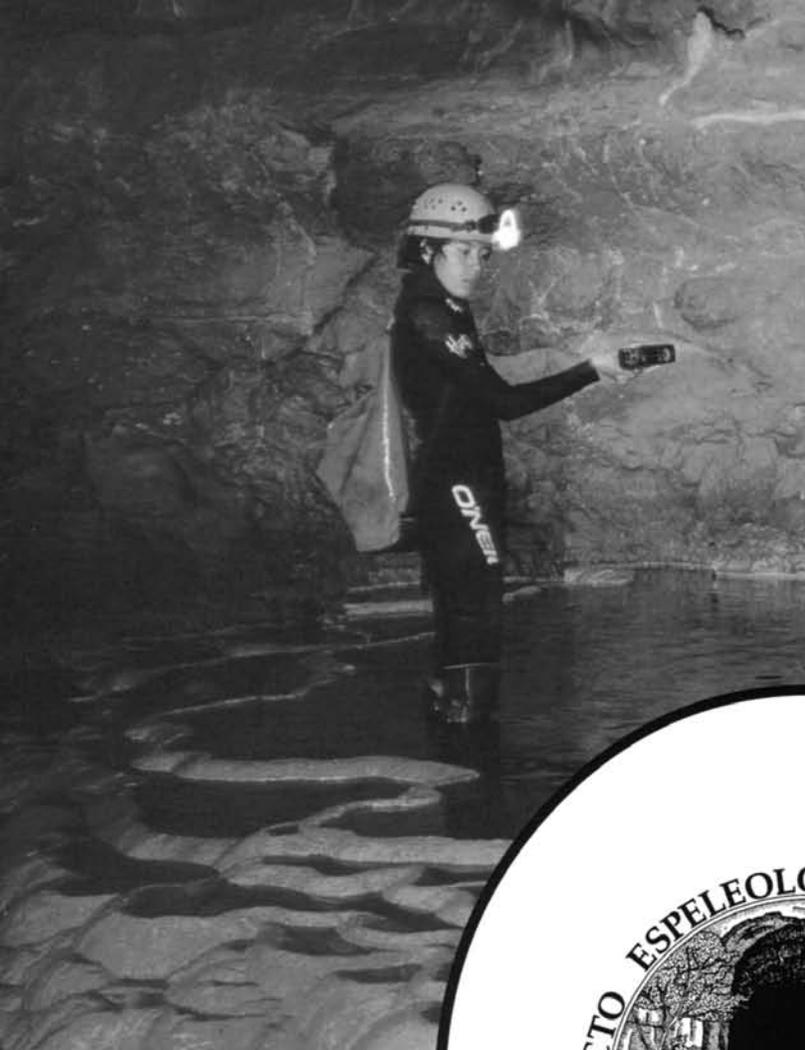
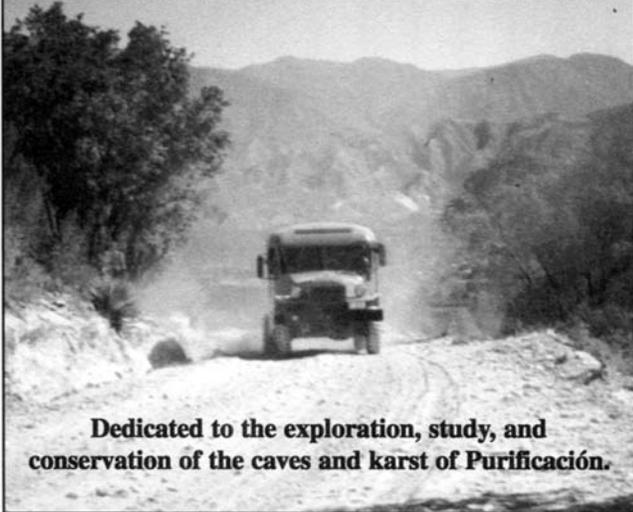




**THE DEATH CORAL CAVER**  
**NUMBER 10** **OCTOBER 2000**



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**Dedicated to the exploration, study, and conservation of the caves and karst of Purificación.**

The Orange Bus

Photo by B. Luke

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*The Death Coral Caver* is published by the Proyecto Espeleológico Purificación, a non-profit organization incorporated in the State of Texas. The PEP is dedicated to the study and exploration of the caves and karst of the Purificación Karst Region in the states of Nuevo León and Tamaulipas, Mexico. Articles from *The Death Coral Caver* may be reprinted in other not-for-profit publications with proper attribution. Any material relating to the Purificación karst is welcomed for publication. Membership in the PEP is available to interested individuals who share the project's goals of careful caving. Annual dues are \$15 per individuals. Corporate rate or institutional membership is \$100 for a 5 year term. Members will receive newsletters as they are published and may vote in elections of the Board of Directors.

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**Editorial Comment:** *The Death Coral Caver* is now in its tenth year, and with the change in editorial staff that occurred with issue number 9, a greater emphasis will be made to publish the PEP publication with more strict deadlines. With the greater amount of material which PEP has been receiving in the past year, and the increased rate of project cartography, PEP will strive to produce two issues (October and April) of the *The Death Coral Caver* in those years which warrant more than one issue. Because of this greater emphasis on publication, any material for the October edition must be submitted by September 1st, and any material for the April edition must be submitted by March 1st. These deadlines will enable us to produce a publication on a more reliable time scale. Any information submitted late will be added to the next edition.

Kevin W. Stafford

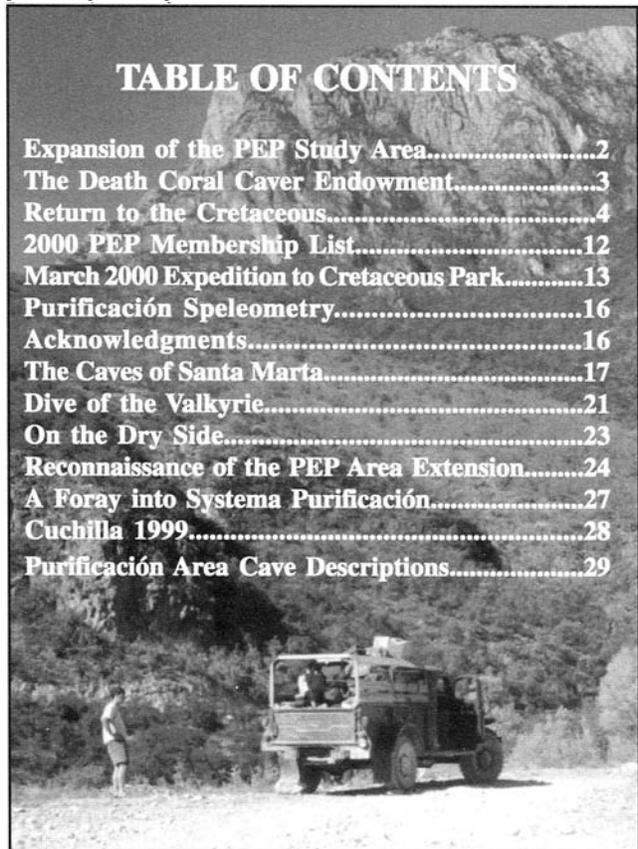
**Front Cover:** Beverley Shade negotiates the Chevron Drop in Sotano de Cuchilla, Tamaulipas. 1999 photo by Bill Stone.

**Inside Cover:** (clockwise from top left) Xochitl de la Rosa illuminates the Río Verde in Sistema Purificación, Conrado Castillo, Tamaulipas, Charlie Savvas free-climbs a trash plug in Pozo de las Pantaletas, Santa Marta de Arriba, Nuevo León, Gustavo Vela surveys in Upper Suchomimus, El Niño, Nuevo León, and Aldo Guevara descends Pozo Adrenalina, Santa Marta de Arriba, Nuevo León. 1999 photos by Barbara Luke and Peter Sprouse.

**Back Cover:** Barbara Luke rappels past a flowstone wall in Sumidero Tiranosaurio Rex, El Niño, Nuevo León. 1999 photo by Nancy Pistole.

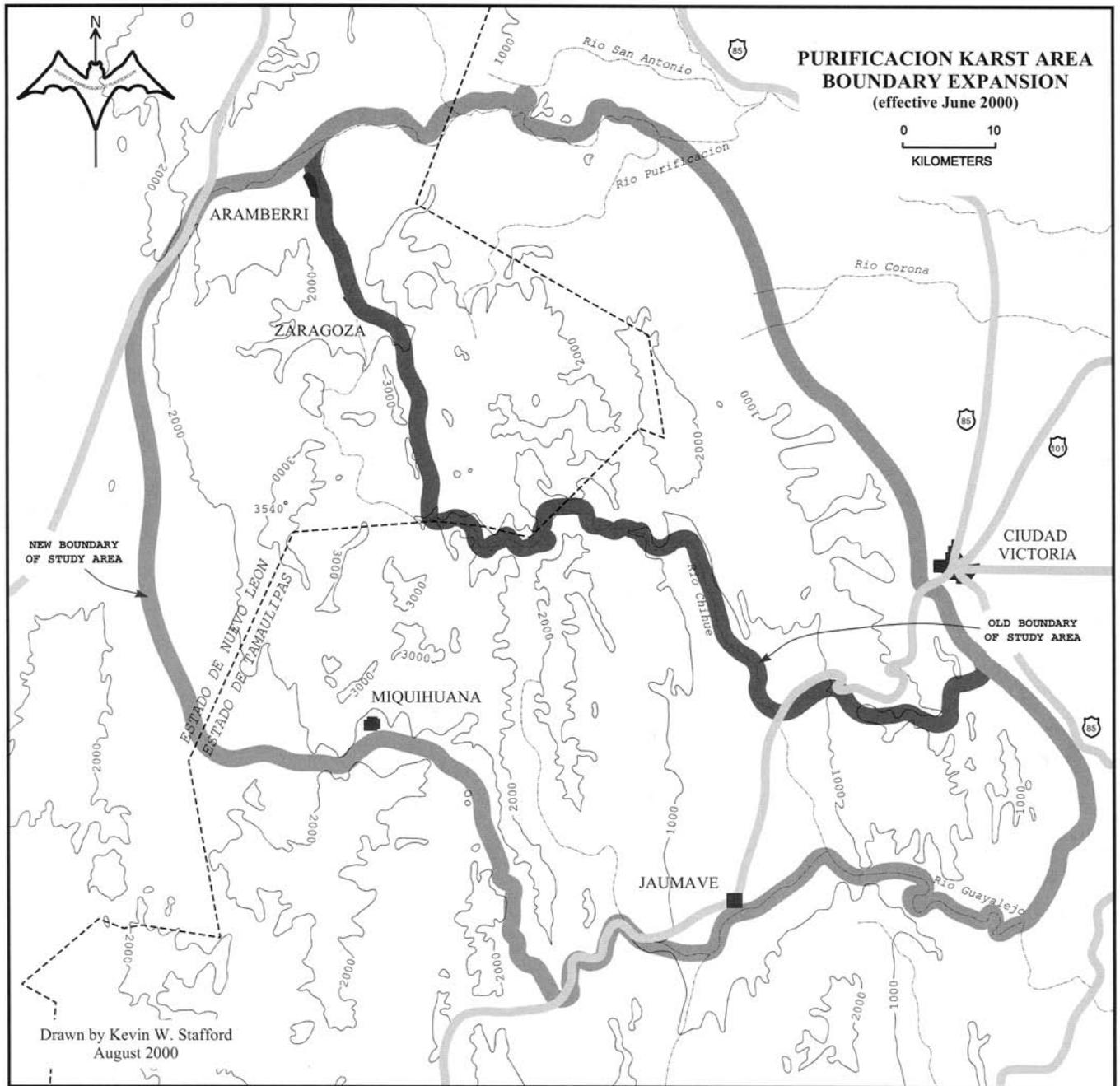
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The Green Truck.

Photo by B. Luke



## Expansion of the PEP Study Area

By Peter Sprouse and Kevin W. Stafford

The study area encompassed by the Proyecto Espeleológico Purificación was initially delineated by William Russell and Peter Sprouse in the early 1980's. The goal was to identify the theoretical limits of groundwater travel, and by extension, cave system development. To do this we looked at the current extent of the known cave systems, the distribution of limestone outcrops, and major surface drainages that would tend to cause groundwater to resurge.

A lot has happened in the 20 years since. Mapping has increased the known length of many caves, and the number of known caves in the project is now over 600. Our current knowledge and postulations of the area hydrology give us

reason to look beyond the study area boundaries in several directions. The eastern boundary, the coastal plain, and northern boundary, the Río Blanco, still make sense. To the south and west is where the project boundaries have been extended. These boundaries have been defined by major regional geological and geographical features in hopes of incorporating additional speculated resurgence and insurgence points that are associated with the old study area.

The southern limit of the PEP study area has been extended to the Río Guayalejo, a major surface drainage that presumably blocks crossover of subsurface drainage by creating a hydrologic low point, causing groundwater to emerge as

springs. There in fact, are a number of known springs in the Guayalejo Canyon, though somewhat inconveniently they seem to be coming from the south side of the canyon, suggesting an origin in the El Cielo range. Nevertheless there are reasons to suspect that the old southern boundary of the project did not represent a limit to groundwater flow. The discovery of a major streamway in Ojo Encantado and the existence of presumed aquifer pools in Sótano de San Marcos suggests we need to look down-range to the south for resurgences. None have been found in the old area boundary, Huisachal Canyon, indicating that groundwater keeps flowing farther south down the range.

In the western part of the PEP area, the last few years have seen a lot of exploration in the area around Cerro el Viejo. The shale contact zone known informally as Cretaceous Park has yielded a number of spectacular caves, including Nuevo León's longest, Sistema Cretacico. The project's increased activity in that area has formed a closer cooperation with the municipal authorities in Zaragoza. Our own interest in the Zaragoza area, as well as our commitment to provide information on the caves of the municipality to the local government made it logical to go ahead and expand the project to the west of Peña Nevada to the central plateau.

*El área de estudio del Proyecto Espeleológico Purificación, la cual fue delineada en 1980, ya se ha extendido al sur y al oeste para incluir los poblados de Jaumave, Miquihuana, y La Escondida. Esta expansión es debido a los pasados 20 años de exploración, lo cual ya indica que la cuenca subterránea de la zona es más grande de lo que pensaron anteriormente. La expansión al oeste es un resultado de trabajos con el gobierno municipal de Zaragoza, NL. Esta expansión tendrá efectos científicos y políticos importantes al proyecto*

The new boundaries reach to the towns of Jaumave, Miquihuana, and La Escondida.

This expansion will have far reaching effects for the future of the PEP, requiring more intense activity within the project in order to maintain the current level of exploration within the old study area while expanding exploration into the new regions. However, the rewards are limitless as we gain more knowledge about the karst region, whether it is in the field of geology, hydrology, or biology. This will undoubtedly include the addition of new biological species and increase our knowledge of the distribution of previously known ones. It will add a more detailed understanding of the geological history and development in the area as more data is gathered on the stratigraphy, lithology, and structure within this portion of the Sierra Madre. It will enhance our knowledge of the hydrologic systems within the area, enabling us to better evaluate the flow patterns and watersheds, which provide water for many small and large communities in the states of Nuevo León and Tamaulipas. Already several trips in summer 2000 have investigated the potential in the high karst at elevations over 3000 meters to the south of Zaragoza, and work has begun on the gypsum pits north of Zaragoza.

## The Death Coral Caver Endowment

In order to celebrate the tenth anniversary of the Death Coral Caver, the PEP board of directors has initiated a fund raising drive which, if successful, will **permanently** fund the Death Coral Caver.

Gifts to this fund will never be spent. Instead, the PEP board of directors will use the interest that this money generates to pay for the Death Coral Caver. Your gift to this fund will continue to give to PEP for years to come.

Even beyond funding the Death Coral Caver, your gift is extremely important as we approach foundations to ask them for larger gifts. Foundations use internal giving as a measure of confidence when the time comes for them to make grant decisions. In this arena, the amount of your gift is less important than how often you give, so please seriously consider giving some amount.

The Death Coral Caver serves so many purposes. First, it informs our members of all of the great caving that is going on in the area. Second, it serves as tangible evidence of all the hard work that we put into the project. Next, it serves as our calling card both in Mexico and the United States, whether we are contacting foundations, environmental organizations, governmental organizations or people who live in the PEP area.

This campaign ends in December, but please give now. Remember, a \$500 gift gets you a lifetime membership in PEP. If just 20 members could give at this level, we would meet our goal. If you cannot give at this level, please give something. All gifts will receive an added bonus, such as a special anniversary T-shirt or a framed photo of the Infernillo entrance. Gifts are tax deductible. Also, please ask if your company matches charitable donations.

Checks should be made out to PEP along with a notation in the lower left corner indicating that the check is for the Death Coral Caver Endowment.

Mail Checks to:  
Proyecto Espeleológico Purificación  
P.O. Box 8424  
Austin TX 78713

# Return to the Cretaceous: A PEP Millenium Expedition

by Barbara Luke

*At three weeks, this was the longest PEP expedition in recent history. We returned to the fantastic and scenic Cretaceous Park area, which in the previous year yielded the best finds in recent memory for the project, leaving the promise of much more to come.*

## Participants:

**USA** (California, Colorado, Nevada, and Texas): Danielle Bilyeu, Jubal Grubb, Susie Lasko, Barbara Luke, Pat Malone, Matt Oliphant, Nancy Pistole, Charley Savvas, Scott Scheibner, Bev Shade, Peter Sprouse, Kevin Stafford, Cyndie Walck, Cathy Winfrey

**Canada** (Alberta and British Columbia): Dan Green, Bill “Carlos” Nasby

**Mexico** (Mexico City): Laura Rosales Lagarde, Jose Antonio Soriano, Gustavo “Gusa” Vela

**Australia:** Heidi Macklin, Liam Town

Most of our boisterous group of twenty-one converged at the Casa de Huespedes in Zaragoza, N.L. on Saturday night, December 19, 1999. Many of us caravanned from South Austin in Peter’s Trooper, Kevin’s Chevrolet pickup, Charley’s bright orange vintage Dodge Power Wagon bus, and a new addition to the Caver Power-Wagon family, Carlos’ newly refurbished 1955 bright green truck that he had driven all the way down from Vancouver Island. I rode down separately with Cathy in her rusty Toyota pickup, and the folks from Mexico City came up by bus. Bev’s truck was not due in for a few more days, because its driver had yet to finish final exams.

Alas, the caravan was wrought asunder en route. Kevin was stopped at the border with a paperwork problem, and was left behind to wait until Monday to rectify it. Farther on, the bus hit an obstacle in the road, which caused damage necessitating a side trip to Matehuala for repairs – these folks turned up in Zaragoza sometime in the night. Close to the destination, Carlos and his passengers set out on a cross-country “shortcut” from the main highway that turned out to be a four-hour adventure in itself. Cathy and I didn’t even stop in Zaragoza when we hit town on Saturday afternoon. Believing that the rest were ahead of us, we drove on up the mountain. When we reached La Escondida, the residents told us that we were first up the mountain, so we returned to town to find our friends regrouping and shopping on the square.

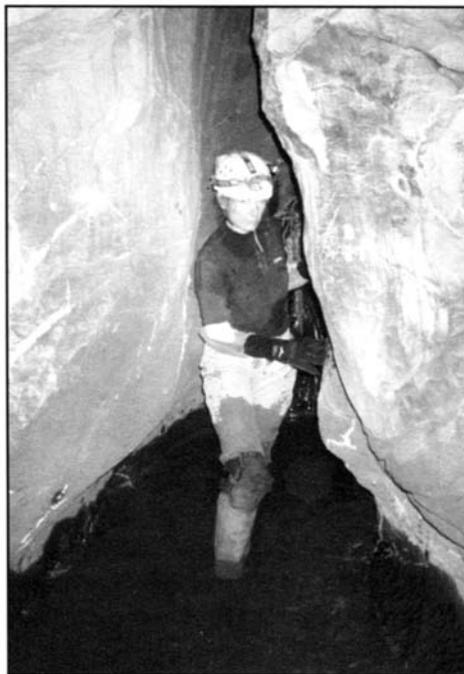
After a leisurely trip up on Sunday, we arrived at the campsite just about dark. Carlos’ brakes went out, but he was able to make it to camp at Paso del Niño without them. We set up camp at the same spot as last year. This is my favorite campsite in the PEP area – high on a shale ridge on the flanks of El Niño which lies between the

spectacular cliffs and massive bulk of its “family,” El Viejo and La Vieja, with the Infierno Canyon snaking away below. Water is accessible along the side of the road, a short drive away. The microclimate here is favorable, too: just like last year, we had lots of wonderful sunny weather, with some winds and fog. The once-familiar parrots were absent – possibly having succumbed to a well-intentioned program to increase their population in captivity. One of the perverse pleasures I took in the site was the fact that most of the caves are downhill and reached by a steep trail, necessitating a good, hard calf-burning climb back to camp at the end of each day.

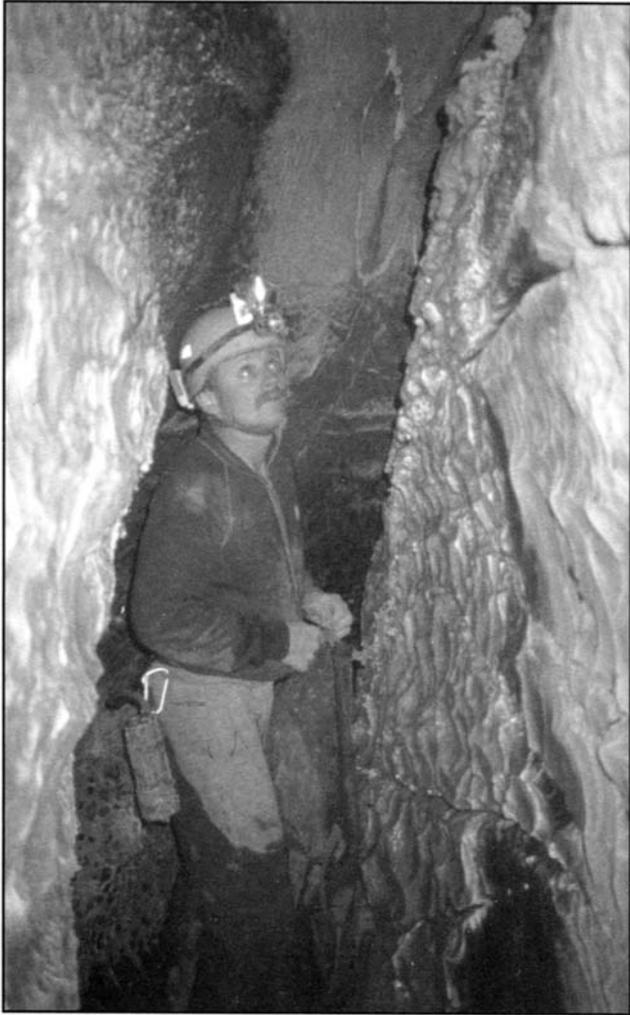
Our goals for the expedition were many: to push a digging lead at the bottom of Sumidero Suchomimus, the cave that yielded the most passage in last year’s expedition; to continue exploration of Cueva de las Calceñas Rosas, which was left in large, going passage the previous year; to explore several other promising entrances and leads left from last year; to follow local guides to some pits they had discovered up on El Niño and out in the valley; to continue ridge walking, particularly along the shale-limestone contact that had already yielded fantastic results; and to continue exploration of Cueva Tiranosaurio Rex, the big find that came at the end of last year’s expedition. This cave has a huge entrance with many side leads, and had been tantalizing us in our dreams all year as the start of a great new system.

Monday was the first day for caving. Peter handed out photocopied maps, which consisted of a computer plot of known caves, paths, and roads superimposed on a scanned topographic map enlargement.

