.

"The Draeger instrument was by far the most reliable. The problem with the Draeger is the high cost of the tubes, of which one is expended with each measurement and not reusable. The Oxygen meter has a probe that must be cleaned often and replaced about every three months. I don't know if later model instruments have this same problem. The oxygen meters are calibrated on the surface at 21% oxygen. It's easily knocked out of calibration while moving through tight passage areas.

"Unless a caver is involved in a research project such as the one on the state park, the cheapest and most reliable air quality instrument available is a BIC lighter. It can be obtained for about $0.97 at any convenience store and easily replaced when damaged or depleted. It's within the budgetary range of anyone who can afford to go caving in the first place. This may sound like a cop out to the folks who've offered all the fine advice on air quality instruments but......read on gentle caver!

"When caving in the Arbuckle Mountains, the BIC was the air quality instrument of choice though at the time, no one knew how reliable or accurate it was at the time. "During the course of the state park project, we became curious at what oxygen levels the lighter would start reacting. Using the instruments we set up a number of controlled experiments and verified them with a number of repetitions over several years with different brands.

"The lighter will start reacting at 19.5% oxygen. The flame changes color and a small gap will begin to be noticeable between the flame and the jet. At 18% oxygen, the flame will burn about 1 inch above the jet. At 17% oxygen, the lighter goes out and can not be relit. As mentioned earlier, these measurements were very repeatable and could be verified by anyone with the instruments to do so.

"In our tests, 99% of the time the oxygen was displaced by an equal amount of CO2, such that 17% oxygen = 4% CO2. This was not always the case! In two caves, the measurements were typically out of balance where the CO2 was 2% higher than indicated by the oxygen level. This was repeated over years of data! At the very least, when the lighter no longer burns, STOP!

"I should mention at this point that the physiological effects of bad air result from the CO2 rather than oxygen deprivation! Most cavers, unless they are asthmatic, can tolerate 17% [O2] without much difficulty; they will breathe heavier than normal for the amount of work being performed. At CO2 levels > 2%, the caver should cave slowly! Especially when climbing! High CO2 will result in a much higher rate of breathing, the skin will be flushed to pink, and you feel hotter than you'd expect in a 68 degree cave. Hallucination, panic and even passing out are typical reactions, especially when the CO2 level is greater than 4%. Coming back to the surface, headaches and even severe nausea may be experienced. This can be prevented by stopping in an area that has between 18% to 19% oxygen for at least 15 minutes before moving on to normal air. Those of us who smoke seem to be able to handle higher levels of CO2 than non-smokers since we're used to poor air quality anyway.

"If you can afford it and want to play, buy the Draeger for a reliable and accurate instrument, otherwise 'Flick you BIC!' (Fralia)"

http://thelances.org/hr3/badair.html
Girl Scouts Invade
Colorado Bend State Park,
Saturday, January 22nd!

Participants: Brandi Alman, Andrew Alman, Mark Alman, Wayne Hutchison, Lyndon Tiu, Gerry Geletzke, John McKee, and Jennifer Sanford

The TSA and the NSS—Working to promote cave education, conservation and safe caving!
Plus! On Rope - Gear adjustment and safety workshop Saturday, 5 - 7 pm by David Ochel

This is for everybody who owns vertical gear. Do you feel you are lacking efficiency when climbing on rope? Do you have basic knowledge on how to get up and down a rope, but you never learned (or have forgotten) about basic safety protocols and precautions? Do you have particular questions about aspects of single rope technique or pieces of your vertical kit? This will be a loosely structured workshop, based on participants’ needs and interest. The objective is to review whatever questions you might have, with the goal of improving the overall safety awareness and competency of Texas' vertical caving community. Bring your own gear - we will aim to have ropes set up for gear adjustment and review of techniques, but this is *not* an introduction to vertical caving for those who have never been on rope. (Ask your local Grotto for such training opportunities.)
A Cave Conservation and Restoration Workshop
at
Cave Without a Name
Boerne, Texas
April 9 & 10, 2011

Cave damage, whether unintentional or malicious in nature, degrades the beauty of the underground world. Some damage can be undone through restoration and repair. Join Cave Conservation Specialists Jim Werker and Val Hildreth-Werker in a two day workshop focusing on conservation, restoration, and speleothem repair. Learn do-no-harm techniques and experience hands-on satisfaction as you see previously hidden areas of the beautiful cave re-emerge.

Cave Restoration Workshop Details

- Check in starts 9:00 am Saturday at Cave Without a Name.
- Workshop hours - 9:30 am to 5:00 pm Saturday, and 9:00 am- noon Sunday.
- Camping available on site.
- Please bring any clean restoration tools you have (new sponges, buckets, scrub brushes, vinyl or latex gloves, knee pads, spray bottles, restoration pressure sprayers, plastic or nylon scrapers for mud on flowstone, etc.
- Please observe WNS decontamination procedures on all personal gear and resto gear.
- Workshop limited to first 25 people.

For additional information and registration, contact Linda at lindacaveworkshop@gmail.com or call 210 699 1388.

Suggested donation $10.00