Carlos took Nancy to Pozo Plesosaurio, a pit entrance at the bottom of the valley just below our home base. This entrance had been explored



Pat Malone in Pozo Plesosaurio.  
Photo by B. Luke



Bill 'Carlos' Nasby checks a lead in Upper Suchomimus  
Photo by N. Pistole

last year, and looked like a promising dig. They managed to open it up, and found plenty of going passage on the other side of the restriction.

Charley took Jubal, Laura, and Dan to Cueva Jalea, which is also close to camp. The intention was to dig open a constriction that ended exploration last year, but Laura was able to work her way past without digging. She found a room on the other side with no air and no significant digging potential, so the exploration of that cave was considered finished.

The great Sumidero Suchomimus was visited by Soriano, Gusa, and Liam. They rigged the upper entrance series, as well as the 80-meter entrance pit.

I joined Peter, Susie, Scott, Cyndie, Pat, and Matt for the return to T-Rex. This cave was explored just beyond its large entrance room at the end of last year's expedition. A pit series led away from the back of the large entrance chamber, with the enticing sound of running water in the distance below. Peter and Matt went ahead to rig, while the rest of us surveyed behind them and took photos. We pushed the cave down five pitches to about 220 meters in length, stopping for the day at a gravel-floored crawlway that continued on with air. Along the way, we had seen some nice flowstone falls and one large room. Passages at the bottom of the cave

were walled with long, steep, silt-covered slopes. The silt piles yielded schizomids, the first of these arachnids found in Cretaceous Park, likely a new species. At many locations (and, we would find, in other caves in the area), we would see affixed to the walls tiny mud sculptures shaped like ollas, which are spherical vases with narrow necks. We understood these delicate and beautiful features to be "cocoon" for the ubiquitous blue centipedes, although no positive proof was ever obtained. Including the hike from camp, which took 1.5 hours one way, our group had a long day, returning to camp at about 3 a.m.

Tuesday: Bev arrived overnight, with Danielle and Heidi, ready to go caving. Kevin arrived too, later in the day, having straightened out his paperwork snafu.

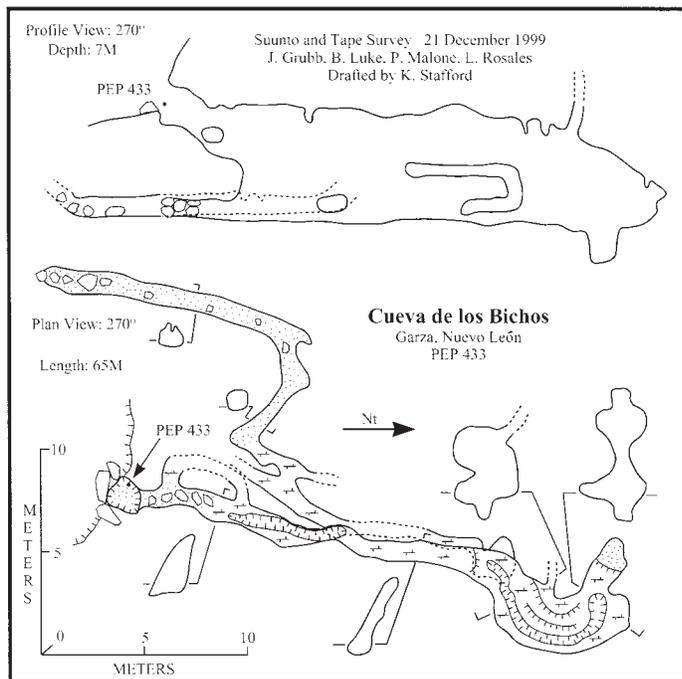
Danielle joined Soriano and Gustavo to continue rigging in Suchomimus. They reached the top of the Jungle Gym.

Carlos, Nancy, Dan, and Pat headed to Plesosaurio to explore and map. They spent the day making 1 to 2-meter long shots in sinuous canyon passage, stopping after about 300 meters when they arrived at the top of a narrow pit.

Heidi joined Peter in a surface walkabout, which netted six blowing holes that would require digging. I joined a team with Laura, Jubal, and Pat to survey a cave Peter had found in a sink the previous year, to the northeast just over the saddle from our camp. We found a steeply dipping fissure cave about ten meters long that ended in a round room with a pool. A single hands-and-knees passage at the bottom led toward the center of the sink but ended in a boulder choke.



Cyndie Walck navigates a drop in Lower T. Rex  
Photo by P. Sprouse



This bug-filled cave was named Cueva de los Bichos. Pat took the opportunity to sketch her first PEP cave.

On Wednesday, the fog set in.

Carlos, Pat, and Dan enticed Danielle to join them to dig the upstream lead near the entrance of Plesosaurio. It led back to within voice contact of the surface in the arroyo sink.

With Kevin back in the picture, it was time for a return to the schizophrenic cave system known by most of us as Pink Socks (Calcetinas Rosas) but by its intrepid explorers as Satan's Parallel Bedlam. The system had been pushed 223 meters deep the previous year by the aggressive team of Kevin, Charley, and Christie Rogers. This time around, Charley and Kevin invited Matt and Heidi along. The team returned happily after a very long day at the end of which they ran out of rope. In the survey notes next to the last station for the day, Charley wrote, "Cave Kicks Ass!" Charley declared it the best passage he had ever seen, although I believe I've heard him say the same before and since. The cave contained pitch after pitch of large, clean-washed and scalloped passage, and was, indeed, fantastic.

I returned to T-Rex along with Cyndie, Bev, Gusa, Laura, and Scott. Sadly, the push team of Cyndie, Bev and Gusa finished the cave. The sinuous passage at the bottom of the cave continued shrinking to the point where even Bev, who is famous for squeezing herself into spaces that would make smaller people cringe, found it to be too grim. At the end, she got so wedged that Gusa had to pull her out. Although the deep lead had defeated us, plenty of mapping and mopping up remained to be done. The entrance room has a huge honeycomb of interconnecting passages off of both sides,

which Scott, Laura, and I worked on without finishing. Our favorite passage name for the day was the Sala de la Rana Morada Enamorada, which translates to the less musical English version, Purple-Frog-in-Love Room.

Peter, Susie, Liam, and Jubal went to upper Suchomimus. They worked on an aid climb in Idionycteris Canyon, bagging it after one-and-a-half pitches showed that it was continuing up quite far. Next, they headed to Plethodon Canyon, to push a pair of short climbing leads left from last year. One direction was pushed and mapped to a pinch. The other led to a flowstone constriction that was too small to pass, that "howled air." Liam had trouble-placing flagging at the last station because the wind would pull it out of his hands.

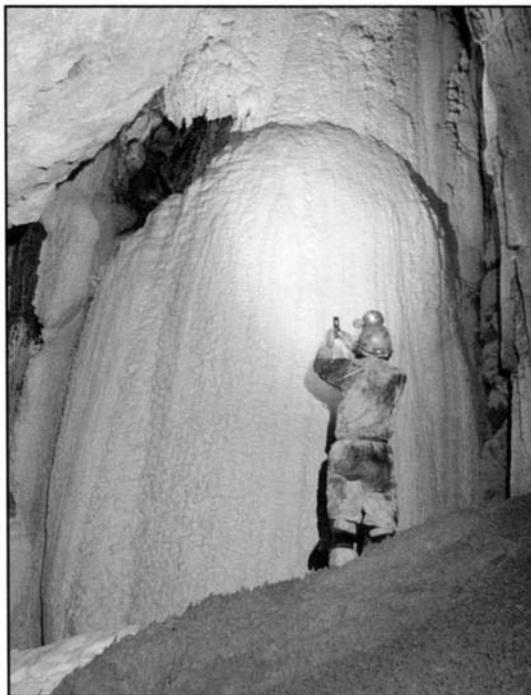
Thursday was a rest day for most. The fog came in even thicker. Bev and Danielle did a little digging on a blowing sink near camp, with unremarkable results. Mostly, it was a quiet day.

The die-hard Plesosaurio crew of Carlos, Nancy, and Pat was the exception to the rule. They got an early start, which in our crowd means that they got out of camp by noon, and dropped the pit they had found on Tuesday.

This led to a visual tie-in to Liam's passage in Upper Suchomimus. Pozo Plesosaurio had now been swallowed up into the greater system started with Sumidero Suchomimus – now named Sistema Cretacico. Considerable length and depth were now added to the system.

On Friday, it was still damp. This was a big day for us in Suchomimus and Satan's Parallel Bedlam. Two teams went to each of the two caves.

In upper Suchomimus, Bev, Liam, and Dan went to survey the tie-in with Plesosaurio and explore an upper fossil passage lead. They found walking passage beyond a low crawl area, which continued beyond the end of their survey. They came to a drop that led back down to the main passage, which they left rigged for easier access.



Matt Oliphant illuminates the flowstone mounds in T. Rex.  
Photo by P. Sprouse

They followed it about 80 meters along a narrow passage where neither roof nor floor was visible, which made for a very simple profile sketch. The lead

ended in a boulder choke, probably near the ground surface. We climbed down to the floor, and found ourselves in last year's survey, for a survey tie-in and easy walking passage back to the entrance drops.

In Satan's Parallel Bedlam, Peter, Susie, Cyndie, and Gusa went to the upper part of the cave to recheck some old survey and survey a loop. Charley, Kevin, Heidi, and Matt went deep again, pushing the continuing pit series. Heidi had a mishap when she lost control of her rappel device at a rebelay and slipped quickly down to the next bolt. At the bottom of the rope loop, her pack grazed a ledge, but fortunately her body didn't touch. This drop became known as "Heidi Falls." The team bottomed out the pit series, after fourteen rope drops (containing countless rebelay and deviations), and surveyed a ways down a large, horizontal trunk passage with a gently flowing stream. A "short" recon ahead told them that there was plenty more for several teams to do. The team returned to camp the following morning, in daylight. Upon plotting the notes, it



Matt Oliphant checks the entrance chamber of T. Rex

Photo by P. Sprouse

looked as if the cave might go through to a resurgence in a feeder canyon to Infierno. We toyed with the idea of trying to find its ending from the surface, but then recalled the lesson from last year's canyon recon; that we should be respectful of the deep, sharply incised, cliff-walled canyon full of shadow, *cold* water, and the occasional dead and bloated pig.

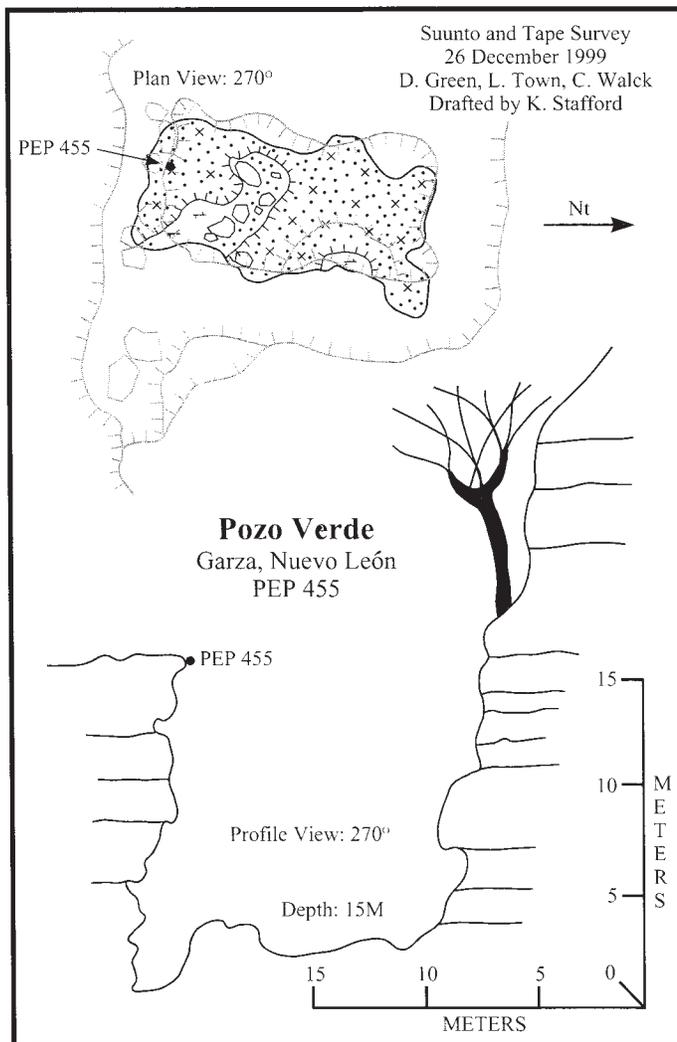
The Plesosaurio project continued with Nancy, Pat, and Cathy returning to do mop-up survey near the entrance. This was Cathy's first time on rope in quite awhile, and all went well.

Saturday, Christmas morning, dawned foggy. I got up fairly early. Outside my tent, a pink apparition materialized from the soupy air. It was a line strung with pink socks. In my groggy state, it took awhile to sink in that these were not just any pink socks, they were pink Christmas Stockings, one for each of us. Susie Claus had struck, with goodies for all. By the time I got up, Carlos had already put on his pink socks and laced his boots with the pretty blue cord that was stuffed inside. For the rest of the trip, we would see many pairs of pink socks protruding from boots and through sandals, and turning gradually to brown with the rest of our clothes.

We all took the day off from caving on Christmas, though most folks went ridge walking. Dan found a beautiful pit near Cueva de la Milpa de Maiz, which is quite close to camp. I had walked that valley the previous year without finding anything remarkable; this pit was off to the side of the valley and well camouflaged with vegetation, as evidenced by the impressive collection of lacerations Dan collected on his pink-socked legs.

Christmas evening we enjoyed a wonderful potluck dinner with contributions from everyone, and great music afterwards – thanks to Peter, Carlos, and Susie.

On Sunday and Monday, Peter, Susie, Cathy, and Liam all left the expedition for other places. The rest of us got back down to work – er, caving. Kevin took over managing survey notes and data, and generally coordinating the



expedition, and did a fantastic job. We had only just this year reached the point where cavers had cell phones on the mountain, and Kevin was able to check in with Peter periodically to compare notes and brag about our discoveries. (He would later regret the cell phone, after receiving a bill for \$400, but at the time it seemed like a great use for the technology.)

On Boxing Day, Dan, Liam, and Cyndie took off loaded for bear to do Pozo Verde, the new pit Dan had found near Cueva Milpa de Maiz. It turned out to be a shallow, blind feature. Although they didn't get the bear, they did find an articulated cow skeleton on the bottom.

The rest of us went to Sistema Cretacico.

Pat, Carlos, and Nancy went back to Plesosaurio one last time, to do more survey cleanup near the entrance.

Charley, Bev, Laura, and Jubal headed off to the bottom of Suchomimus to work on the promising dig lead that had been waiting for us since last year. They made good progress, but did not get through.

I joined Danielle, Scott and Gusa to explore some leads in Plethodon Canyon (Upper Suchomimus). By now we could recognize distinctive features of the system: massive limestone veined with white calcite, carved into narrow, sinuous canyons bottomed in ankle-deep streams, with nearly horizontal passages punctuated occasionally by vertical pitches. Today, we followed the tracks of Bev's team to a lead they left at the top of the rope at station 180. We climbed ten meters to a fossil passage, which had the characteristic sinuous shape, but no water. Following a breakdown climb, we reached a T-intersection with many side leads. A full day of exploration and surveying netted 160 meters of passage, all ending in boulder chokes. Roots and soil penetrated the chokes, telling us we were very near the surface. When we made our return to the surface, we found that the moon and stars had reappeared. At last, the fog had cleared.

Monday was a quiet day for caving. A gang of folks, Heidi, Gusa, Carlos, Charley, and Bev, worked the surface dig near

camp that had been started earlier in the week, without breaking through. Matt took a quick hike up to the top of El Niño, enjoying the exercise and the view. His hoots carried down to us in camp. He found the flat top of the mountain to be planted in corn.

It was somehow decided that we needed a supply run. Perhaps I'm forgetting something important that we were missing, but what I do remember was that the decision was made to go all the way to Matehuala where you could obtain specialty items like rompo (basically bottled eggnog with alcohol). Pat and Nancy collected requests from the rest of the group and accompanied Kevin on an all-day driving and shopping extravaganza. They had a great time and brought back much booty that was thoroughly enjoyed by all.

On Tuesday, we shifted back into high gear for caving. We went in four teams to the bottom of Satan's Parallel Bedlam. Soriano and Gusa took photos. Two survey teams leapfrogged along the mostly horizontal, stream-filled canyon (Cyndie, Bev, and Dan on one team; Scott, Danielle, and me on the other). Pat, Nancy, and Matt were the gadabouts, checking side leads and pushing ahead. Alas, after many meters of lightning-fast survey, the push team announced that the passage ended in a sump. Matt submerged himself for some blind groping to find that the sump was boulder choked, and therefore not a promising dive lead. The day's survey netted about 400 meters of passage. As we were leaving, Dan noticed a



Heidi Macklin straddles Charley Savvas while practicing a pick-off.  
Photo by B. Luke

side lead up a ramp out of the stream canyon to a tall, mud-floored chamber: the "Perpendicular Bedlam Extension." It was decided to leave that survey, and the extensive effort required to derig the cave, for another day.

Having caught a bit of a bug, Kevin managed the expedition from the surface on this day. He did dig a bit on a lead in the ridge between Suchomimus and Pink Socks that appeared to go.

We all stayed in camp on Wednesday, but we were not idle.

Matt taught the rest of us how to do “pickoffs,” i.e., how to pick another caver off a rope, as might be required in a rescue situation. We learned three methods: a simple dead-lift, which worked fine for Charley, but required more brute strength than some of us mere mortals might be able to summon; a counterweight approach, which gives the rescuer some mechanical advantage; and lowering the victim, which is not preferred over having the rescuer descend with the victim. Most of us found that we need lots more practice if we hope to succeed in a rescue situation where time is critical.

Kevin stayed away from the festivities, as he was having digestive problems. As Soriano put it, Kevin was “Singing Oaxaca.”

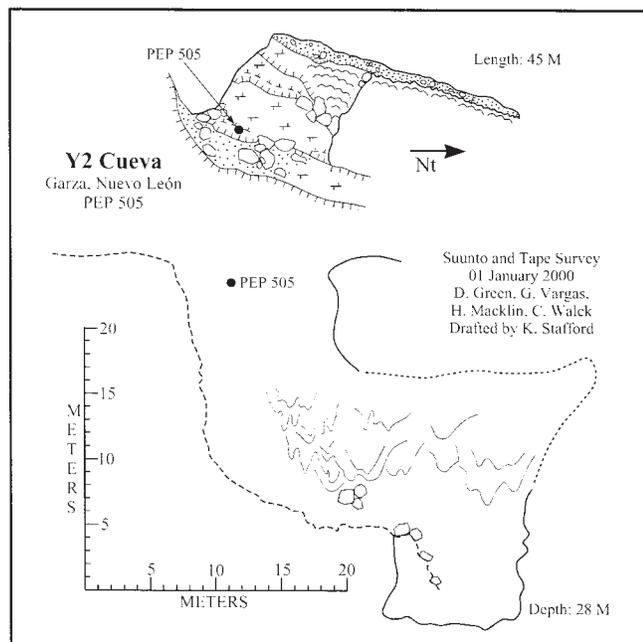
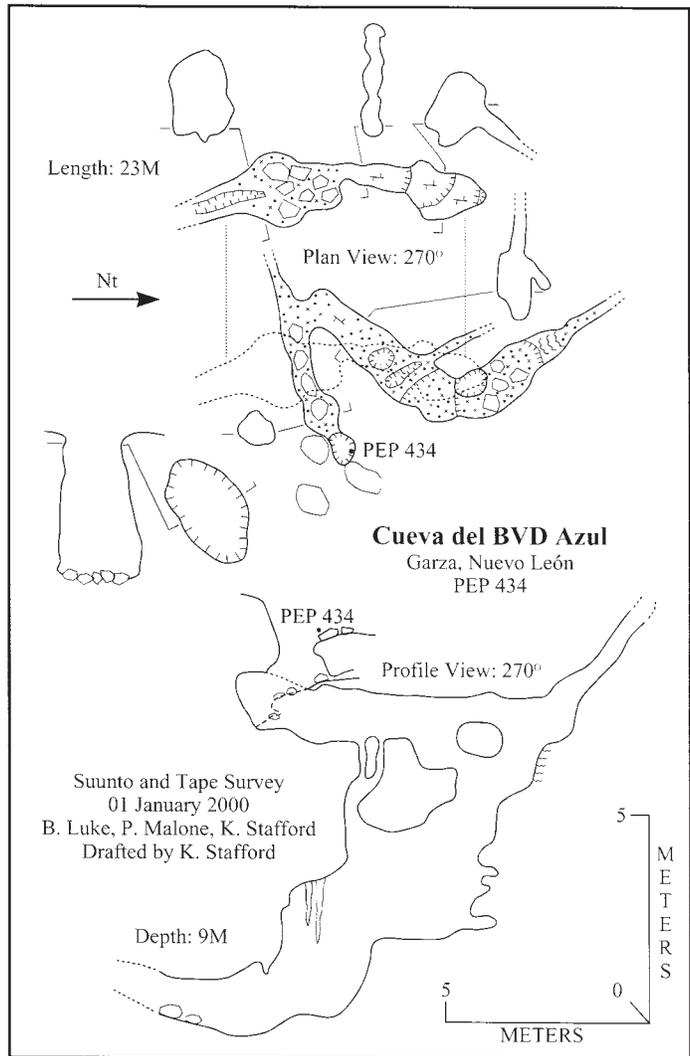
On Thursday, two derigging teams went out. Nancy, Carlos, Pat, and I spent a mellow day in upper Suchomimus (Plethodon Canyon) taking photos, pulling the few short ropes, and rinsing some clothes in the entrance pools.

The energetic team of Bev, Dan, Danielle, Laura, Jubal, and Cyndie went to Satan’s Parallel Bedlam for mop-up survey and derig. They dragged back in to camp the next morning, in daylight, filthy and tired, but happy. It is a wonderful cave.

On the surface, it was Charley’s turn to be ill and stay in camp. Scott went on a long hike and found a new entrance. Kevin, Matt, Gusa, and Soriano drove up the road to Agua Fria on a recon.

On Friday, New Year’s Eve, Scott, Pat, Nancy, and I returned to T-Rex. By now, we had shortened the hike to under an hour. Nancy collected GPS coordinates at the entrance, and the rest of us added about 110 meters to the entrance maze. At the end of the day we tied in a lead to a pit at the bottom of the Frog room. So we would need to go back once more.

Charley, Matt, Gusa, and Heidi returned to the dig at the bottom of Suchomimus, again without breaking through.



Daniel and Francisco, local residents from a farm just south of our camp showed Carlos, Kevin, and Soriano some pits on the slope up above camp, some 100 meters below the top of El Niño. These looked more like stress-relief cracks than solution features. One was estimated at 70 meters deep. Some had unstable rocks at the top and would require special care to enter.

We all got back to camp well before midnight so that we could bring in the New Year together. It was a loud and boisterous party, with a Texas-sized bonfire. We had so much champagne that everyone got tired of drinking it and took to shaking it up and spraying it all over each other. I listened to South Texas radio for the mayhem predicted for the Y2K transition, but of course all went smoothly. Happy New Year!

On Saturday seven people went up the flank of El Niño to do pits: Carlos, Cyndie, Dan, Heidi, Laura, Jubal, and Gusa. They explored and mapped one 20-m fissure, which they appropriately named Pozo Y2Cueva.

Pat and I went with Kevin to Satan’s Parallel Bedlam to clean up the survey and push some small leads near entrances. Kevin dug open a couple of small breakdown chokes that I then squeezed into. On the way back to camp, we stopped at an entrance Kevin had dug open earlier, on the ridge be-

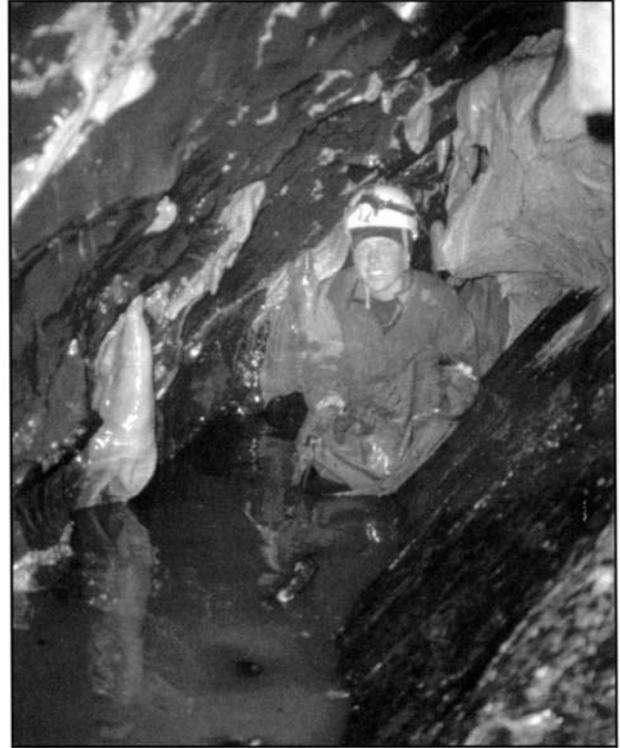
tween Pink Socks and Suchomimus. It opened to a 20-meter long cave containing copious rodent excrement. Following the colored underwear theme, we named it Cueva del BVD Azul. The name was also appropriate for a cave that was full of crap.

Charley and Bev went back to the bottom of Suchomimus to work on the dig. The dig opened up into at least a half kilometer of horizontal passage. Knowing that they would be back tomorrow to survey, they stopped at another flowstone choke that would be passable with some squeezing.

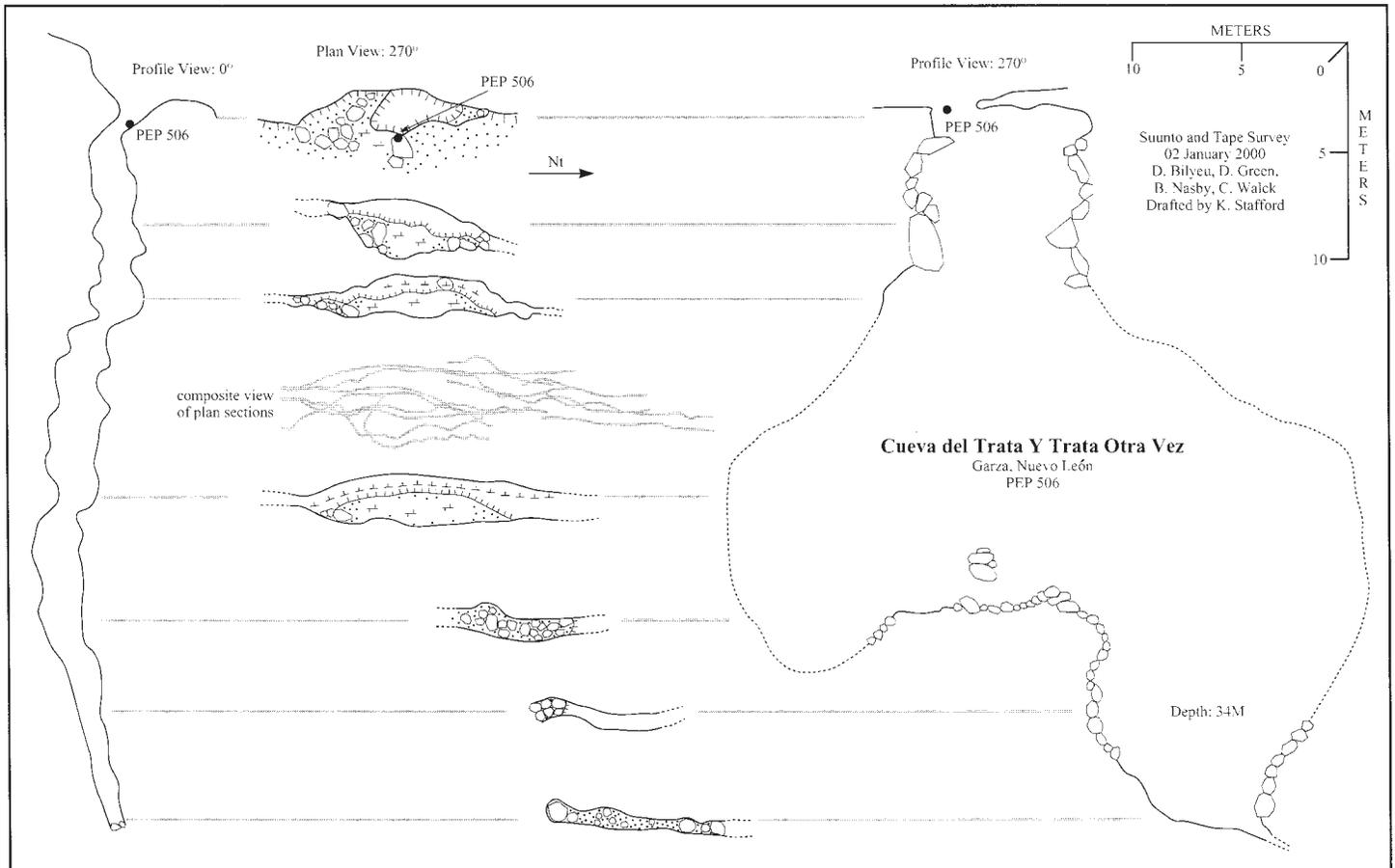
On Sunday, Charley and Bev had no trouble recruiting Kevin, Heidi, Matt, and Nancy to go back into Suchomimus to survey and push. They surveyed more than 500 meters in the "Millenium Extension," passed the next restriction, and scooped ahead another 200 meters to a short but muddy pit. Although most of the passage was comfortable if not huge walking passage, the few rough constrictions proved to be something of a filter for Kevin, who had to leave behind some clothes and skin in order to get through. By the end of this survey, the cave was 396 meters deep, and the bottom was about 300 meters below the ground surface. Studying its location on the topo map, we wondered again whether it would reach daylight in Infierno canyon. By this time, we were starting to run out of pages in our survey books. (This is a great kind of problem to have.)

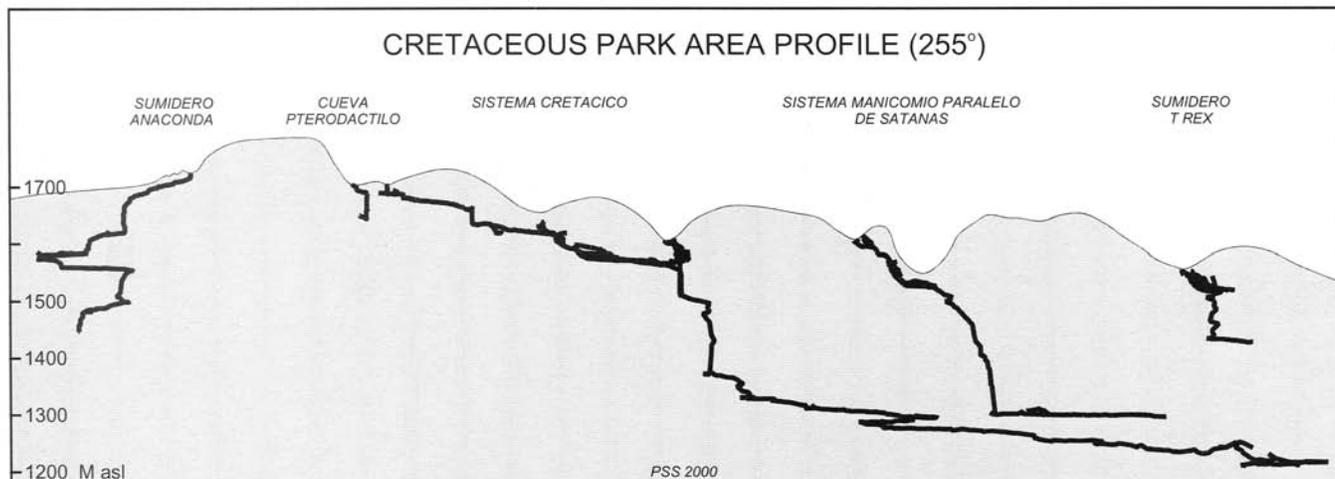
Meanwhile, I was determined to finish up the entrance maze in T-Rex. Laura, Pat, and Scott joined me for a full day of

surveying checkerboards and cleaning up loops and leads. Scott pushed a very tall, narrow fissure off the East Side of



Heidi Macklin passes a constriction in Lower Suchomimus.  
Photo by N. Pistole





the large entrance chamber, which led straight back to a very tall dome. We completed 260 meters of survey in all.

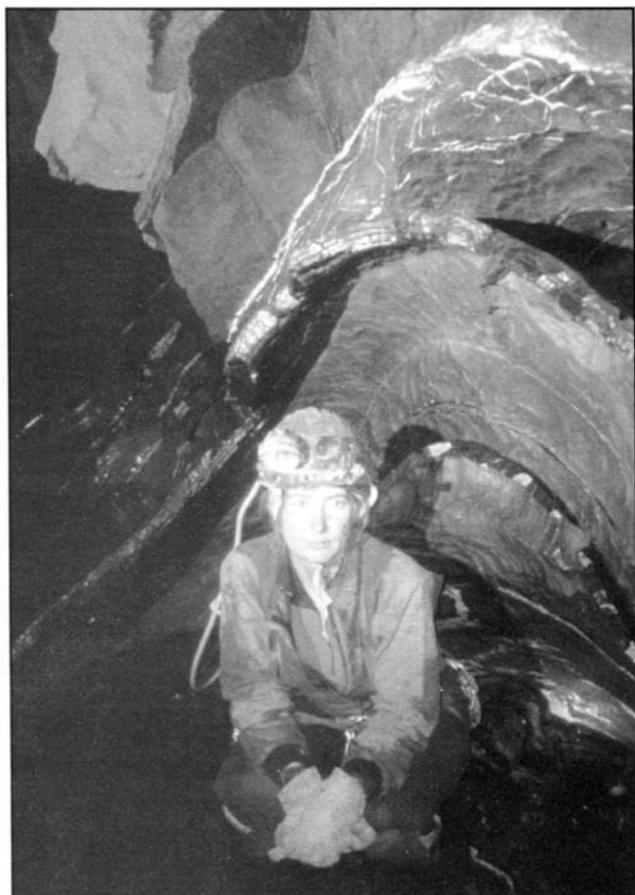
Carlos, Dan, Cyndie, and Danielle went back up El Niño to work on the cliffside pits. Claiming problems with equipment, not too much progress was made. They surveyed one short and narrow fissure pit, which they named “Trata y Trata Otra Vez.”

Monday was a restful day, in anticipation of a big push in Suchomimus for Tuesday. Scott, Cyndie, and Pat hiked off to explore a cave Scott had found on an earlier walkabout,

but were not able to relocate it.

Carlos, Danielle, and Dan went back up to the Cerro el Niño pits. By now they had decided that these pits were primarily stress-relief features, rather than water-formed, and therefore were not likely to “go.” They finished up the leads with the exception of one with too much loose rock at the top – deemed not to have a safe rig point. I hiked up later to meet them. The climb yielded a terrific panoramic view of Cretaceous Park. We ridge walked along the base of the limestone cliffs of El Niño, without finding anything significant.

On Tuesday we mounted an assault on lower Suchomimus. Everyone went except Scott and Kevin, who remained under Charley’s suggestion after the volume of skin lost on the previous trip. I was reminded what a beautiful cave it was. We saw thick, continuous, steeply dipping, platy chert inclusions, sometimes folded into fantastic chevron shapes, and in other places protruding more than a meter from the limestone host rock. We also saw isolated areas with beautiful flowstone formations, and passed some sections with nice collections of soda straws. The stream passage led us on and on, with few side leads. The canyons are tall, though, so tall that unseen upper leads could well be present. In one place, the canyon opened up so suddenly and into such a large chamber, that we thought we should see stars. There was plenty for five teams to do, with surveying, exploring, and photographing. Our survey stopped at a spectacular huge room with a floor of mounded breakdown covered in thick mud. Charley and Matt had pushed the cave about 200 meters farther to a small hole, passing three walking-scale infeeders along the way. So there was more to come back for. We had a little party in the Mud Mountain room, playing and deploying a magnesium flare. Most of us headed out at that point, to wrap up what would be a 24-hour cave trip. Matt, Nancy, Charley, and Bev, who had entered the cave later, stayed behind to survey, explore, nap, play, and, of course, derig. We wouldn’t see them again until mid-day on Wednesday. That turned out to be a smart choice, because the rest of us came out the wet, windy, entrance series in the cold of the early morning, and had trouble staying warm, even while climbing the 80 meter entrance pit. Upon reaching the surface, I was so relieved to see some neatly stacked and sorted



Nancy Pistole sits in the fold axis of an anticlinal in Lower Suchomimus.  
Photo by M. Oliphant

firewood – thank you, Nancy. Some of us stayed to warm ourselves by the fire and wait for the solar heat to kick in before hiking back to camp.

Wrap-up: The rest of the trip was denouement. Tuesday blended into Wednesday by the time we got out of Suchomimus and rested up. By that evening, the trip was over for Kevin, who headed down the mountain with Heidi, Gusa, and Soriano.

The rest of us took off the next morning. At Zaragoza, Bev, Dan, and Danielle split off for further adventures in Mexico. The little orange bus dropped Laura at the bus station in Escondida to head for home in Mexico City, with a mountain of baggage that included enough 11-mil CanCord rope to drop the deepest pit in Mexico. The rest of us had a pleasant and uneventful ride back to Texas in the Power Wagons, reaching Peter's house in the early hours on Friday, during a heavy rainstorm. What a great bunch of stories we have to tell.

*Durante la Navidad de 1999, en una expedición de tres semanas del PEP participaron 21 espeleólogos de E.U., Canada, Australia y México trabajando en el Parque Cretácico cerca del área de El Niño, NL. En el Sistema Cretácico se avanzó a una profundidad de 465 metros y casi seis kilómetros de longitud después del Pozo Plesosaurio fue conectado bajo dos cuchillas. El Sistema Manicomio Paralelo de Satanas fue empujado a 321 metros de profundidad y un kilómetro adicional de pasajes fue agregado al investigaciones previas. El Sumidero Tiranosaurio Rex no era tan largo como anticiparon, terminando a una profundidad de 127 metros en una estrechez vadoso. Varias cuevas tectónicas fueron descubiertas e investigadas en el Cerro el Niño, y tres cuevas (ninguna de más de 15 metros de profundidad) fueron investigadas abajo del contacto con la lutita. En esta expedición se agregaron un total de 6371 metros de pasajes topografiados a la investigación del Proyecto Purificación, con esto el sistema Cretácico llego a ser el cuarto más grande y la segunda cueva más profunda en el área de campo.*

CAVE	1999-2000 Expedition Survey Statistics	Total Length	Total Depth
Sistema Cretacico	3273 m	5908 m	465 m
Sistema Manicomio Paralelo de Satanas	1000 m	1562 m	321 m
Sumidero de Tiranisaurio Rex	982 m	1112 m	127 m
Cueva de los Bichos	47 m	47 m	34 m
Cueva del BVD Azul	23 m	23 m	9 m
Pozo Verde	28 m	28 m	14 m
Pozo Y2 Cueva	45 m	45 m	27 m
Pozo Trata y Trata Otra Vez	47 m	47 m	34 m
Total Length Surveyed for the 1999-2000 PEP Christmas Expedition:		5422 meters	



- 2000 PEP MEMBERSHIP**
- |                |                 |               |                 |                |
|----------------|-----------------|---------------|-----------------|----------------|
| Jon Bojar      | Aaron Addison   | Tony Akers    | Stephen Blanden | Paul Fowler    |
| Andrea Futrell | Don Broussard   | Dale Chase    | John Fogarty    | Troy Lanier    |
| George Love    | Mike Futrell    | Pete Hollings | Jean Krejca     | Bill Mixon     |
| Bill Nasby     | Barbara Luke    | Gary McDaniel | David McKenzie  | Laura Rosales  |
| Charley Savvas | Dale Pate       | Terry Raines  | Jason Richards  | Kevin Stafford |
| Debbie Stuart  | Terry Sayther   | Bev Shade     | Peter Sprouse   | Cyndie Walck   |
|                | Tag Swann       | Steve Taylor  | Terri Treacy    |                |
|                | Jonathan Wilson | Jack White    | Spencer Woods   |                |

Conrado Castillo, Tamaulipas

Photo by P. Sprouse

# March 2000 Expedition to Cretaceous Park

by Carlos

**Participants:** Randy Brown, Dale Chase, Peter Curtis, Bernhard Koppen, Bill “Carlos” Nasby, and Roberta Snider.

We departed for Zaragoza in two vehicles on Saturday, March 11. Along the way, we realized we had forgotten Kevin Stafford’s long ropes to be used for the big pitches in Sistema Cretacico. This caused many debates at Laredo regarding rope requirements and whether there were still enough ropes in the cave, but after an inventory we decided to carry on.

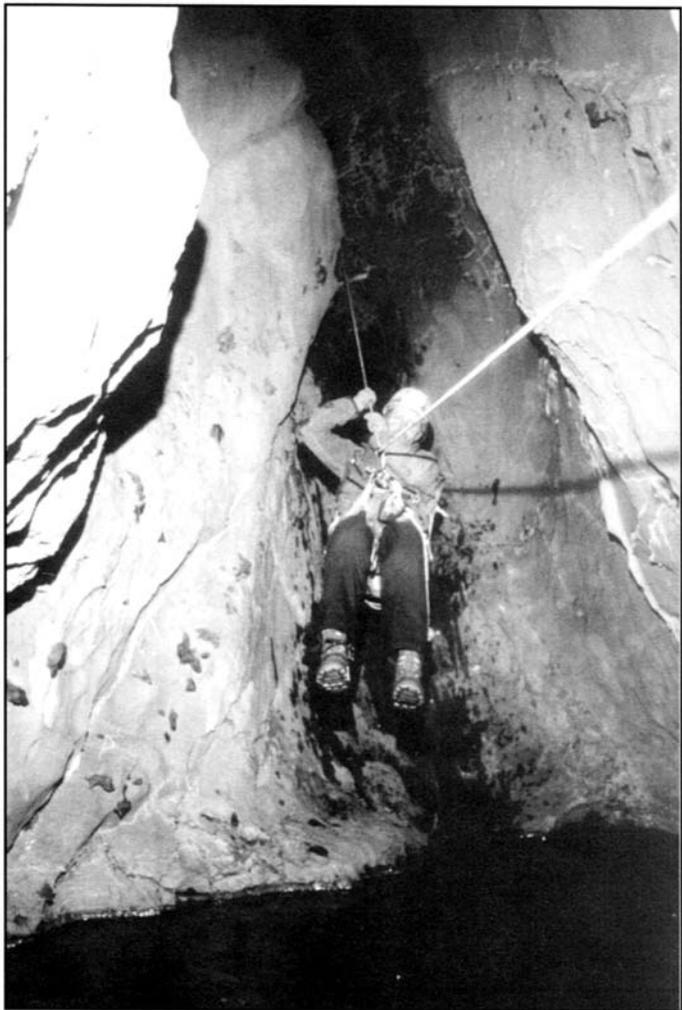
In Zaragoza we made arrangements to leave Randy’s car at the Jefe’s compound, where we bought groceries and extra gas for the Power Wagon. The PW was loaded with everyone’s gear, leaving no room for passengers, so four people rode on the fenders and running boards for the three-hour drive to camp. Halfway there, we stopped at La Escondida for refrescos at Clifas’ little store, and then we continued on to camp.

Monday morning Bernhard, Peter, Dale, Randy, and I went to Sumidero Suchomimus (Sistema Cretacico) on a rigging trip. Bernhard rigged the 80-meter entrance pitch and placed an extra bolt on the drop to further break it up and to avoid a rubbing problem with the old rigging. We continued on, rigging across three pools and down the 120-meter Jungle Gym. We ended the rigging trip there and headed out.

The next day, Dale, Peter, and I returned with material to enlarge the restriction reached by Charley Savvas’ crew during the Christmas 1999 expedition. We found the eight ropes below the Jungle Gym for the remaining rigging as we passed through the 2 kilometers of canyon passage to the Mud Room. From the Mud Room, we moved to the final survey station, which led to the restriction. Charley estimated “two hundred meters” to the restriction past this point, which had not been surveyed. However, we found it to be over four hundred meters past station FU6 through 10-meter wide borehole.

At station FU6, we checked a big, short side lead which led to an interesting climb. The air in the cave may be following this route, but we did not push it. We then pushed back to the restriction and found it to not be as promising as it was reported, but it was what we were primarily here for. We worked on enlarging the restriction, leaving the exploration of it for another day. We exited after a 15-hour trip.

Wednesday was a recovery day for most, as everyone sat around and debated over the numerous frays that had developed in the rope used for the entrance pitch. It was a strange pattern that repeated itself every half meter and appeared to be a manufacturing defect. At this point, we began to curse ourselves for having left Kevin’s long ropes in Austin. As a result, Bernhard returned to Suchomimus and rerigged the



Dale Chase traverses a plunge pool in Sistema Cretacico.  
Photo by P. Curtis

worst areas on the entrance pitch with our remaining rope.

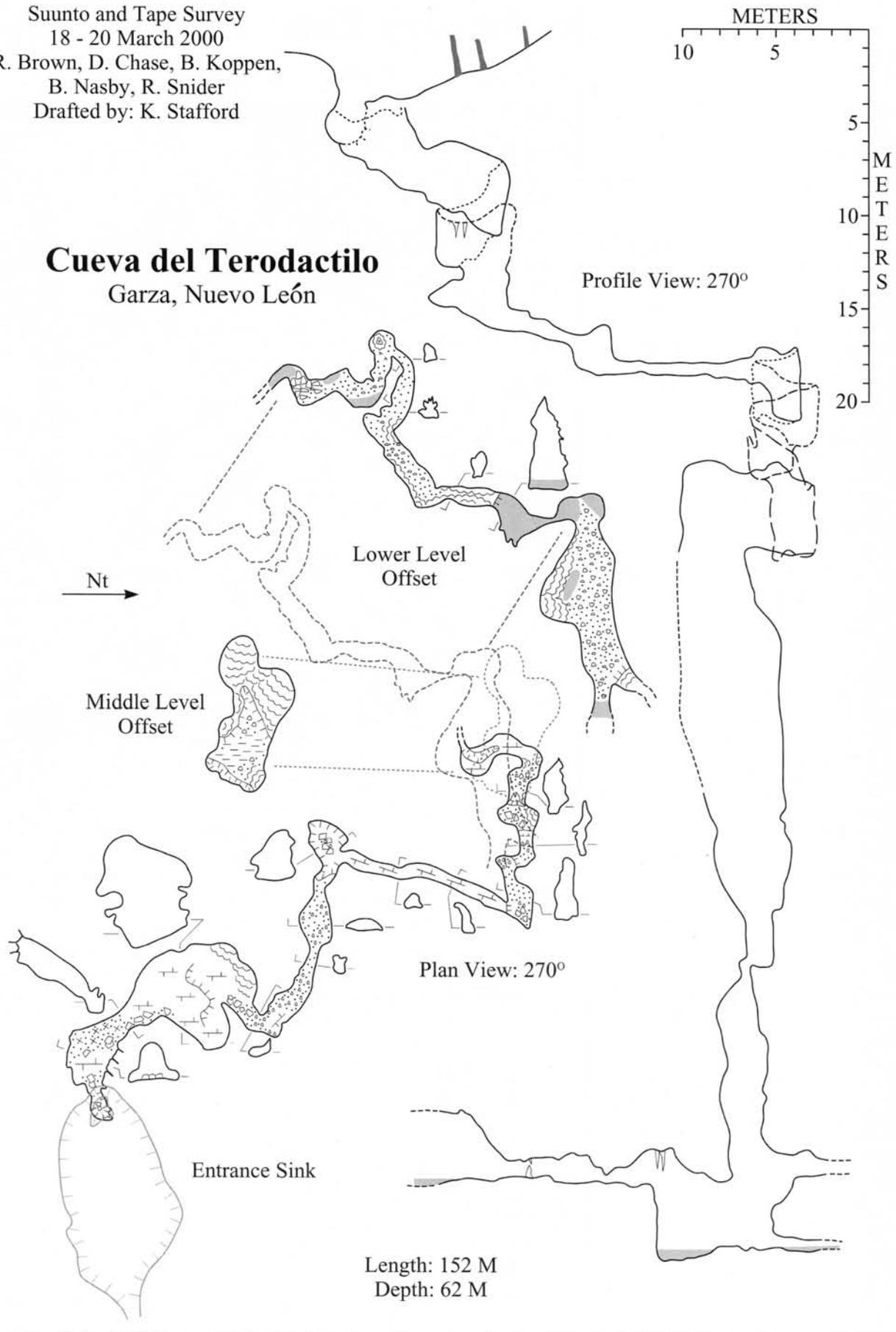
On Thursday, Bernhard and I returned to Suchomimus alone. We surveyed for four hours in the square borehole, then stopped the survey to go ahead and check the results of the work done on the restriction. The hole had been opened up enough that we could squeeze through to a standing chamber. This led to a small tube that quickly pinched down ending the lead. Even the air here seemed bad, as if there was no air circulation at all in this part of the cave. However, on the way out we checked a lead near station 15 of our new survey. It led to a large uptrending breakdown chamber that Bernhard described as a “mud-covered, breakdown climb; do-able, but dangerous.”

After exiting the cave, we began to have “grave” concerns about the worsening condition of the ropes used in the two big pitches. The ropes with white sheaths were showing more and more frays in the same half-meter pattern, while the mantle on the orange ropes was sliding and bunching up, making rebelaying difficult. With this in mind, on the following day off we retrieved a piece of the white rope for inspection. We dissected the rope and found that the sheath damage was restricted to the mantle and that the core was

Suunto and Tape Survey  
18 - 20 March 2000  
R. Brown, D. Chase, B. Koppen,  
B. Nasby, R. Snider  
Drafted by: K. Stafford

# Cueva del Terodactilo

Garza, Nuevo León



unaffected. At least we were still safe with this rope and the way we had the cave rigged.

The next day, we went ridgewalking and discovered Cueva Día de las Mariposas and a cave that had been previously flagged. With this find, we rapidly returned to camp and organized a survey trip to return to Mariposas.

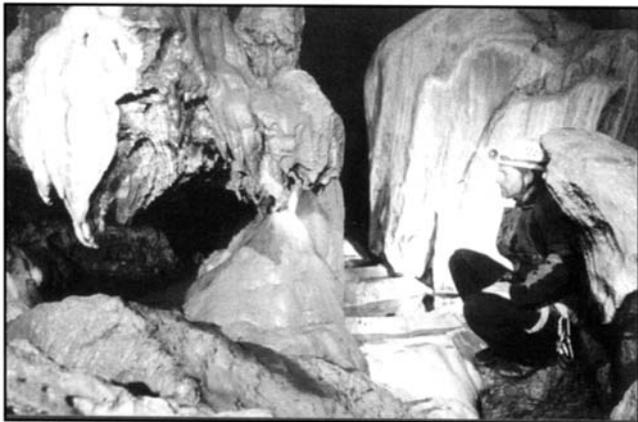
We rigged the entrance with a custom made “Dale Rope Ladder” which worked nicely, dropping us into a chamber filled with flowstone and formations. As Bernhard and Roberta pushed ahead, Dale, Randy, and I surveyed from the entrance. The push team soon returned with reports of shield formations and a tight vadose passage continuation. We soon surveyed into the “Shield Room” and ended the survey here, after Randy failed to fit into the continuation.

We then continued ridgewalking the area and discovered a slightly higher elevation cave closer to camp, which was named Cueva del Terodactilo. This cave looked better than Mariposas and had airflow, so we started the survey. We made it approximately 40 meters until we reached a constriction that ended the day’s progress.

On Sunday, Dale and Roberta went back to Terodactilo and enlarged the restriction with rock shaving equipment. While this was going on, Peter, Bernhard, and I returned to finish the main passage survey in lower Suchomimus. We added another 242 meters of passage taking us to the terminal plug at the back of the cave. Having finished our major lead, we derigged the cave up to the base of the Jungle Gym on the way out and left the rest for Dale and Peter to derig on a photo trip.

Monday was a return to Cueva del Terodactilo for Dale and I, with Bernhard rigging. We made it past the restriction and down a series of downclimbs and small drops reaching a large chamber with numerous formations and another pit in front of us. Out of rope, we left the cave for the day.

The next day, Randy, Roberta, and I returned again to Terodactilo, with Bernhard rigging. We made it down the 35-meter pitch to another room with three continuations. Randy checked the high lead up a flowstone climb, and Bernhard disappeared up a narrow, wet, vadose canyon. The third route looked small and very wet. Bernhard returned with a report of going passage that was “somewhat small



Dale Chase admires formations in Lower Suchomimus.  
Photo by P. Curtis



Dale Chase climbs the flowstone pools below the Jungle Gym.  
Photo by P. Curtis

and wet.” We pushed on this lead and abandoned it after 50 meters in a continuing passage with airflow. We then departed the cave without surveying Randy’s climb, which he reported as being larger and better than the one we had been pushing. During our departure, we coiled up the ropes out of the water and left the cave rigged for a future push.

On Wednesday, Peter and Dale returned to Suchomimus for the final derig and all-day photo trip. The rest of us relaxed and pondered our current lead conditions. We checked out a few other shale contact zones and had a generally easy day.

Thursday we packed up and headed for Zaragoza for some relaxation at the local hotel with its outrageous price of about \$1.00 US per person/per night. Along the way, we stopped at several homes and distributed the remainder of our food with the locals. By mid-afternoon however, we were wandering the streets of town.

On Friday, we visited El Salto just outside of town to enjoy the waterfalls and swimming holes. Bernhard, Dale, and I hiked up the canyon for several kilometers to look for new entrances. The hike was easy, but Dale discovered a rattlesnake to provide a little amusement. We returned to the springs, having found no new entrances along the way. At this time we noticed a large entrance in a cliff two hundred meters from the trout farm, but unfortunately it was getting late and this would have to wait for another time.

Saturday, we packed up and headed north. We made it back to Austin in just fourteen hours, ending another PEP trip.

*En marzo del 2000, seis espeleólogos regresaron al Parque Cretácico (El Niño, NL) a investigar principalmente las continuaciones de los pasajes en el Sistema Cretácico, avanzando en la restricción al fin de los pasajes conocidos. Fueron agregados 460 metros a las investigaciones previas hasta una nueva restricción. Varias cuevas nuevas fueron localizadas y dos topografiadas. La Cueva del Día de las Mariposas alcanza a una profundidad de 15 metros y la Cueva Terodactilo fue explorada a unos 62 metros de profundidad, dejando la continuación de tres pasajes para un investigación futura.*

# Purificación Spelemetry

Compiled by Peter Sprouse

Long caves	Length	Deep caves:	Depth
1. Sistema Purificación, Tamaulipas	90,974	Sistema Purificación, Tamaulipas	957
2. Cueva del Tecolote, Tamaulipas	35,949	Cueva del Tecolote, Tamaulipas	424
3. Sótano de Las Calenturas, Tamaulipas	8,308	Cueva de La Llorona, Tamaulipas	412
4. Sistema Cretacico, Nuevo León	5,908	Sima Chupacable, Nuevo León	402
5. Cueva de La Llorona, Tamaulipas	3,540	Sistema Cretacico, Nuevo León	465
6. Sótano de la Cuchilla, Tamaulipas	2,716	Sistema Manicomio Paralelo de Satanas, NL	321
7. Cueva del Río Corona, Tamaulipas	2,301	Sumidero Anaconda, Nuevo León	278
8. Cueva Paraíso Difícil, Tamaulipas	1,799	Sótano de la Cuchilla, Tamaulipas	207
9. Sistema Manicomio Paralelo de Satanas, NL	1,562	El Hundido, Tamaulipas	186
10. Cueva del Borrego, Tamaulipas	1,354	Cueva Paraíso Difícil, Tamaulipas	178

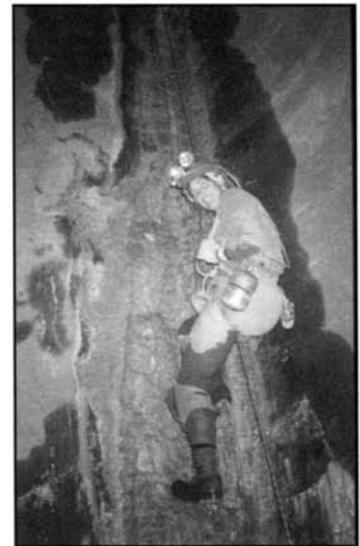


Xochitl de la Rosa enters Sotano del Madroño.  
Photo by P. Sprouse

## The PEP would like to thank the following for assistance in 2000:

Stephen Blanden  
Paul Fowler  
Linda Palit  
Terry Sayther  
Tag Swann  
Terri Treacy  
Jack White  
Spencer Woods

**Bentley Corporation**  
**Margaret Cullinan Wray Charitable Trust**  
**National Speleological Society**  
**PMI Ropes**  
**Richmond Area Speleological Society**



Nancy Pistole in Sistema Cretacico.  
Photo by B. Luke



PEP cavers prepare to haul scuba tanks into Sistema Purificación for a dive of the Valkyrie River.

Photo by P. Sprouse

# The Caves of Santa Marta de Arriba

By Peter Sprouse

While flying over the Purificación area in Leonard Pruitt's plane in July 1999, I noticed a new road into the area. We were circling over Maravillas, Nuevo León, trying to get up enough altitude to fly north toward Cretaceous Park. Off to the west I could see switchbacks cut into a mountainside coming down from the Refugio area. This seemed like a good place to head to for the November trip, when we needed to go to Zaragoza anyway to do some municipal liaison work.

Our crew from Texas consisted of Kevin Stafford, Cathy Winfrey, Charley Savvas, Liam Town, Susie Lasko, Jonathan Wilson, and me. On 20 November we arrived in Ciudad Victoria for the Desert Fishes Council meeting. We caught Jean Krejca's *Prietella* talk and Jean Louis Lacaille's *Astyanax* talk. Then, Aldo Guevara and Fernando Vanoye loaded into our trucks and we drove around to Zaragoza where we camped outside of town. The next day we had a good meeting with the municipal officials, then drove up the mountain southeast of town to Santa Marta de Arriba, where we camped at 2620 meters. The new road dropped down the other side of the mountain at this point, but we soon discovered that we had all the good leads we needed right here. Our camp was in a lovely meadow surrounded by pines, with ridges on either side rising out of the synclinal valley.

In the morning the one local resident, Hector, took us to the south toward Puerto Mascorro and showed us three pits. Pozo de Fernando was 14 meters deep and nearby Pozo del Hemi was 6 meters deep. The former was Fernando's first pit. Kev, Charley, Liam, and Jonathan went up the valley to check the third one, while the rest of us went down the valley to look at a fourth, Pozo de Caldo, just below the spring and 7 meters deep. Then we walked north along the shale contact and found a promising pit, which we decided to save *por la mañana*. We then hiked south up the shale band but found nothing. Charley's crew ended up doing six shallow pits, but on the hike back at night came across a



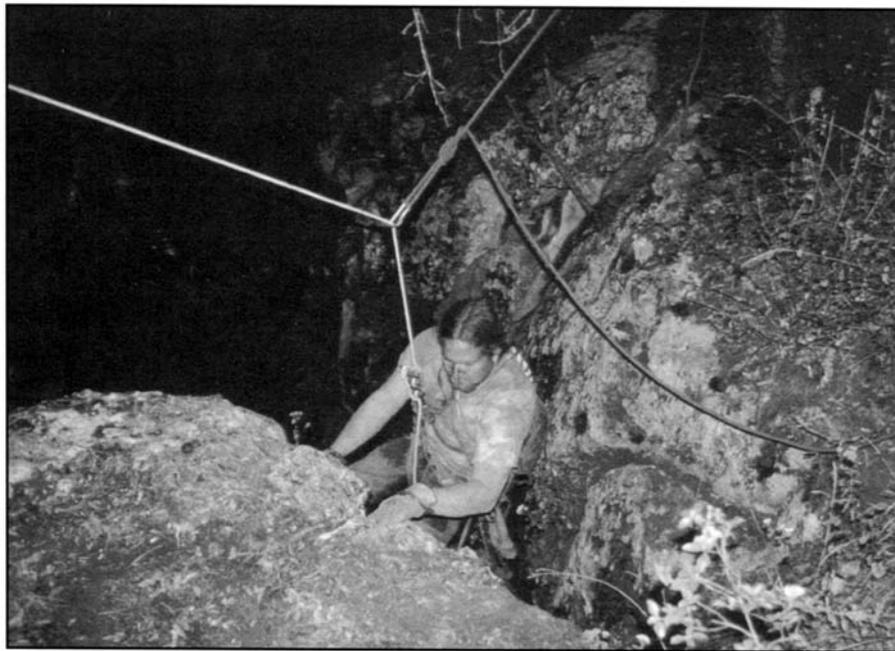
Base Camp at Santa Marta de Arriba.

Photo by P. Sprouse

string of deep pits on the shale contact. We saw their lights from afar as they descended the hillside to our camp.

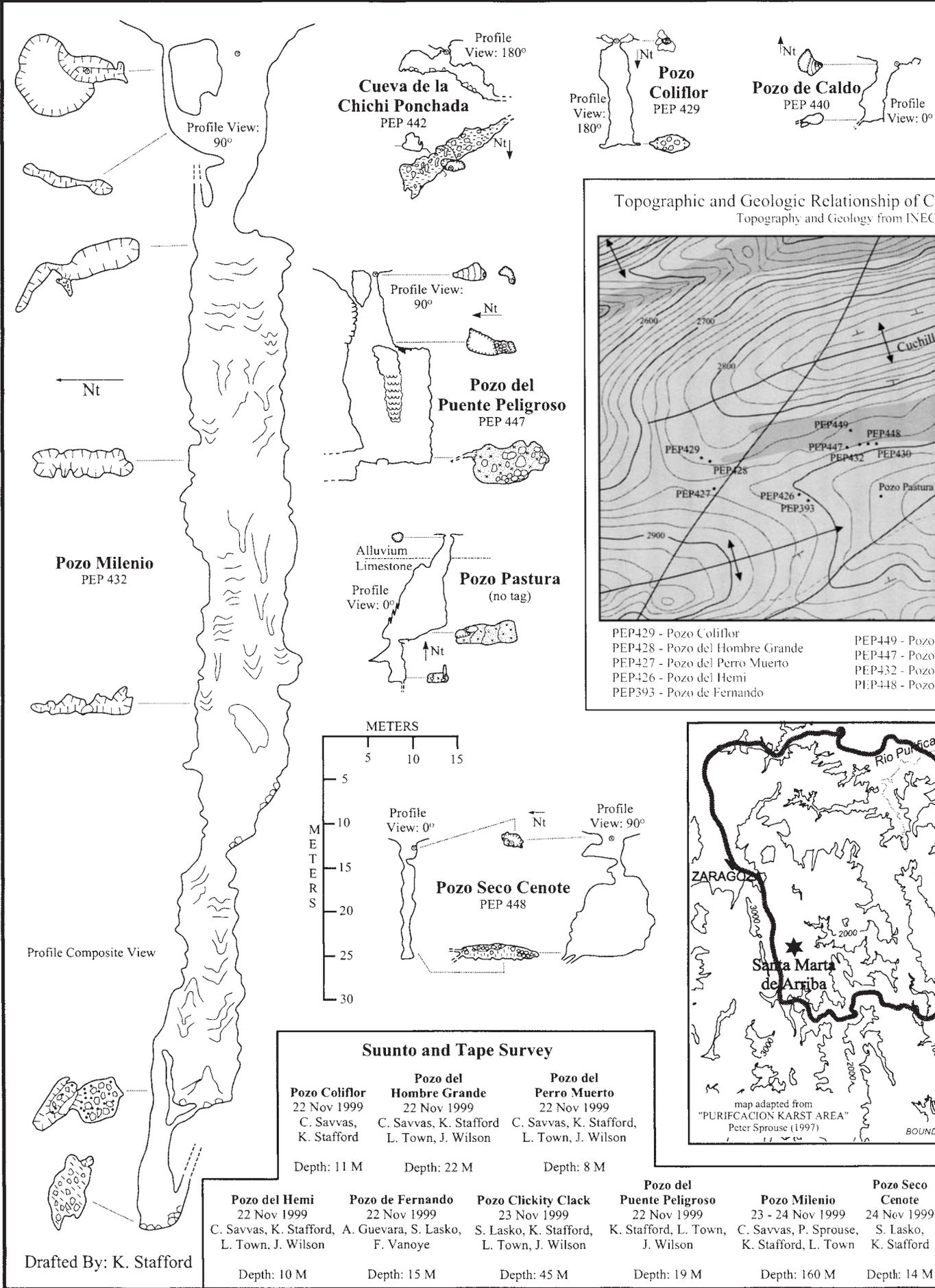
On Tuesday, we geared up for some good caving in the pits Charley's crew had found. Kevin, Susie, Jonathan, and Liam mapped two of them, Pozo Clickity Clack (45m) and Pozo Cenote Seco (14m). Charley, Aldo, Fernando, and I mapped Pozo Adrenalina, consisting of four pitches to a plug at -52 meters. Then Liam, Kevin, and I tackled a deep one, getting 25 meters down Pozo Milenio before Kevin asked for Charley's help rigging, for a very deep shaft loomed below. Charley rigged down, setting several bolts, while Liam and I surveyed behind to -56 meters. Charley ran out of rope at -145 meters, with more blackness below. Satisfied for the day, we returned to camp. The big campfire was a welcome site as we descended into the Santa Marta valley.

The next day, Charley, Susie, Liam, and Jonathan went back up to Pozo Milenio. It turned out that the rope had reached the bottom, and that the blackness that Charley had seen was not more shaft, but rather a dark floor. Unfortunately they had pulled up the rope and tied another 180 meters to the end of it. So, the crew landed on a huge pile of spaghetti to find only small holes continuing down, and a lead climb to a window. They were able to enlarge one of the holes with hammer-drill enough for Susie to break into a 15-meter pit, which they left for the next day.



Kevin Stafford rigs the entrance to Pozo Milenio.

Photo by P. Sprouse



**Cueva de la Chichi Ponchada**  
PEP 442

**Pozo Coliflor**  
PEP 429

**Pozo de Caldo**  
PEP 440

**Pozo Milenio**  
PEP 432

**Pozo del Puente Peligroso**  
PEP 447

**Pozo Pastura**  
(no tag)

**Pozo Seco Cenote**  
PEP 448

Topographic and Geologic Relationship of C...  
Topography and Geology from INEG...

- PEP429 - Pozo Coliflor
- PEP428 - Pozo del Hombre Grande
- PEP427 - Pozo del Perro Muerto
- PEP426 - Pozo del Hemi
- PEP393 - Pozo de Fernando
- PEP449 - Pozo
- PEP447 - Pozo
- PEP432 - Pozo
- PEP448 - Pozo

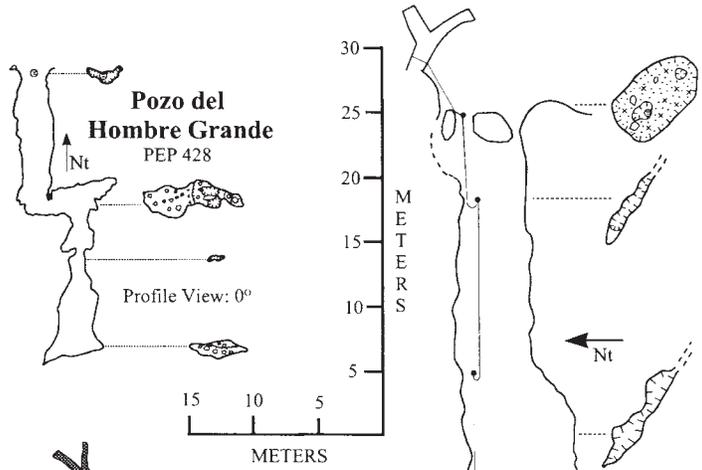
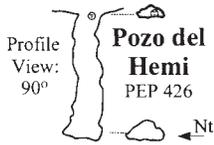
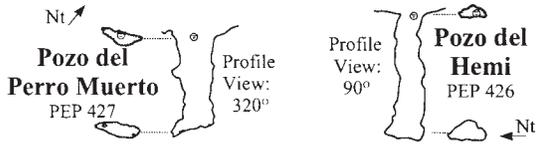
**Suunto and Tape Survey**

<b>Pozo Coliflor</b> 22 Nov 1999 C. Savvas, K. Stafford, K. Stafford	<b>Pozo del Hombre Grande</b> 22 Nov 1999 C. Savvas, K. Stafford, L. Town, J. Wilson	<b>Pozo del Perro Muerto</b> 22 Nov 1999 C. Savvas, K. Stafford, L. Town, J. Wilson
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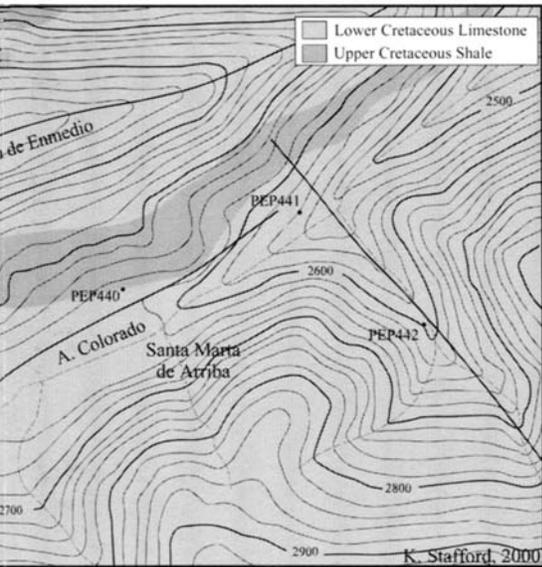
Depth: 11 M      Depth: 22 M      Depth: 8 M

<b>Pozo del Hemi</b> 22 Nov 1999 C. Savvas, K. Stafford, L. Town, J. Wilson	<b>Pozo de Fernando</b> 22 Nov 1999 A. Guevara, S. Lasko, F. Vanoye	<b>Pozo Clickity Clack</b> 23 Nov 1999 S. Lasko, K. Stafford, L. Town, J. Wilson	<b>Pozo del Puente Peligroso</b> 22 Nov 1999 K. Stafford, L. Town, J. Wilson	<b>Pozo Milenio</b> 23 - 24 Nov 1999 C. Savvas, P. Sprouse, K. Stafford, L. Town	<b>Pozo Seco Cenote</b> 24 Nov 1999 S. Lasko, K. Stafford
Depth: 10 M	Depth: 15 M	Depth: 45 M	Depth: 19 M	Depth: 160 M	Depth: 14 M

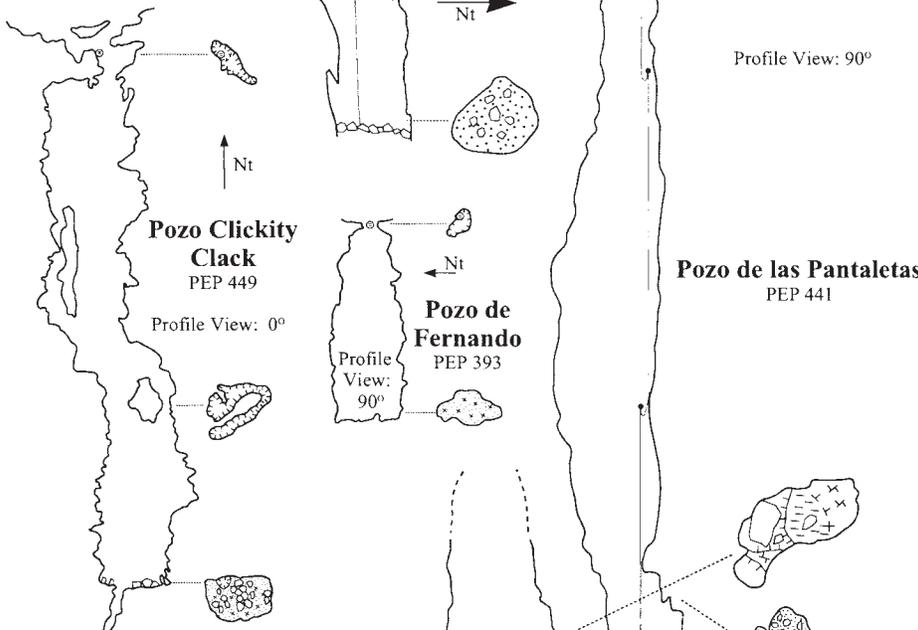
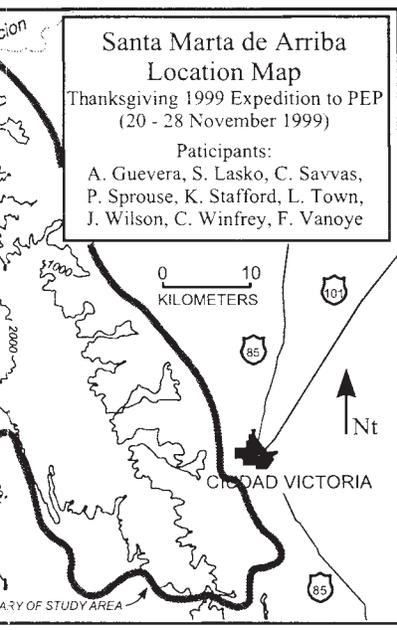
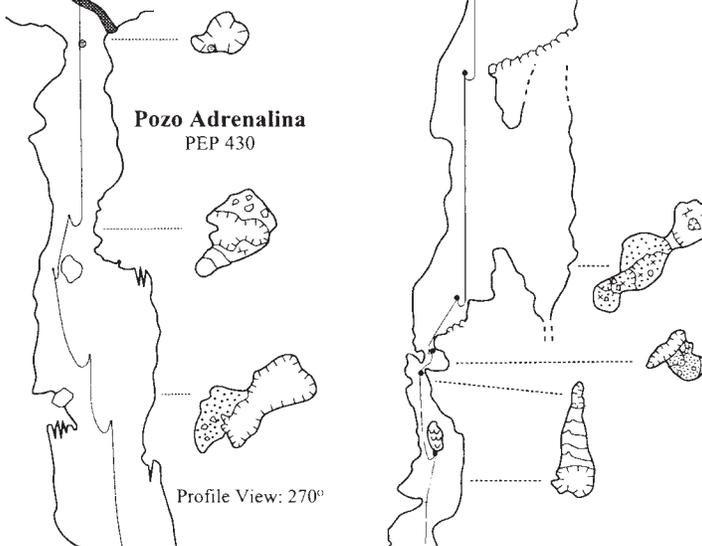
Drafted By: K. Stafford



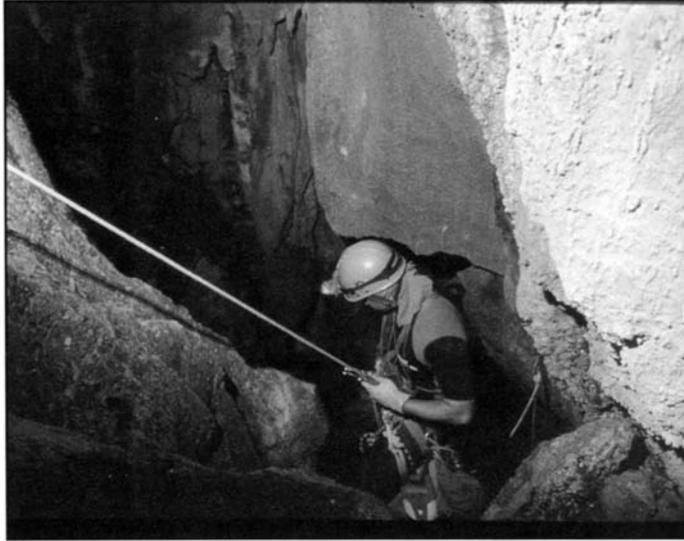
ave Locations, Santa Marta de Arriba, Nuevo León  
Carta Geologica, Zaragoza (F14A17), 1977



- Clickity Clack
  - del Puente Peligroso
  - Milenio
  - Seco Cenote
- PEP430 - Pozo Adrenalina
  - No Tag - Pozo Pastira
  - PEP440 - Pozo de Caldo
  - PEP441 - Pozo de las Pantaletas
  - PEP442 - Cueva de Chichi Ponchada



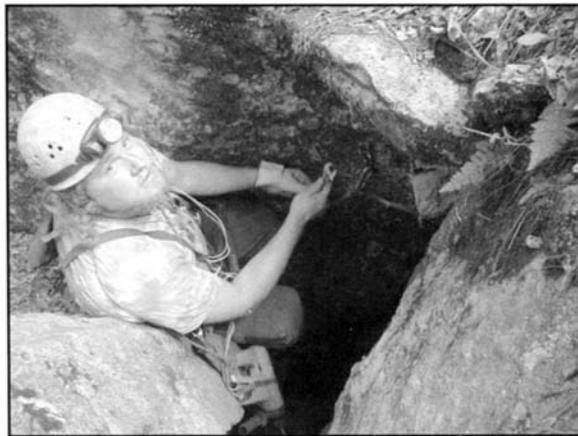
Pozo Adrenalina	Pozo de la Milpa	Pozo de Caldo	Pozo de las Pantaletas	Cueva de la Chichi Ponchada
23 Nov 1999	26 Nov 1999	22 Nov 1999	24 - 26 Nov 1999	25 Nov 1999
A. Guevara, C. Savvas, P. Sprouse, F. Vanoye	K. Stafford, J. Wilson	A. Guevara, P. Sprouse, F. Vanoye	A. Guevara, C. Savvas, P. Sprouse, K. Stafford, F. Vanoye	S. Lasko, C. Winfrey
Depth: 52 M	Depth: 15 M	Depth: 7 M	Depth: 140 M	Depth: 4 M



Aldo Guevara descends the Jolly Rancher drop in Pozo de las Pantaletas.  
Photo by P. Sprouse

Kevin, Aldo, Fernando, and I went to the deep pit we had found two days earlier above some houses. Four rebelays got us down the 50-meter entrance pitch to land on a pile of discarded clothes. A 10-meter slope led to a tight crawl which Kevin dug open to reveal a deep pitch, but his drill battery was exhausted. We left “Pozo de las Pantaletas” for the day and hiked north along the contact trail. Kevin dug on a sink close by that was opening into a 30-meter blowing pit. Two hundred meters farther north was a nice 50-meter pit also blowing air. We then finished up the northern end of the contact, finding no more caves.

On the following day, Susie and Cathy hiked east over the pass down five switchbacks of the new road toward Santa Marta de Abajo, but didn’t reach the end. Charley, Liam, and Jonathan returned to Pozo Milenio and did the bolt climb up to the window into the next pit, which was 23 meters. It ended in breakdown with no airflow. Kevin, Aldo, Fernando, and I returned to Pozo de las Pantaletas. Kevin’s drill ran out of juice again (apparently the charger was not working overnight), so we had trouble rigging. Kevin finished up the bolt he had begun by hand-drilling. Five meters below that he rigged a rebelay to a flowstone bridge, then eight meters lower he tied one on a horn which slipped off after it was weighted. He bailed, and I went down for a try. I found an iffy deviation, which got me past the sloping section and into a large vertical shaft. I reached the end of rope 40 meters down, and tied on another piece to descend another 20 meters to the floor. There was a diggable constriction with air, but I had to return to the others who were out of earshot. Once up the 60-meter pitch, Aldo and I carried



Kevin Stafford rigs Pozo Clickity Clack.

Photo by J. Wilson

the survey down to the deviation, then we all left.

On our last caving day, Liam, Susie, and Cathy hiked east up a side valley looking for a cave we had heard about, Cueva del arroyo Colorado. They found only a small cave they named Cueva de la Chichi Ponchada. Kevin and Jonathan drove down to Zaragoza for beer, then surveyed a dirt pit in the field near camp (Pozo Pastura), which went 14 meters deep and was accessed by rigging off a crowbar they drove into the ground. Charley, Aldo, and I went back to Pozo de las Pantaletas, with Charley setting two bolted rebelays down the 60-meter drop. At the bottom, a dig opened up into a parallel dome room with a short drop down to a pinch. We wrapped up the survey and de-rigged for an 8-hour trip. It was cold when we got out, and the big campfire was again a good thing.

Saturday we drove down to Zaragoza and on to Texas, dropping Aldo and Fernando at the bus stop in La Escondida.

*En Noviembre de 1999, siete espeleólogos exploraron el área de karst cerca de Santa Marta de Arriba, NL, buscando cuevas por el contacto calizalutita. En este valle fueron explorados varios pozos de poca profundidad, mientras que los pozos más profundos se encontraron al contacto. Fueron estudiadas catorce cuevas, con dos pozos de más de cien metros de profundidad. En esta área hay todavía mucho trabajo por hacer en las cuevas y pozos reportados por la gente del lugar.*



Fernando Vanoye climbs Pozo de las Pantaletas.

Photo by P. Sprouse

# Dive of the Valkyrie

## By Jason Richards

I had been trying to talk my friend, John Bojar, into skipping work and coming to Mexico with me for almost 6 months. I didn't really have any indepth plan; Peter Sprouse had been talking about a place called Nacimiento de Hervores that supposedly had a nice sump that needed diving. Well, that was certainly enough to get me off the couch and gathering gear. By the time May came around, the gear was packed, and the travel plans were made. Christina Jett, John, and I piled in the Jeep and drove like crazy to get to Peter's house in Austin.

In Austin we spent a couple of days assembling the rest of the crew; Bev Shade, an ex-Texan living in Minnesota, Mark Halverson, a first time caver from Minnesota, and Barbara Luke all the way from Las Vegas. With only a few mishaps in Monterrey, and despite a blown C/V joint in Mark's truck, we arrived in Conrado Castillo two days later, picking up three cavers in Ciudad Victoria: Aldo Guevara, Xochitl de la Rosa, and Fernando Vanoye.

By the time we reached Conrado Castillo, it was apparent that the rainy season had begun. A daily deluge dominated the afternoons, and there was some worry about the safety in the lower parts of Brinco due to the elevated water levels. Though it was never specifically mentioned, Nacimiento de Hervores was quietly put aside, as the plans for the week changed and it looked like a camp away from the field house would be too troublesome and time-consuming. John and I were determined to get a dive in somewhere, and continuously questioned Peter and poured over the fieldhouse log book in search of dives that needed to be done. Peter eventually mentioned a place called the Valkyrie River.

Peter described the sump to us as a nice pool in a standing passage that had outward flow. The passage below the water level was an estimated 2 meters high and some 3 meters across according to the logbook. The water was supposed to be crystal clear, with pebble gravel on the bottom instead of soft silt. It sounded perfect. Well of course, if it was all that easy, someone would have dove it years ago. The part that wasn't described in the logbook was the six-hour acrobatic climb/crawl to the water.

John and I had discussed the gear requirements for a remote trip for some time. I had just returned from working a sump cave in Texas that

had required multi-hour stoop crawl/walking with tanks and had found that using aluminum 40 cubic foot tanks was the best choice based on weight versus cubic footage. I had also found that in this cave, bags were not necessary for the tanks as they could be dragged along in the water or pulled along in the mud with the regulators on the tanks. If the hoses were stowed correctly and proper care was taken, there would be no damage to the regulators. We had done multiple trips in this configuration with great success.

The other key factor was reducing the weight of ancillary equipment. Large canister-style primary lights were definitely out, as their long burntime and powerful beam were unnecessary, and the batteries are just too heavy. We opted for two SL4's and utilizing my new LED light on my helmet. We also decided on bringing light 3mm suits instead of heavier neoprene suits or bulky trilam wetsuits, a decision that we would regret in the end. I also brought my no-mount harness; a rig that I designed specifically for caves too small to have tanks attached to the diver. It basically consists of a loop of bungee cord in a figure eight around the shoulders, and a weight belt with low profile d-rings just behind the hips. The design, coupled with small carabiners on the tanks, allows the diver to quickly secure and free both tanks from the waist belt and rotate the tanks on the bungee cords in front of the body where they can be shoved into small restrictions ahead of the diver. The real advantages to the system are that the whole rig weighs less than one pound and can be rolled into a very small ball.

After gathering as much information as we could, we decided to bring John's large reel with 450 feet of knotted line, fully anticipating that the sump would end and continue in river passage within a hundred feet at most. We were very wrong.

At about 1:00 P.M., after a lot of standing around and contemplating the carrying of heavy tanks, we headed out to the French Entrance of the Brinco-Infernillo cave system. Peter, Barb, Aldo, and Mark decided to help John and I get down to the sump, and while we were surveying the dry cave on the other side of the sump, they would go back and check a side lead a little bit downstream. The trip down was a long one. We reached the sump after six hours of climbing and passing tanks, small bits of crawling and wading through the cold water at the bottom. John and I had suited up at the changing room, so we were moderately warm at the sump, but it didn't take the others long to cool off in the 53 degree passage. I geared up and set the dive line, while Peter and



Hauling tanks in the French Entrance.  
Photo by P. Sprouse

Barb connected the dive line to the existing survey. The plan was to push through and connect to the dry cave on the other side, then come back and tow John through the sump with the extra tank we had brought. John, and accomplished cave diver, agreed with the plan and we decided that if the passage resumed, we would take turns laying the line. After some final words, I submerged, shutting out the dry caving world above.

The early reconnaissance had been correct, the passage was 2-3 meters tall and between 3 and 6 meters wide! The floor, covered with uniform pebble gravel was beautifully smooth, no footprints or fin marks to mar the softly undulating surface. Immersed in beautiful blue, crystal clear water, this was the caving I had hoped for. The walls were pure white, reflecting my weak dive lights well enough to appear much brighter than they really were. Occasionally large slabs of eroded limestone sat along the edges of the passage, making excellent tieoffs for the line. After a few minutes of relaxed swimming, the ceiling changed to a silver mirror, meaning there was once again air above the water. I fully expected that I would have to climb out of the water into the dry passage, as the floor was still three meters below me. As I reached out of the water, I was surprised to feel a rock ceiling no more than 15 centimeters above the water, just enough for me to shove my face against the ceiling to see. There turned out to be only a crack running across the ceiling and no going passage. The same was true for the next air pocket as well.

As I descended the slope of a debris pile at the second air pocket, I could see a large boulder that appeared to be blocking the entire passage. As I swam closer, it looked like I might be able to squeeze around the rock on the right side, but I might have to take a tank off to make it. I managed to get my shoulders into the restriction, and was able to squeeze through the hole by pushing one tank into the floor. I was not surprised to find yet another large debris pile and air bell ahead. This time the air bell was no more than two centimeters above the water. I made a tieoff near the edge of the airbell and headed back for the floor. By this time, much to my surprise, I watched the last of the line come off the reel. I looked for another convenient piece of breakdown to make the final tieoff, and cut the reel free. I stopped for a minute to look at the borehole passage stretching off into the blue distance, wondering how long it would be before we got back here. On the way back I clipped, the reel off



Jason Richards and John Bojar prepare for the dive.  
Photo by B. Luke

and brought out the survey slate, surveying through the crystal clear water on the way out. As I reached the tieoff, I could see the lights from the rest of the team on the beach, shining into the water.

As I climbed out of the water, I realized that I was so cold I could barely speak, but John understood when I held the empty reel out of the water. I didn't want John to miss the opportunity to dive after we had hauled the gear all the way down, and he was happy to relieve me of my mostly full tanks. His dive was much shorter, but he managed to get the vertical profile sketch on his dive, a critical part of the sketch that I had not gathered. He also double-checked the airbells and tieoffs. Upon his reemergence, we both decided that on the return trip we would bring drysuits and a whole lot more line.

Looking back, it was a very successful survey trip. We managed to add roughly 150 meters to the

cave system in a direction where no other passages are going. The passage is still going strong, and should it ever surface, will most likely be in an entirely new piece of dry cave. We learned some lessons we will take back on the next trip. First and foremost was the drysuit issue. We were warm enough for the dive we did, approximately 25 minutes for myself and 15 minutes for John, but by the end of the dive I was shaking so badly I was having a difficult time surveying. The extra weight and bulk of the trilam suit would be worth the effort. The amount of line is difficult to estimate. We did not anticipate continuous underwater cave and did not bring enough line for the scenario. In retrospect, we brought the right amount of line for the situation we had prepared for. Next time, we will bring more. We also learned something about bags. Hauling the tanks through walking or crawling passage is easy with tanks. Climbing with them is another matter. Travel time to and from the sump might have been a little shorter with custom bags for the tanks.

We hope to get back to the Valkyrie River next year, weather and sherpas permitting. For now, the end of the line waits in crystal clear water, only a ten-minute swim, 10 meters of depth and a six-hour hauling trip from the entrance.

*Durante el viaje a Conrado Castillo en mayo del 2000, dos espeleobuzos de Florida avanzaron el sifón del Rio Valkyrie en el Sistema Purificación. Los dos buzos con la ayuda de cuatro sherpas cargaron tanques por seis horas de la Entrada de los Franceses. Bucearon por 150 metros hasta acabaron de cuerda. El pasaje continúa en agua clara con dimensiones amplias. Intentan regresar en el 2001 con más equipo.*

# On the Dry Side

by Peter Sprouse

In the preceding article, Jason has described his sump dive in Brinco during the May 2000 trip. I'll describe the rest of the things we did on that trip besides the Valkyrie River.

Our first destination, after leaving Cd. Victoria on 25 May, was the Nacimiento del Río Purificación in the far northeast corner of the project area. Here is where the Río Purificación flows year-round from a large spring pool in the river bed, at the base of an enormous cliff. We had visited this site several times in the past, but in the way of studies had only done flow estimates and water chemistry work. Now we had divers along, and fish biologists, so we spent a few worthwhile hours in those activities. Jason and Jon did some dives, but only located one spring portal too tight to enter. They did place a fish trap at the entrance, but we were not able to retrieve it on a later trip. We did have better results on a smaller spring downstream, where I placed a mop trap for crustaceans. When I retrieved it in July, I found a new species of asellid isopod.

Once we had arrived in Conrado Castillo, our first day's objective was Cueva del Brinco. We divided up into three teams. Barbara took Chrissie and Mark down Traverse Pit, to look at the area around Gandalf's Twin Holes, but they aborted when Mark became ill. Bev, Jon, and Jason went right at the T, finding a new passage heading down. They mapped 60 meters in the LA Freeway, and it continued looking good. *Aldo, Fernando, Xochitl, y yo fueron al Río Verde.* This was Mark and Xochitl's first caving trip. We stopped at the lake before the Brain Room and left a fish trap, then headed out for a 7-hour trip. A violent thunderstorm hit in the wee hours, driving Aldo, Fer, and Xochitl into the house and blowing their tent away. They hadn't bothered to stake it down.

On the 27<sup>th</sup>, we had more or less of a surface day. Bev led Jason, Aldo, and Jon to Sima Doble to look at climbing leads. They didn't go, but they did push a waterfall dig down 1.5 meters. It needs a lot more work but takes air. The rest of us hiked up Picacho Vaquerillo looking for Sótano de las Enredaderas, with no luck. So we hiked uphill to relocate Sótano del Picacho del Vaquerillo, then down the ridge from there to Sótano del Madroño. Barbara, Fer, and Chrissie did the survey of this



Collecting biological specimens from Río Purificación.  
Photo by P. Sprouse

previously explored pit, while Xochitl and Mark used it to do their first vertical work.

The next day was the big dive trip to Valkyrie River. It was actually going to be a trip to Dragon River, where Bev was keen to look at climbing leads which might provide the long-sought connection to Sótano de la Cuchilla. But fate intervened with the passing of local resident Rosa Pérez, and we were asked to help bring up a casket for

her from Cd. Victoria. Bev returned to Conrado Castillo in the wee hours after an 18-hour trip, right after we had gotten back from the dive trip. So the following day we weren't good for much, but Bev and Jason did go up to rig Cuchilla. They rigged all the way to Last Drop, but it was rather wet, and probably sumped below.

On the 30<sup>th</sup>, Barbara, Jon, and I went down the First Stream in Brinco, mapping three loops near the entrance to Guano Groad. Then we went down to Gandalf's Twin Holes and mapped an upper-level lead that looped back to First Stream, netting 150 meters of survey. Bev, Jason, and Chrissie returned to the LA Freeway and mapped another 60 meters.

The next day, Aldo left on a logging truck for the 11-hour trip to Victoria. Six of us went into Cuchilla. Jon and Mark took photos to Chevron Pit, while the rest of us went to the upper levels. A lead off the Patsyncline Passage just looped back in, so we headed north and mapped two more loops. Then Bev climbed up a hole in the ceiling where I'd explored 20 years earlier and lured us up for a survey. At the bottom, I collected the first blind scorpion from the cave, and a nice pseudoscorpion. Up top we mapped the crawl toward a presumed second entrance, which got too tight, and the rest of a pleasant maze. Barbara had left earlier with the others. After our survey, I left Bev and Jason eating and went out solo, emerging to a forest twinkling with fireflies.

The walk down the mountain to the house was pleasant, a nice end to the week in Conrado Castillo.



Placing a fish trap in the Río Verde.  
Photo by P. Sprouse

*Además del trabajo de buceo en el viaje a Conrado Castillo en mayo del 2000, se realizaron otras exploraciones. En el Sistema Purificación, fueron explorados 150 metros de nuevos pasajes en la Cueva del Brinco, en el área del First Stream. En el Sótano de la Cuchilla 134 metros de los pasajes más elevados fueron mapeados.*

# Reconnaissance of the PEP Boundary Extension

By Kevin W. Stafford

Over the past few months I had been contemplating moving to Mexico and finding a house in Zaragoza, Nuevo León, where cavers could stay while pushing the karst on the western side of PEP. Having just returned from the North Atlantic, this seemed like a perfect time to head south. At the same time, this trip would serve a second purpose of reconnaissance into the southern and western extensions of the PEP field area. With short notice, I did not have time to assemble a group. However, after asking around at a UT Grotto meeting, Cathy Winfrey said she could take a week off on short notice, so we planned to head out in two days, on Friday, July 7<sup>th</sup>.

Friday arrived, and we left for Zaragoza. I drove through the night as Cathy slept, arriving in Zaragoza Saturday morning. We spent until mid-afternoon, talking with locals and looking at houses to rent. Unfortunately, only one house offered the security and size that PEP would need, but the political support staff for PAN currently occupied it. We were asked to come back on Wednesday to see when the house would be available.

Having exhausted our resources for the time, we left town and headed south towards El Barro and Aserradero la Encantada. At the latter, we stopped and visited with locals whom Peter Sprouse had met two weeks earlier. We then proceeded on to Siberia, adding the roads to the topo maps. By the time we arrived, the storms blew in and the locals had been driven inside out of the rain. Unable to ask about the caves, we continued on the main road out of town.

After about ten kilometers, we found a major road intersecting from the east. We proceeded along this road in hopes that it would lead us close to two large collapse features bisected by faults that I had noticed on the geologic maps. Before nightfall, we were at 3100 meters, the road continued higher, and Hoya Quemada was directly in front of us.

This is the smaller of the two collapse features of interest, and directly in the center was a sink, just as I suspected. Having added many kilometers of road to the map and locating our first new cave at 3150 meters, we bedded down for the night. We now had the highest elevation cave in the project area and in the state of Nuevo León.

The next morning, we awoke from a rough night's sleep, having driven from effectively sea level in Austin to over 3000 meters in less than 24 hours. We started the day by rigging a rope off the front bumper of my truck to access the shallow pit of 7 meters with a mud filled floor covered in sprouting grass, earning it the name Cueva Pastor Verde (PEP419). Unfortunately the pit did not go any farther, because



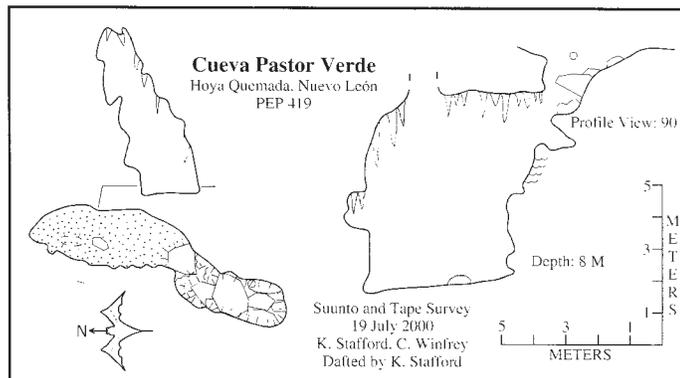
Kevin Stafford rigs the entrance to Cueva Pastor Verde

Photo by C. Winfrey

the entire surrounding area was burned in the past, allowing for massive erosion to wash most of the soil off of the surrounding slopes down into the valleys plugging the caves.

While I was rigging this cave, two ranchers passed by and told us about a deeper pit one valley to the North (the larger feature of the two in the area) and the location of a road going to it. By noon, we were driving into this huge doline measuring 1000 by 500 meters with a large pit entrance in the Southeast corner. This pit soon gained the name Pozo de la Vaca Feral (PEP423) out of Cathy's fear of the friendly cattle in the valley that were around her while I bottomed and sketched this 20-meter deep pit with another mud plugged floor. This pit however had a drain area along the northern wall with minimal airflow, which could be dug.

We departed by mid afternoon and returned to the road we were on the previous night. We continued south, crossing Picacho San Onofre at 3500 meters, for approximately 40 kilometers until the road terminated in the Peña Nevada. This entire region, at the termination, appears to have been clear-cut 40 or 50 years ago to the point that the en-



tire soil surface has eroded away, leaving an area devoid of pine and oak trees except for the occasional ones killed by lightning strikes. Now the area is covered with cacti, sotol, and scrub.

Having exhausted this road, we back-tracked through Hoya Quemada and camped at 2900 meters

The morning of July 9, we returned to the main road we had diverged from two days earlier and continued south, dropping in elevation as we passed through Las Crucitas, Puerto el Piño, and Hoya de San Lazaro. We then crossed out of the limestone into the gypsum and conglomerate zones, as we descended to the valley through Santa Lucia and back to the highway, five miles north of Dr. Arroyo. This led us back to Zaragoza via Escondida.

While passing through Cuesta Blanca, north of Zaragoza, we noticed a small gypsum headwall 100 meters west of the road. We found it to be the far wall of a 20-meter diameter pit, close to 30 meters deep with visible continuations around the basal collapse. We put this off for later and headed to town to check on the status of the rent house situation. Unfortunately, nothing had yet developed, so we decided to go look for the much-rumored Cueva Cuesta Blanca with its flowing river. After much searching and talking with locals, we finally deduced that the trash pit north of town and Cueva Cuesta Blanca are the same thing. However, during this process we discovered a second, larger gypsum pit near the first one that measures 30 meters in diameter and 60 meters deep. We finally returned to Zaragoza for an early night of good sleep at the hotel.

Tuesday we started by heading to our two gypsum pits. I could not convince Cathy to push the deeper one, so we went to the smaller. Fortunately, we were able to drive within three meters of the pit and once again I rigged a rope off the front bumper. We quickly dropped 10 meters to the top of a trash slope formed by the local waste disposal system and, with a machete, I hacked a trail down the slope of trash overgrown with vegetation. Once at the bottom we noticed the large quantities of guano formed by the golondrinas swallows living here and confirmed the continuation of two passages taking off on each wall. We surveyed the passage on the south wall until it soon terminated, just as locals began to appear to see what we were doing. We then pushed down the north wall where the passage was larger. I descended an eight-meter crevasse and discovered a lower

chamber with bats flying around in it. They had been awakened by the numerous large breakdown blocks I dislodged during my descent. We ended our survey here because Cathy did not like the exposure of the climb in conjunction with the amount of loose breakdown. This looks like a good lead to get back to!

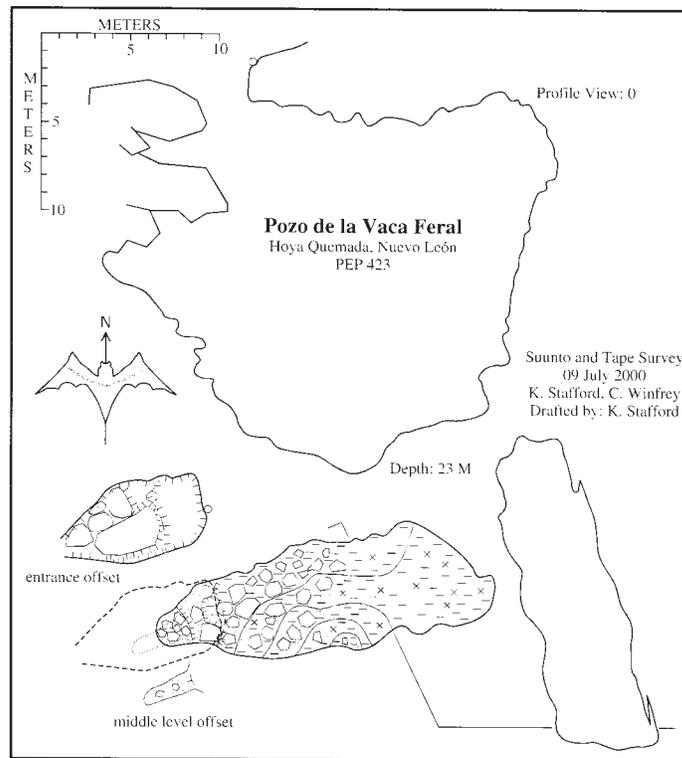
We left the pit and headed southwest up Arroya Las Cañadas to see if there was anything associated with El Salitre (Saltpetre). We discovered two more large collapse pits near Los Difuntos. Continuing on, we soon found our road blocked by collapsed slopes before reaching El Salitre. With this new barrier in front of us, we returned to Los Difuntos and took the lower road towards Las Cañadas where we met a local who informed us that this road continued through to Siberia and that there were rumored pits below the big valley of Siberia.

With this new knowledge, we headed up the mountain logging road, mapping yet another new road. We found this road marginal, to say the least, in certain areas, including one road collapse which we reconstructed that gave way as our rear tires passed over. However, the road was passable, and we slowly ascended through El Tercio, Caliche, and Santo Niño, gaining no knowledge of caves or pits from locals during our ascent to Siberia.

Once in Siberia, and back on a road we knew, we headed back towards Asserradera la Encantada in hopes of finding the road Peter discovered earlier, which led to Cerro la Peña. We found ourselves on the road shortly and again in search of another “area of

interest” I had been looking at on the geology maps. This time it was a shale/limestone contact. We soon found a series of sinks, some with airflow, that aroused our interest, just as the sun was setting and time for our search for a place to camp for the night had arrived.

We awoke Wednesday morning and proceeded towards the illustrious contact zone. Within an hour of driving, we saw the limestone gleaming below the shale as we approached Las Avispas. This area is a large, gently dipping arroyo which is irrigated by the super acidic waters flowing off the overlying shale. The perfect area to cut limestone, or so we thought as we pulled into town. Much to our disappointment, none of the locals we talked to knew of any caves or pits in the area but, on a positive note, we were told that the road continued up Cañada Honda and over to Santa Rosa



(an area Peter was told had caves). We headed up the road to find yet another area where the locals knew of no karst development.

By this time, it was mid-afternoon and time to head to Zaragoza. We started back, checking a couple of side roads along the way until we reached Aseradera la Encantada. Here we picked up an elderly man who was walking to Zaragoza. As we continued down with him, he told us of the numerous caves and pits in the area. We knew the area had potential, but it appears to be greater than we realized and will require extensive investigation.

In Zaragoza, we returned to the ritual of house hunting and once again were put off until morning. This gave us the excuse to stay at the hotel another night, giving me a chance to study the geology maps a little more for our last couple of days in the area.



Kevin Stafford sketches Pozo de la Vacca Feral  
Photo by C. Winfrey

I awoke a little early and left Cathy to go and check on the house situation. I finally received an answer on the PAN house and it should be available by mid-August,

making it possible to establish a new PEP base by September. With this bit of positive information, we headed out again, this time south by southwest, up Canada El León, in hopes of reaching El Muerto.

With this in mind, we rapidly ascended this road, familiar from the November 1999 trip to Santa Marta de Arriba. We stopped in Tepozanes to obtain information and discovered that the only roads to El Muerto were burro trails, but that some caves and numerous pits (some very deep) existed in the area. Next in line was to look for the road past Refugio that continues up the canyon. Alas, we struck out again without a true road heading up the valley, so we took the only road left, the one to Santa Marta de Arriba.

We continued on and talked to additional ranchers in Santa Marta de Arriba, discovering that there are more caves and pits east of the area we plundered in November. As well, we found that the road to Santa Marta de Abajo has now crossed Puerto Santa Ana, but is not yet completed. Once again, we were at the end of the road and had to turn around and head back to Zaragoza.

In Zaragoza, we fueled up from the 50-gallon drums in

town and headed north towards Arramberri. Here we headed northeast along the northern boundary of PEP. This area is filled with large fluvial deposits and gypsum, and is peppered with numerous sinks and several spring resurgence flows as much as 200 cubic meters per minute.

We continued north to Lampasitos, and were informed along the way that a large cave (Cueva de la Perra) was located just east of Arramberri. This will need to be located in the future, for any cave large enough to be widely known must be a significant feature. Further down the road, we crossed the Rio Virgino before arriving at Lampasitos. Here we noticed a large entrance in a distant cliff, and locals informed us that a large cave existed nearby from which the river flows. This appears to be one of the best-rumored leads I have discovered recently.

About this time, we noticed my fuel pump was seriously complaining and the engine was not receiving enough fuel. We decided it was time to cut this trip a day short and start heading back to Texas in case the fuel pump went out completely. We experienced some difficulties making it back to Arramberri with the engine stalling on the steep uphill stretches. However, we eventually made it back to Texas with the problem decreasing as we added better-quality fuel to thin out the dirty gas from the 50 gallon drums.

With this trip over, a few things can be summarized. We added over 100 kilometers of confirmed, new roads to the maps of the southern extension of PEP. The areas around Las Avispas appear to be less developed than expected, but will require more investigation due to the nature of the shale/limestone contact. We added a new highest-elevation cave to the PEP field area and the state of Nuevo León at 3150 meters. The regions around Aseradero la Encantada and El Refugio appear to have great potential. The gypsum karst surrounding Zaragoza has better potential than originally expected, with large pits being more prevalent. The establishment of a base house in Zaragoza is well underway, with a probable implementation in September 2000. An important lesson on Mexican fuel was learned, with the knowledge that extra fuel filters (and fuel pump) should be carried by people driving fuel injection engines. Finally, even though only a few caves were surveyed, this proved a very productive trip for making local contacts and performing an initial check of the karst areas and road access into the new southern extension of PEP.

*Dos miembros del PEP realizaron un viaje de reconocimiento en la extensión suroeste del área del proyecto durante la primera semana de julio del 2000. Fueron confirmados más de 100 kilómetros de nuevos caminos los cuales fueron agregados a la base de datos del proyecto. Encontraron una cueva muy alta, a unos 3150 metros y también varias dolinas en yeso fueron descubiertas en el área de Zaragoza. Otras de las áreas de extensivo desarrollo de karst fueron visitadas cerca de Aseradero la Encantada y El Refugio, numerosas cuevas fueron reportadas por gente del lugar.*

# A Foray into Sistema Purificacion

by Dawn Cardace

Duration: June 9-25, 2000

Members: Dawn Cardace, Bev Shade, Bill Stone

Friday night we met at the Houston Intercontinental Airport and repacked Bev's truck in the airport parking lot. We began the drive south to Mexico around 10:30 p.m., driving in shifts through the night. We hit the Mexican border at around 7:00 a.m., and after backtracking to find an ATM, gasoline, and an open visa office at Gateway International, we continued south through Matamoros. We had breakfast at La Granera, a small restaurant dear to Bill's heart, and scouted around for a place to buy some carbide for his lamps. Some local fellows from San Fernando directed us to a welding shop where we purchased a few liters of powdered carbide despite misgivings about its fine grain. We continued south, making fairly good time up the mountain, and moved into the cabin at Conrado Castillo by late afternoon.

Sunday, Bill rigged a rope in a tree behind the cabin, and Dawn practiced climbing up and learned to deal with rebelay. We entered the Brinco entrance at 6:00 p.m. with a great deal of gear, planning to eventually camp in the World Beyond and push the bolting leads in the Dragon River. At the Chute and the Crack of Doom, Bev commented that she'd never heard so much water thundering down! We passed packs up the watery rush, and cached gear (ropes, drill, bolts) at the end of the Lunar Way. We continued to the end of the LA Freeway with Bill's generator sparking and catching fire on the way, melting a cm-size hole in the side. Apparently the sand-sized carbide grains reacted too fast, creating an excess of heat and gas igniting the sock holding the carbide dust. We left the whole lamp there to cool down and used electric back-ups to get to the lead. We had hopes of connecting to the Tequila River, but it did not go. We turned back around 1:30 a.m., exited the cave at about 6:00 a.m., and slept for most of the next day.

Tuesday, we went back into Brinco to check whether the Canal was sumped or not. Wetsuits made this trip easier, but we were chilled by the time we reached the Canal. It had about 5 centimeters of air space at the far end, so we elected not to push the trip as planned, because it had been raining daily and Bill and Dawn lacked full wetsuits. We made our way back to the T, and hauled out the gear we had cached earlier, leaving some survey gear, etc. in the Changing Room to be retrieved later.

Thursday, we ridgewalked from the pass west of Cerro Vaquerito down to the La Curva-Los Caballos road. We found nothing in this valley, except a few small karst features. After reaching the road, we walked southeast along it to where a prominent ridge comes down from Cerro Vaquerito. Less than 20 meters south of the road, near a small cave found



Troglitic pseudoscorpion and scorpion from Cuchilla.  
Photo by P. Sprouse

several years ago by Paul Fambro, we found a crevice cave estimated at 20 meters deep. As we hiked up the ridge, an eroded, 10-meter pit was found, but it did not go, nor was it very safe or interesting. We did locate a promising blowing crevice on the northeast side of the peak. Bev was ready to head in, but the entrance was extremely small. We tagged it as entrance PEP424, flagged it to the road, and built a rock cairn to mark the spot along the road near the parking area for Cuchilla.

Friday, we made it into Brinco by noon, and proceeded back to a high lead in the LA Freeway. It went to a room, up a flowstone climb, and ended up hooking back to a previously surveyed station (Peter's old hammer lead). Another lead from Laker Jct connected to the Tequila River (Grim Sucking Minnesota Reality) via the miserable LA Shredway, which represents a dry bypass to the Canal.

Saturday, we went ridge walking past La Ventanita, toward Agua de las Vacas. Cain Ledesma led us to a nice shaft (PEP463, Skeleton Woman Cave), which we rigged and surveyed. The pit is 60 plus meters, with two possible climbing crevice leads near the bottom and one less interesting lead on a big ledge about halfway down.

Sunday, we returned to check the other three pits that Cain pointed out. We mapped Twisted Spoon Cave, which ended at a hammer lead. The other two caves were little more than rock shelters, so we surveyed overland in light rain from Skeleton Woman and Twisted Spoon to La Ventanita.

Monday, we pushed a dome near the base of the Rock Drop in Cuchilla off of Paul Fambro's climb of Christmas 1995. During the climb, a big hunk of old stal came loose in Bev's hands as she was bolting, creating a large splash as it came down. The top of the dome led to a flowstone-covered al-

cove, and a short climb to a tight passage in line with everything else in Cuchilla. It trended back toward the entrance, quickly pinching into a flowstone choke, which had a spurt of water coming out of a hole under artesian pressure. The stream was small, but rose more than 5cm in the air. The other direction led to a 15cm-diameter hole looking into a larger room that is not near anything else on the map, but unfortunately we could not see into it and there was no air-flow.

Wednesday, we returned to Cuchilla and surveyed the previous day's dome, and the alcove on the far side of the Snow White Room. It was free-climbable, and had obviously been climbed before, but was never surveyed. However, it did not go either.

The next day, we returned to push a lead below the Peter Rabbit Hole. We bolted across the layered chert and limestone beds to a lead across the pit. This led to a flowstone-covered alcove, with a short tight climb at the top leading to a questionable passage. It was not immediately passable, despite some efforts. It appears that we aimed too high to access the entry point of the waterfall in this room. Since it had been raining so much, the water flow was more pronounced everywhere, making it difficult to locate the primary source. Bev and Bill scouted around for a short period of time, and then rigged a tyrolean to get back across the room. We did, however, shoot many photos before we headed out of the cave.

Friday, we went up the road towards La Ventanita, to check a lead shown to us by David Ledesma. The small pit is considered locally to be a spot with hidden treasure. While it has been known for years to the cavers, it had not been surveyed. It was short with no leads or airflow, but a continuous water flow soaked immediately through the floor without ponding. We spent the evening packing up Bev's truck and cleaning out the cabin.

Before departing on Saturday, Bev and Dawn walked around to all the families and chatted as much as fledgling Spanish would allow, leaving a few partially spent batteries at each abode. It was a good round of visits, before we began the drive down the mountain at 10:30 a.m.

We pulled into the Lockhart Road Ranch around 4 a.m. Sunday morning. Stumbling in the semidark, we crawled into beds and woke up some time later to breakfast and lunch with Bev's folks. Then we headed back to Houston IAH airport, where Dawn ran inside to catch her flight.

*En junio del 2000, tres espeleólogos de E.U. estuvieron dos semanas en Conrado Castillo, Tamps., con el propósito de escalar unos ramales por el Río Dragón en el Sistema Purificación. Este plan no se realizó debido a que el nivel del agua dentro de la cueva era alto debido a las lluvias. Ellos investigaron varios ramales en los niveles más altos del sistema, conectando la LA Freeway al Río Tequila, creando una alternativa en al Canal. Además fueron investigadas tres nuevas cuevas cerca de La Ventanita y varias escaladas fueron avanzadas en el Sótano de la Cuchilla.*

# Cuchilla 1999

by Opie Combs

Our group (Bev Shade, Apollo Gonzales, Kurt Hill, Aldo Guevara, and I) arrived in Conrado Castillo on 9 July 1999. The next day we entered Sótano de la Cuchilla. After the Last Drop, the Hurricane Crawl was mostly blocked with water, more than Bev had ever seen in it. Since a hose and pump were there, we decided to start a siphon and return the next day with extra dry clothing. Total time in the cave was approximately 10 hours; lots of newbies were on their first vertical trip.

On 12 July, Bev, Kurt, Aldo, and I returned to Cuchilla. When we reached the Hurricane Crawl we found that most of the water was gone, but the siphon flow had stopped and the hose was still 15 centimeters below the water surface. We got wet but continued through. Aldo twisted an ankle and decided to wait above the Urchin Dome while we worked 15 meters farther up cave in a dome in the Kelp Annex that had been left as a lead in May 1998. We took turns putting in a bolt to protect the climb into the dome. Kurt completed the climb into the ceiling of this dome, and put in a rappel bolt. The passage above the dome leads off for about 8 meters, and quickly reduced in size to impassable. There was lots of mud on the floor, but it would be possible to dig through with some effort.

Bev and I also explored through the dig lead which had also been left unexplored in May 1998. Only minor rubble had to be removed to make it passable. This was a more exciting lead because we had noticed airflow in 1998. There was a good reason for the airflow, as it was going downward and following the northeast trend of most of this section of the cave. It led to 80 meters of stoop-walking passage, then reconnected with existing mapped cave from a small opening under an overhang in the EZ Cheeseway.

Another passage out of the old dig lead was smaller, a body-sized tube, and headed southwest probably above and to the east of the Kelp Annex. This passage was explored for about 20 meters, through several small chambers and smaller connecting crawlways. It appears to lose water through several impassable small drains. None of them had air. One 15 centimeter wide bedrock crevice in the ceiling had decent airflow, and seemed to be heading up the dip. With the last few leads exhausted, we exited the cave. No mapping was done because we were lazy and all leads petered out quickly.

*Tres espeleólogos americanos y dos mexicanos regresaron al Sótano de la Cuchilla en julio de 1999, para continuar explorando unos ramales. Varios pasajes nuevos fueron explorados incluyendo una escalada y una nueva ruta al Kelp Annex. Sin embargo, no fueron encontradas continuaciones importantes en lo que parece ser una ruta de conexión al Sistema Purificación. Las exploraciones para encontrar la conexión continúa.*



# PURIFICACION AREA CAVE DESCRIPTIONS

Contributions by:

John Fogarty, Pete Hollings, Beverley Shade,  
Peter Sprouse, and Kevin Stafford

***Faunal lists by James Reddell***

All UTM coordinates in NAD27 datum.



Peter Sprouse climbs Sotano de la Torre.

Photo by J. Feely

## SOTANO DE LA TORRE

PEP 29

Las Chinas, Tamaulipas

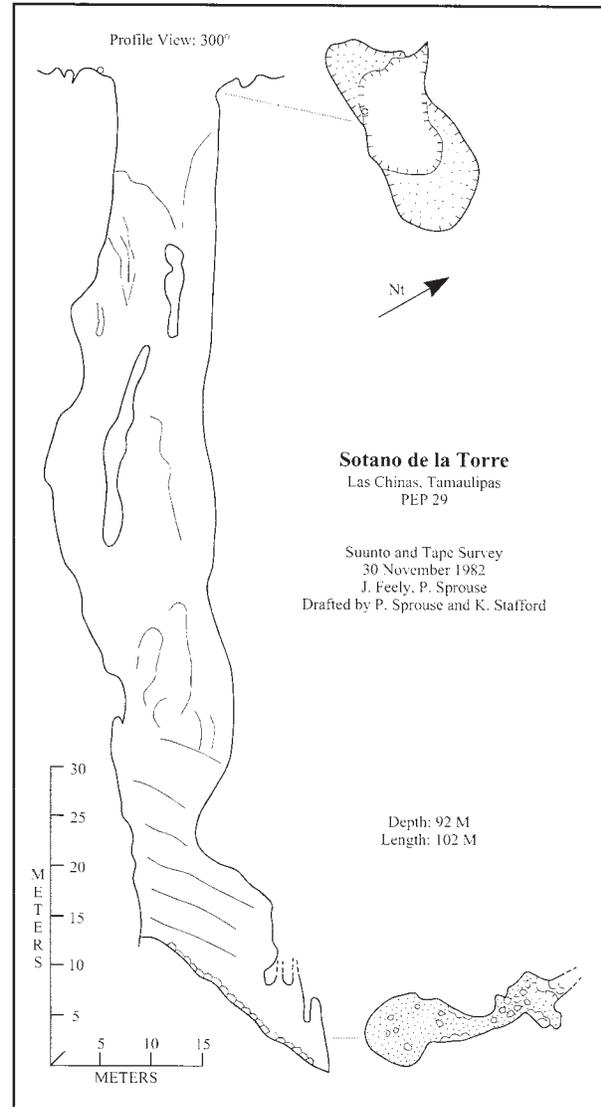
Length: 102 meters Depth: 92 meters

UTM coordinates: 455293E 2637215N

This pit is located 500 meters south of the Las Chinas fire tower at 2770 meters elevation. It is an 80-meter pit with two natural bridges breaking the drop up. At the base, the floor is composed of a scree slope of collapsed material completely plugging it. One small lead continues up a flowstone mound. The pit was discovered and explored in April 1973 by John Mikels and other cavers of the Pan American Speleological Society. Jim Feely and Peter Sprouse surveyed it on 30 November 1982. (KS, PS)

Peter Sprouse collected in the cave on 30 November 1982.

- Spiders: *Eperigone* sp. (accidental) *Modisimus reddelli* Gertsch (troglophile)
- Harvestmen: Leiobuninae n. gen. nr. *Nelima* and *Paranelima*, n. sp.
- Centipedes: Lithonbiomorpha undetermined
- Millipedes: *Cleidogona pochteca* Shear (troglophile)
- Lamellicorn beetles: *Xylorcytes* sp. (accidental)
- Midges: Chironomidae genus and species
- Sand flies: Psychodidae genus and species
- Humpbacked flies: Phoridae genus and species



## POZO DEL PESO

PEP 79

La Pascuala, Tamaulipas

Length: 35 meters Depth: 35 meters

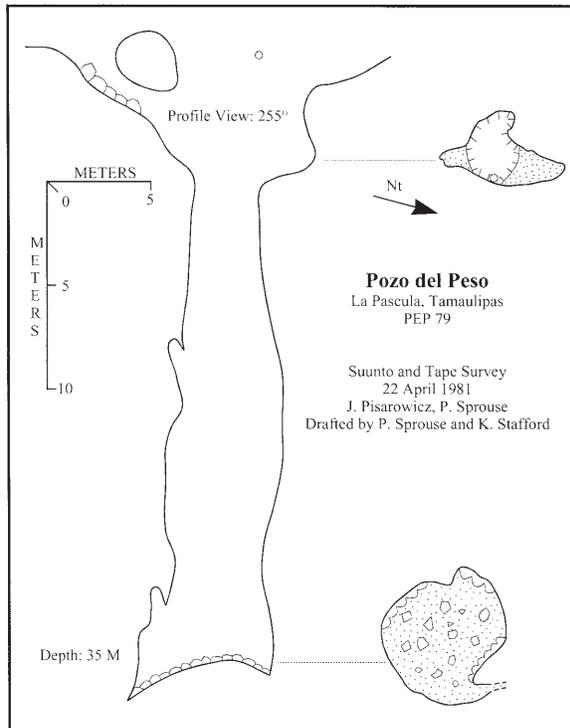
UTM coordinates: 453443E 2643386N

This pit is located at La Pascuala, a road junction 4300 meters north of Rancho Nuevo at 2577 meters elevation. It is a single drop of 35 meters to a collapse-filled floor. One

small continuation exists at the base, but it is impassable. Jim Pisarowicz discovered this pit on a recon hike on 12 April 1981. He marked it by dropping in a piece of flagging tied to a peso coin. Jim and Peter Sprouse explored and surveyed the pit on 22 April 1981. (KS, PS)

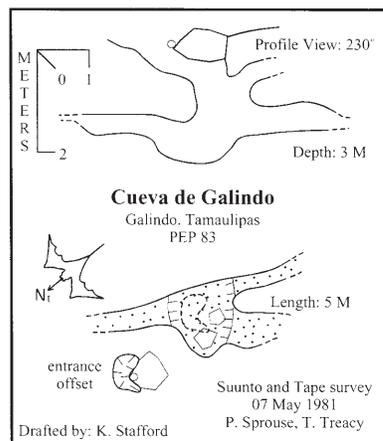
Peter Sprouse collected in the cave on 22 April 1981.

- Snails: *Spiraxis* sp. (accidental)
- Spiders: *Nesticus* sp. (troglophile)
- Mites: Acarina undetermined
- Centipedes: Lithobiomorpha undetermined  
Geophilomorpha undetermined
- Millipedes: *Cleidogona yerbabuena* Shear (troglophile)
- Springtails: *Pseudosinella reddelli* Christiansen (troglophile)
- Slender entotrophs: Campodeidae genus and species
- Ground beetles: *Mexaphaenops jamesoni* Barr (troglomite)  
*Mexaphaenops mackenziei gracili* Barr (troglomite)
- Darkling beetles: *Eleodes (Caverneleodes) sprousei* Triplehorn and Reddell (troglophile)



**CUEVA DE GALINDO** PEP 83  
Galindo, Tamaulipas  
Length: 5 meters  
Depth: 3 meters  
UTM coordinates:  
453155E 2650882N

This small cave is located toward the south end of the Galindo valley at 1484 meters eleva-



tion. It takes the drainage from a large arroyo, but quickly ends in breakdown collapse. Development is unlikely due to its location at the base of the limestone. Peter Sprouse and Terri Treacy surveyed Cueva de Galindo on 7 May 1981. (PS)

Peter Sprouse collected in the cave on 7 May 1981.

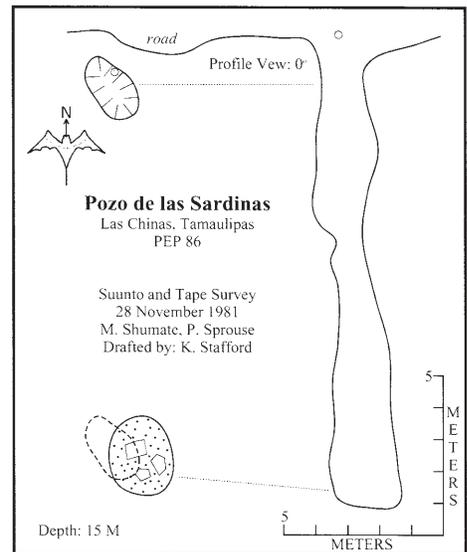
- Snails: *Carychium* sp. (accidental)
- Terrestrial isopods: Trichoniscidae genus and species (troglomite)
- Spiders: *Modisimus reddelli* Gertsch (troglophile)
- Pseudoscorpions: *Tyrannochthonius* sp. (troglophile)
- Mites: Acarina undetermined
- Centipedes: Lithobiomorpha undetermined  
Geophilomorpha undetermined
- Millipedes: *Sphaeriodesmus sprousei* Shear (troglomite)  
*Sumidero* sp. (troglomite)
- Springtails: *Pseudosinella reddelli* Christiansen (troglophile)
- Slender entotrophs: Campodeidae genus and species
- Insects: Insecta larvae undetermined

**POZO DE LAS SARDINAS**

PEP 86

Las Chinas, Tamaulipas  
Length: 15 meters  
Depth: 15 meters  
UTM coordinates: 455233E 2637927N

Pozo de las Sardinias is located 300 meters north of the Las Chinas fire tower at 2768 meters elevation, on the east side of the road. This single drop terminates in a soil and breakdown floor at 15 meters depth, where sardina cans were found. This pit was discovered



and surveyed by Mark Shumate and Peter Sprouse on 28 November 1981. (KS, PS)

Peter Sprouse collected in the cave on 28 November 1981.

- Spiders: *Coryssocnemis abernathyi* Gertsch (troglophile)
- Harvestmen: Leiobuninae n. gen. nr. *Nelima* and *Paranelima*, n. sp.
- Mites: Acarina undetermined
- Cave crickets: Rhaphidophoridae genus and species
- Darkling beetles: Tenebrionidae genus and species

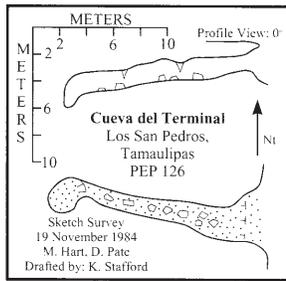
### CUEVA DEL TERMINAL

Los San Pedros, Tamaulipas

Length: 15 meters Depth: 4 meters

UTM coordinates: 461815E 2639750N

PEP 126



This short cave is located 800 meters northeast of Los San Pedros, at 1480 meters elevation. It is a walking passage, 2 by 2 meters, with a soil-covered floor, terminating after 15 meters. Margaret Hart and Dale Pate sketched the cave on 19 November 1984. (KS)

Dale Pate collected in the cave on 19 November 1984.

Millipedes: Rhachodesmidae genus and species  
 Darkling beetles: *Eleodes (Caverneleodes) sprousei* Triplehorn and Reddell (troglophile)

pit is located in the eastern room. The pit expands to 5 meters in diameter and drops to a depth of 65 meters. The bottom is a gravel and breakdown floor with a tight 1-meter diameter pit continuing deeper. The pit was discovered by Peter Sprouse, who surveyed it along with Susie Lasko, Terry Raines, and Cyndie Walck on 17 October 1986. (KS, PS)

Terry Raines and Peter Sprouse collected in the cave on 17 October 1986.

Leech: Hirudinea undetermined  
 Earthworms: Haplotaxida undetermined  
 Terrestrial isopods: Trichoniscidae genus and species (troglobite)  
 Spiders: *Nesticus rainesi* Gertsch (troglophile)  
*Modisimus reddelli* Gertsch  
 Harvestmen: Opiliones undetermined  
 Millipedes: Diplopoda undetermined  
 Cave crickets: Rhaphidophoridae genus and species (troglaxene)  
 Ground beetles: undetermined

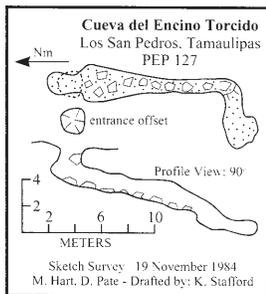
### CUEVA DEL ENCINO TORCIDO

Los San Pedros, Tamaulipas

Length: 15 meters Depth: 7 meters

UTM coordinates: 461860E 2639018N

PEP 127



This shallow cave is located 600 meters east of Los San Pedros at 1450 meters elevation. The entrance is a 2-meter drop to a stoop walking passage 15 meters long. The floor is covered in soil and large breakdown blocks with no obvious continuations. The cave was discovered and sketched by Margaret Hart and Dale Pate on 19 November 1984. (KS)

Dale Pate collected in the cave on 19 November 1984.

Dale Pate collected in the cave on 19 November 1984.

Terrestrial isopods: Trichoniscidae genus and species (troglobite)  
 Cave crickets: Rhaphidophoridae genus and species (troglaxene)

### POZO DE LA TRAMPA ESCONDIDA

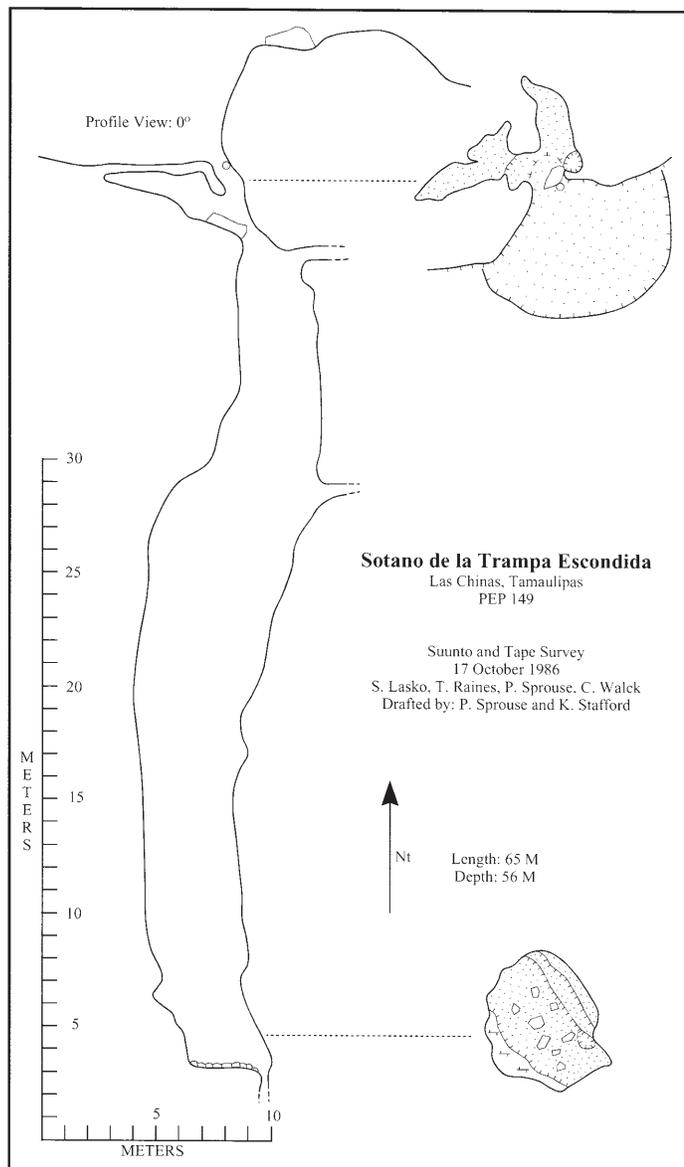
Las Chinas, Tamaulipas

Length: 65 meters Depth: 56 meters

UTM coordinates: 454811E 2640800N

PEP 149

This pit is located 1900 meters northeast of Rancho Nuevo at 2541 meters elevation. The entrance is in a 6-meter-diameter sink with a 5-meter headwall. The entrance is not obvious, but at the time of exploration a waterfall could be heard inside. Two small rooms are located within the entrance area and a 1-meter-diameter



## POZO DEL JUGO

PEP 293

La Pascuala, Tamaulipas

Length: 40 meters

Depth: 35 meters

UTM coordinates:

453420E 2643627N

This pit is located 4500 meters north of Rancho Nuevo at 2520 meters elevation. The pit has two entrances and is tagged on the lower one. The lower entrance is the point of entry, with the other 5 meters higher. The pit drops 35 meters with two large natural bridges one-third of the way down. At the base, one meter of water stands with a small subaqueous passage trending to the south. Three additional passages intersect the pit higher up, feeding into it. Travis Greig, Troy Lanier, Susie Lasko, Miriam Murtuza, and Jennifer Sigmund mapped the cave on 1-3 July 1995. (KS)

## POZOS SIAMESA NO.1 & NO.2

PEP 307 & PEP 308

La Pascuala, Tamaulipas

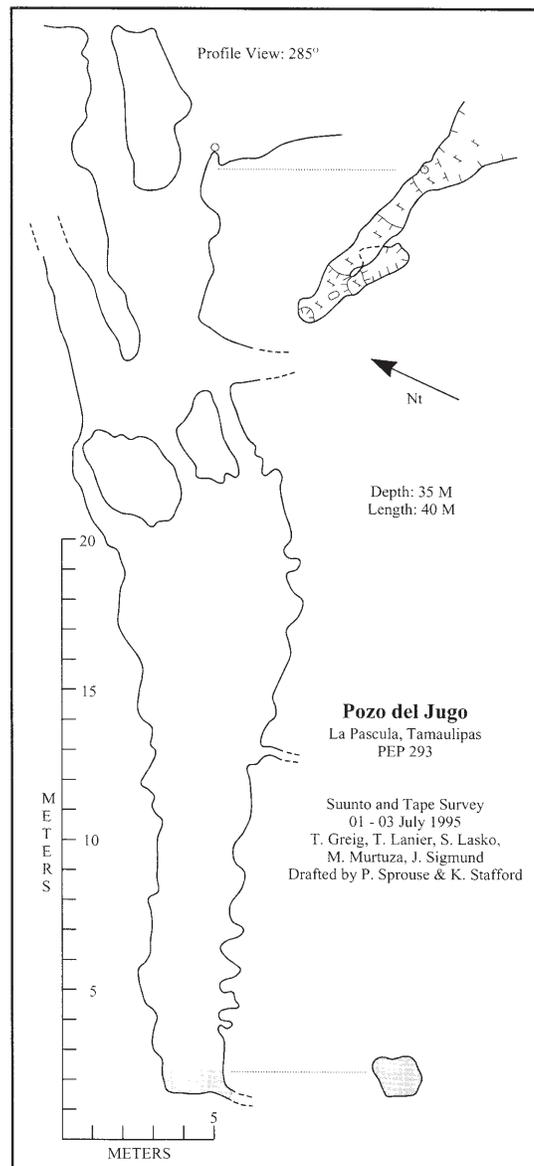
Length: 41 meters

Depth: 35 meters

UTM coordinates:

453660E 2643175N

This pair of adjacent pits is located 4000 meters north of Rancho Nuevo at 2617 meters elevation. Siamesa No.2 drops 23 meters to a soil- and detritus-filled floor, while Siamesa No.1 drops 9 meters to a similar floor type. The two pits appear to be linked hydrologically, but no physical connection was found. The pits were discovered and surveyed by Travis Grieg, Susie Lasko, and Miriam Murtuza on 2 July 1995. (KS)



## POZO DIM HAPUS POTHOLER

PEP 340

Agua de las Vacas, Nuevo León

Length: 46 meters Depth: 43 meters

UTM coordinates: 449892E 2650612N

This pit is located 1000 meters southwest of Los Caballos at 2032 meters elevation. It has a small entrance, which drops into a large shaft 33 meters deep. This shaft is relatively free and decorated with flowstone. At the bottom is a small hole, which drops into a horribly loose chamber with a cow skeleton buried in the sediment plug. The cave was named "Not a Happy Potholer" in Welsh to describe Dewi Lloyd's state of mind at the bottom. Pete Hollings assisted in this exploration on 23 December 1995. (PH)

## POZO DESPUES DE LA LLUVIA

PEP 368

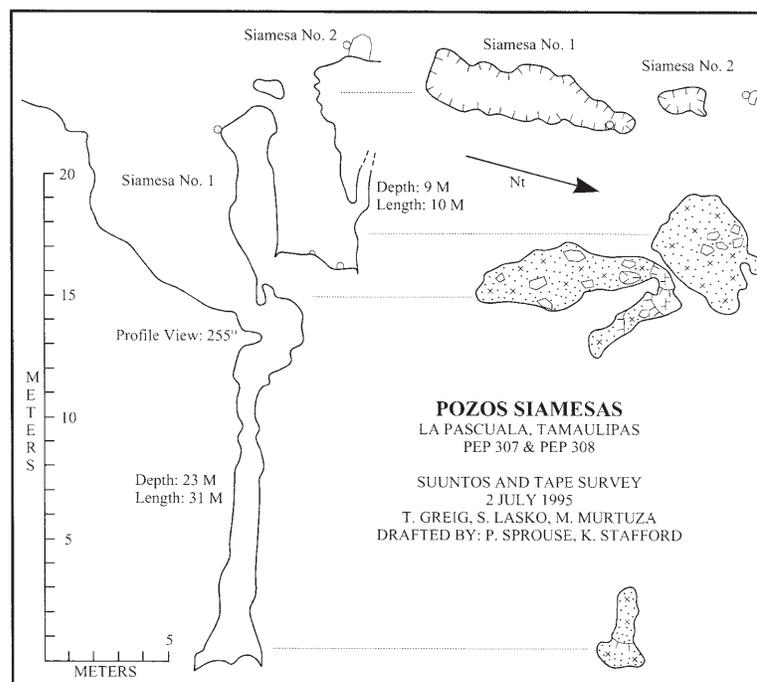
Revilla, Tamaulipas

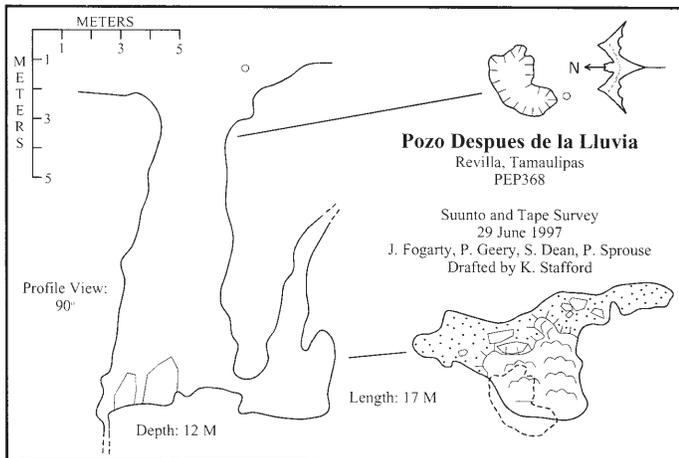
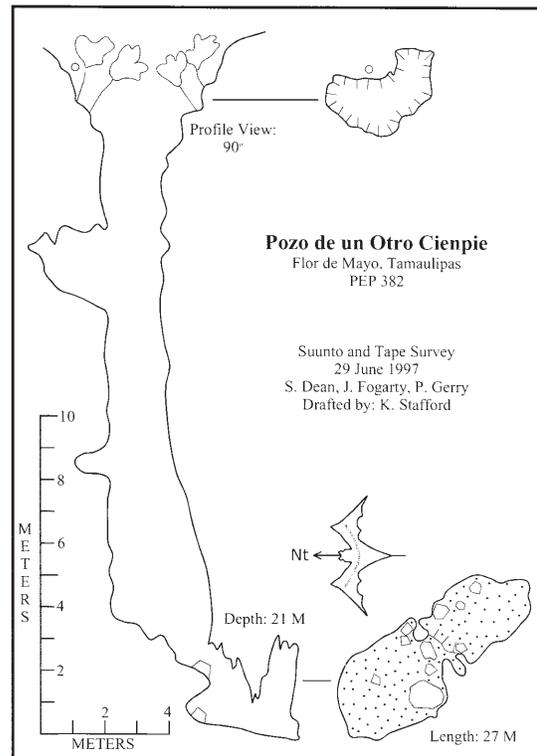
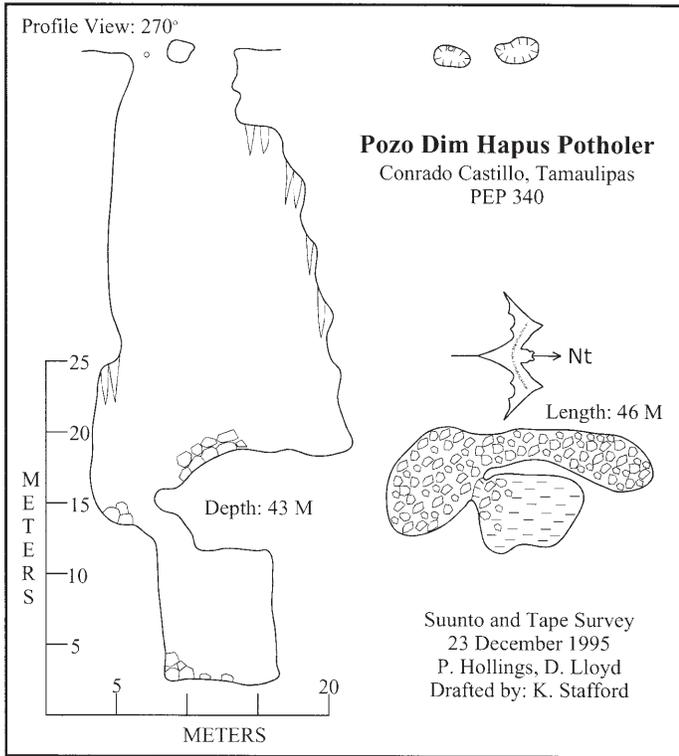
Length: 17 meters Depth: 12 meters

UTM coordinates: 451775E 2646778N

This pit is located 700 meters southeast of Revilla in the Las Papitas area at an elevation of 2220 meters. It is a blind 10-meter deep pit with a 2.5 by 3-meter entrance. A large, free-climbable formation reaches almost to the entrance. A 0.5-meter hole on the south end leads to a dome room where faint entrance light can be seen. Pozo Despues de la

Lluvia was discovered and mapped on 29 June 1997 by Scott Dean, John Fogarty, Pat Geery, and Peter Sprouse. (JF)





**POZO DEL OTRO CIENPIE** PEP 382  
 Flor de Mayo, Tamaulipas  
 Length: 27 meters Depth: 21 meters  
 UTM coordinates: 452397E 2645770N

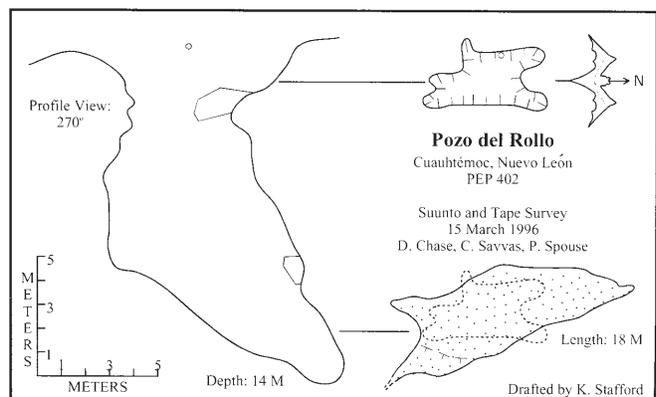
This pit is located 2800 meters southeast of Revilla at 2378 meters elevation. This is a 16-meter-deep pit with a 3- by 4-meter floor. There is a small room off to one side that is 3 meters in diameter. J. Atkinson located this pit on 8 April 1982, and Sean Dean, John Fogarty, and Pete Geery surveyed in on 29 June 1997. (JF)

**POZO DE FERNANDO** PEP 393  
 Santa Marta de Arriba, Nuevo León  
 Length: 15 meters Depth: 15 meters  
 UTM coordinates: 430415E 2637044N

This 15 meter blind pit is located 900 meters south of Santa Marta de Arriba at 2705 meters elevation. The pit contains a 2- by 4-meter, soil- and detritus-filled floor that is four times larger than the entrance. The cave is named after Fernando Vanoye because this was his first exposure to vertical caving. It was discovered and surveyed by Fernando, Aldo Guevaro, and Susie Lasko on 22 November 1999. (KS)

**POZO DEL ROLLO** PEP 402  
 Cuauhtemoc, Tamaulipas  
 Length: 18 meters Depth: 14 meters  
 UTM coordinates: 452025E 2645700N

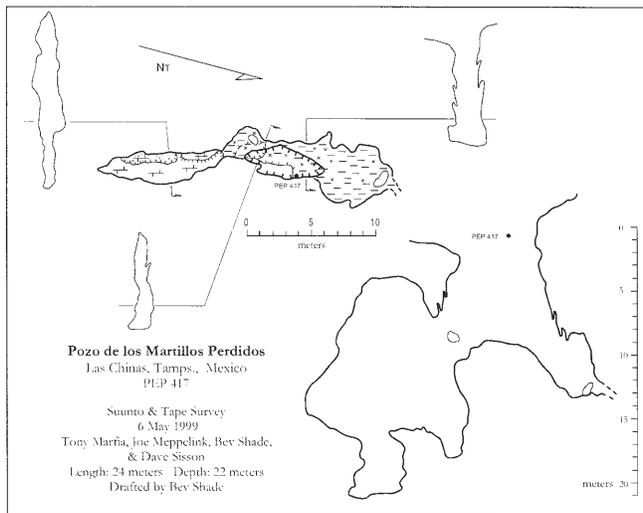
This blind pit is located 1800 meters southeast of Revilla at 2380 meters elevation. It is just north of a drainage. It drops 14 meters to a soil-filled floor with no continuation. The pit was discovered by Peter Sprouse while carrying a toilet paper roll through the woods, then surveyed with Dale Chase and Charley Savvas on 15 March 1996. (KS)



**POZO DE LOS MARTILLOS PERDIDOS** PEP 417

Las Chinas, Tamaulipas  
Length: 24 meters Depth: 22 meters  
UTM coordinates: 454930E 2640737N

This pit is located 1900 meters north-northeast of Rancho Nuevo at 2580 meters elevation. It appears to be developed on a north/south fracture trend and drops 22 meters to its terminus. The floor alternates between bedrock and mud, with minimal detritus. One small passage continues to the north but was not physically passable at the time of survey. The pit was discovered and surveyed by Tony Marfia, Joe Meppelink, Bev Shade, and Dave Sisson on 6 May 1999. (KS)



**CUEVA PASTO VERDE** PEP 419

Hoya Quemada, Nuevo León  
Length: 12 meters Depth: 8 meters  
UTM coordinates: 415003E 2633845N

This shallow cave is located in Hoya Quemada 1000 meters south of Siberia at 3130 meters elevation. The cave is developed on a north/south fracture, and has a plugged, mud floor, filled by the massive erosion from the surrounding ridges that have been burned in the past. The floor of the cave was covered in sprouting grass, thus earning its name. The cave was discovered and surveyed by Kevin Stafford and Cathy Winfrey on 19 July 2000. (KS)

**POZO DE LA VACA FERAL** PEP 423

Hoya Quemada, Nuevo León  
Length: 30 meters Depth: 23 meters  
UTM coordinates: 415833E 2635517N

This pit is located 750 meters south of Siberia at 3030 meters elevation. It is located in a kilometer-wide doline with a sink entrance 5 by 10 meters. The pit is developed on an east/west fracture and contains large breakdown blocks defining its western wall. The pit drops to a depth of 23 meters with a breakdown-filled, mud and detritus floor 5 by 15 me-

ters. Along the southern wall is a drain area that appears to be easily diggable, but exhibited no airflow. The pit derives its name from the friendly cattle that harassed Cathy Winfrey while Kevin Stafford bottomed and surveyed the pit on 19 July 2000. (KS)

**POZO DEL HEMI** PEP 426

Santa Marta de Arriba, Nuevo León  
Length: 10 meters Depth: 10 meters  
UTM coordinates: 430319E 2637005N

This 10 meter blind pit is located 900 meters south of Santa Marta de Arriba at 2705 meters elevation. It has a 1- by 2-meter entrance and drops to a slightly larger floor filled with soil. It was discovered and surveyed by Charley Savvas, Kevin Stafford, Liam Town, and Jonathan Wilson on 22 November 1999. The tag number inspired the name. (KS)

**POZO DEL PERRO MUERTO** PEP 427

Santa Marta de Arriba, Nuevo León  
Length: 9 meters Depth: 8 meters  
UTM coordinates: 430306E 2636536N

This 8-meter pit is located 1300 meters south of Santa Marta de Arriba at 2735 meters elevation. It has a 2- by 4-meter entrance that drops to a sloping floor. A small drain is located in the northwest corner, but exhibited no airflow. The name is derived from the canine carcass found in the bottom when it was discovered and surveyed by Charley Savvas, Kevin Stafford, Liam Town, and Jonathan Wilson on 22 November 1999. (KS)

**POZO DE HOMBRE GRANDE** PEP 428

Santa Marta de Arriba, Nuevo León  
Length: 27 meters Depth: 22 meters  
UTM coordinates: 430109E 2636704N

This pit is 22 meters deep and located 1050 meters south-southeast of Santa Marta de Arriba at 2770 meters elevation. The pit is broken up by an intermediate level, forming two 10-meter pitches. The name is derived from the small entrance to the second drop, which only Kevin Stafford passed through. While ascending, he had to remove large pieces of the flowstone wall to exit against the gravity that had assisted on the descent. The cave was discovered and surveyed by Kevin, Charley Savvas, Liam Town, and Jonathan Wilson on 22 November 1999. (KS)

**POZO COLIFLOR** PEP 429

Santa Marta de Arriba, Nuevo León  
Length: 11 meters Depth: 11 meters  
UTM coordinates: 430107E 2636701N

This 11-meter blind pit is located 1100 meters south-southeast of Santa Marta de Arriba at 2770 meters elevation. The entrance is ½ meter in diameter and is situated amongst several large boulders. It drops to a soil and breakdown floor 2

by 4 meters. It was discovered and surveyed by Charley Savvas and Kevin Stafford on 22 November 1999. (KS)

**POZO ADRENALINA** PEP 430  
Santa Marta de Arriba, Nuevo León  
Length: 61 meters Depth: 52 meters  
UTM coordinates: 430183E 2637413N

This pit is located 700 meters south-southeast of Santa Marta de Arriba at 2715 meters elevation and slightly down-gradient from the shale/limestone contact. The entrance is 4 by 6 meters and drops 52 meters to a breakdown and soil plugged floor. The pit was rigged from a tree over the pit, and 5 rebelay on the way down. It was surveyed by Aldo Guevara, Charley Savvas, Peter Sprouse, and Fernando Vanoye on 23 November 1999. (KS)

**POZO MILENIO** PEP 432  
Santa Marta de Arriba, Nuevo León  
Length: 186 meters Depth: 160 meters  
UTM coordinates: 430050E 2637388N

This pit is the deepest known in the Santa Marta area at 160 meters depth. It is located 750 meters south-southwest of Santa Marta de Arriba at 2720 meters elevation. It is in a 10-meter-diameter sink, below the shale/limestone contact, with a 2- by 6-meter entrance. The pit drops 20 meters as a fissure, then bells out to a 4- by 12-meter well for the majority of the remaining drop. At 145 meters depth, a floor of bedrock and soil is encountered, but an 8-meter climb leads to another smaller drop ending in a breakdown and mud floor with one small drain that did not exhibit airflow. The cave was explored and surveyed by Charley Savvas, Peter Sprouse, Kevin Stafford, and Liam Town on 23-24 November 1999. (KS)

Charley Savvas and Liam Town collected in the cave on 25 November 1999.

Terrestrial isopods: Trichoniscidae genus and species (troglobite)  
Spiders: Araneae undetermined  
Insects: Insecta larvae undetermined  
Cave crickets: Rhaphidophoridae genus and species (trogloxene)  
Beetles: Coleoptera undetermined  
Ground beetles: Carabidae genus and species  
Trechinae genus and species (troglobite)  
Rove beetles: Staphylinidae genus and species

**CUEVA DE LOS BICHOS** PEP 433  
El Niño, Nuevo León  
Length: 65 meters Depth: 7 meters  
UTM coordinates: 433010E 2656459N

This shallow cave is located 3900 meters south-southeast of Garza at 1742 meters elevation in a small arroyo. The cave is predominately bedrock-floored with soil and breakdown. Several small leads remain, but nothing that appeared

to be significant. The cave ended 7 meters deep with 65 meters length. Jubal Grubb, Barabara Luke, Pat Malone, and Laura Rosales derived the name from the numerous flying insects that inhabited the cave at the time of survey on 21 December 1999. (KS)

Laura Rosales collected in the cave on 21 December 1999.

Terrestrial isopods: Trichoniscidae genus and species (troglobite)  
Millipedes: Rhachodesmidae genus and species

**CUEVA DEL BVD AZUL** PEP 434  
El Niño, Nuevo León  
Length: 23 meters Depth: 9 meters  
UTM coordinates: 432781E 2657320N

This cave is located 1750 meters south-southeast of Garza at 1665 meters elevation. It is accessed through a dry crawlway filled with rodent scat and drops down a fissure to its terminal point at 9 meters depth. The cave appears to have been active in the past based on the numerous formations, but appears to take little water now. Kevin Stafford discovered the cave on 26 December 1999 with its associated 4-meter pit. The cave was dug open and on 01 January 2000, was surveyed by Barbara Luke, Pat Malone, and Kevin Stafford. (KS)

**POZO DE CALDO** PEP 440  
Santa Marta de Arriba, Nuevo León  
Length: 8 meters Depth: 7 meters  
UTM coordinates: 429948E 2638235N

This shallow, 7 meter deep, blind pit is located 300 meters east of Santa Marta de Arriba at 2650 meters elevation. The entrance is above a large field, and below the Manantial de Santa Marta. A number of logs had to be removed to allow exploration. It is a single drop to a soil floor with one small drain extending to the west. It was discovered and surveyed by Aldo Guevara, Peter Sprouse, and Fernando Vanoye on 22 November 1999. (KS, PS)

Fernando Vanoye collected in the cave on 22 November 1999. Only undetermined spiders (Araneae) were collected.

**POZO DE LAS PANTALETAS** PEP 441  
Santa Marta de Arriba, Nuevo León  
Length: 174 meters Depth: 140 meters  
UTM coordinates: 429777E 2638825N

This pit is the second deepest cave in Santa Marta de Arriba at 140 meters depth. It is located 1050 meters north-northeast of Santa Marta de Arriba at an elevation of 2560 meters, about 100 meters above some houses. The entrance is in a mostly plugged sink with a 1-meter diameter opening, just below the shale contact. The pit drops 50 meters to a ledge covered with discarded clothes, hence the name. A

10-meter slope leads to a pinch, which was dug open to a sloping drop. This goes under a bridge 5 meters down, and after another 7 meters of slope, it goes free for another 50 meters. This lands at 130 meters depth on a breakdown floor, below which is a second dome room with much breakdown, but nothing physically passable. This pit was discovered on 23 November 1999 by Aldo Guevara, Peter Spouse, and Fernando Vanoye. Along with Charley Savvas and Kevin Stafford, they explored and mapped it over the next 3 days. The entrance pitch was rigged with four rebelay to the pinch, which Kevin dug open. Dead drill batteries and other rigging delays added interest to the remainder of the exploration. (KS, PS)

Peter Spouse collected in the cave on 26 November 1999.

Earthworms: Haplotaxida undetermined  
 Terrestrial isopods: Trichoniscidae genus and species (troglobite)  
 Spiders: Araneae undetermined  
 Harvestmen: Laniatores undetermined 1 (troglobite)  
 Laniatores undetermined 2 (troglophile)  
 Insects: Insecta larvae undetermined  
 Cave crickets: Rhaphidophoridae genus and species (troglonexene)  
 Ground beetles: Trechinae genus and species (troglobite)  
*Mexisphodrus* sp. (troglobite)

**CUEVA DE LA CHICHI PONCHADA** PEP 442

Santa Marta de Arriba, Nuevo León  
 Length: 18 meters Depth: 4 meters  
 UTM coordinates: 430082E 2639224N

This cave is located in an arroyo 1200 meters north of Santa Marta de Arriba at 2595 meters elevation. The entrance is 1 by 3 meters and drops 2 meters to a small sloping room filled with breakdown and mud. The name is derived from Cathy Winfrey's incident near the entrance where she punctured her breast with an agave plant. The cave was discovered and surveyed by her and Susie Lasko on 25 November 1999. (KS)

**POZO DEL PUENTE PELIGROSO** PEP 447

Santa Marta de Arriba, Nuevo León  
 Length: 23 meters Depth: 19 meters  
 UTM coordinates: 430011E 2637243N

This pit is located 850 meters south-southeast of Santa Marta de Arriba at 2720 meters elevation. A large natural bridge, with a northern opening that is mostly plugged splits the entrance. At 8 meters depth, a smaller unstable bridge covered in breakdown is reached which gives the pit its name. An additional 10-meter drop lands on a floor 5 by 10 meters, covered with soil and breakdown. A small, impassable passage leads off of this room to the north. The cave was discovered and surveyed by Kevin Stafford, Liam Town, and Jonathan Wilson on 22 November 1999. (KS)

**POZO SECO CENOTE** PEP 448

Santa Marta de Arriba, Nuevo León  
 Length: 16 meters Depth: 14 meters  
 UTM coordinates: 430131E 2637397N

This pit is located 730 meters south-southeast of Santa Marta de Arriba at 2715 meters elevation. It is a 3-meter deep pit to a soil floor. This was dug open by Kevin Stafford and descended by Susie Lasko another 10 meters to a mud and breakdown floor with two small, impassable continuations. They discovered and surveyed the pit on 24 November 1999. (KS)

Kevin Stafford collected in the cave on 23 November 1999.

Terrestrial isopods: Trechinae genus and species (troglobite)  
 Mites: Acarina undetermined  
 Millipedes: Diplopoda undetermined  
 Earwigs: Dermaptera undetermined  
 Ground beetles: Carabidae genus and species  
 Trechinae genus and species (troglobite)

**POZO CLICKITY CLACK** PEP 449

Santa Marta de Arriba, Nuevo León  
 Length: 57 meters Depth: 45 meters  
 UTM coordinates: 430009E 2637284N

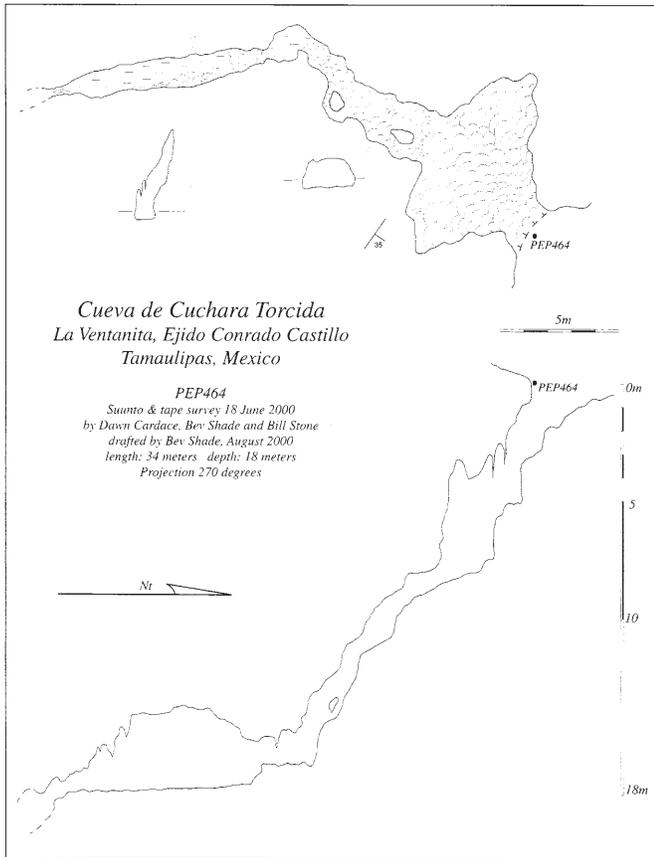
This pit is 45 meters deep and located 750 meters south-southeast of Santa Marta de Arriba at 2735 meters elevation. The cave is in a 10-meter diameter sink with a 1- by 3-meter opening. The pit opens up and drops past two natural bridges to a 4- by 6-meter breakdown floor. A lead was opened up here and continued for 5 meters, but was abandoned due to the amount of digging required. The cave was discovered by Charley Savvas, and was surveyed by Susie Lasko, Kevin Stafford, Liam Town, and Jonathan Wilson on 23 November 1999. (KS)

**POZO VERDE** PEP 455

El Niño, Nuevo León  
 Length: 23 meters Depth: 15 meters  
 UTM coordinates: 432607E 2656967N

This pit is located 1500 meters south-southeast of Garza at 1683 meters elevation. The pit is 5 by 15 meters in diameter. It terminates at 15 meters depth with a soil and detritus floor with no obvious points of continuation. The pit was discovered by Dan Green, and surveyed by him, Liam Town, and Cyndie Walck on 26 December 1999. (KS)





**CUEVA DE LA CUCHARA TORCIDA** PEP 464  
 Conrado Castillo, Tamaulipas  
 Length: 34 meters Depth: 18 meters  
 UTM coordinates: 450379E 265000N

This cave is located 1500 meters south of Los Caballos, at 2073 meters elevation. It is the southernmost of three horizontal entrances along a north-south scarp. A short handline drop leads into a fossil room, which continues as a smaller passage to the south, leading to a small room. A lead at the south end of the room pinches after a half meter as a narrow fissure that may open up with a big hammer. Cain Ledesma showed this cave to Dawn Cardace, Bev Shade, and Bill Stone and they surveyed it on 17 June 2000. (BS)

**Y2 CUEVA** PEP 505  
 El Niño, Nuevo León  
 Length: 45 meters Depth: 28 meters  
 UTM coordinates: 430795E 265938N

This tectonic cave is located on the basal edge of the El Viejo thrust block. It is 1050 meters south-southwest of Garza at 2100 meters elevation. The cave is 25 meters deep and ends in a breakdown floor. It was shown to Bill Nasby and Kevin Stafford by local resident Francisco, and surveyed by Dan Green, Gustavo Vela, Heidi Macklin, and Cyndie Walck on 1 January 2000. (KS)

**CUEVA DEL TRATA Y TRATA OTRA VEZ** PEP 506  
 El Niño, Nuevo León  
 Length: 53 meters Depth: 34 meters  
 UTM coordinates: 430756E 2656964N

This tectonic cave is located 1000 meters south-southwest of Garza at 2100 meters elevation on the basal edge of the El Viejo thrust block. The cave is 34 meters deep and ends at a small drain through breakdown. The cave was not pushed laterally, due to the highly unstable nature of the breakdown filling the fissure. The cave was shown to Bill Nasby and Kevin Stafford by local resident Francisco, and was surveyed by Danielle Bilyea, Dan Green, Bill Nasby, and Cyndie Walck on 2 January 2000. (KS)

**CUEVA DE TERODACTILO** No Tag  
 El Niño, Nuevo León  
 Length: 152 meters Depth: 62 meters  
 UTM coordinates: 432892E 2656709N

This cave is located 3400 meters south-southeast of Garza at 1630 meters elevation. It was discovered by Peter Sprouse and Scott Scheibner in December 1998, but was not explored until March 2000. It lies in the bottom of a short, shallow arroyo below the regional shale contact. The way in is a squeeze through breakdown but it immediately opens up. It corkscrews down and quickly turns into a tight phreatic tube. The initial portion of this tube was pushed past a very tight restriction by Roberta Snider. The next day, Dale Chase enlarged this restriction before the survey was commenced. The passage is tight and twisting down to the first 20 meter drop. This vertical pitch lands in a good sized chamber. Another offset vertical drop of similar length lands in a similar sized room with passage going in three directions. Water was encountered at this level. Randy Brown confirmed that in one direction, a climb up and over continued with possible air flow. The survey went the other direction, which was wet and tight at times. This vadose passage averages less than a meter wide and two meters high. The survey ended with the cave continuing in the same style and with a noticeable draft. It was explored and surveyed by Randy Brown, Dale Chase, Bernhard Koppen, Bill Nasby, and Roberta Snider on 18-20 March 2000. (BN)

**POZO PASTURA** No Tag  
 Santa Marta de Arriba, Nuevo León  
 Length: 19 meters Depth: 15 meters  
 UTM coordinates: 430326E 2637435N

This pit is located 600 meters south of Santa Marta de Arriba at 2650 meters elevation. The pit is located in the middle of a pasture and has a soil collapse entrance, which reaches bedrock after 2 meters. The pit is 15 meters deep and was accessed by rigging off a crowbar driven into the ground as an anchor. Kevin Stafford entered and surveyed the pit on 26 November 1999 with the surface support of Jonathan Wilson. (KS)

