

THE DEATH CORAL CAVER

NUMBER 1

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THE DEATH CORAL CAVER
No. 1 October 1991

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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 Area in the states of Nuevo León and Tamaulipas, México. 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 Area 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 year for individuals. Corporate or institutional memberships are \$100 for a 5-year term. Members will receive newsletters as they are published, and may vote in elections of the Board of Directors.

PHOTO CREDITS

Front Cover - Allan Cobb(l) and Peter Sprouse prepare to explore the bottom of Sótano del Jilguero. 1987 photo by Susie Lasko

Inside Front - Peter Sprouse on rappel out of Cueva de Infiernillo. 1977 photo by Charles Fromén.

Back Cover - Stream Passage in Cueva del Río Corona. 1990 photo by Peter Sprouse.

EDITORIAL

The idea of a publication series devoted exclusively to Purificación caving has been kicking around within the PEP for many years now. With an ever-increasing backlog of unpublished material, and considering the new organizational status of the project, now is a great time to inaugurate the **Death Coral Caver**. While publishing PEP expedition reports in the newsletter of the Association for Mexican Cave Studies has been a good way to get them out, and certainly should continue, the project has such a volume of data to present that its own publication is justified. In addition the PEP has its own identity to convey, which it will now proceed to do ad nauseum! And the name? To anyone who has battled the death coral crawls at the back of Infiernillo, it will bring a wry smile. Those who haven't will have to make do with the minerological analysis in this issue.

Over the past 20 years the Purificación area has seen a lot of great caving by hundreds of able cavers. There are lots of stories to tell and maps and data to present. So while you can expect to see the latest expedition reports presented here, you'll also see plenty of older information, reports that have never been seen or weren't originally presented in the fullest detail. There will be lots of maps. Most of the material in this issue has been written by me - a situation which I hope will change as the publication matures. Enjoy this first issue and plan to make **your** contribution to Purificación cave studies.

Peter Sprouse

CONTENTS

The Proyecto Espeleológico Purificación . . . 2
Purificación News 8
Death Coral! 9
Sótano de las Calenturas 10
Caves of Cerro el Viejo 14
Trip Reports 32

THE PROYECTO ESPELEOLOGICO PURIFICACION

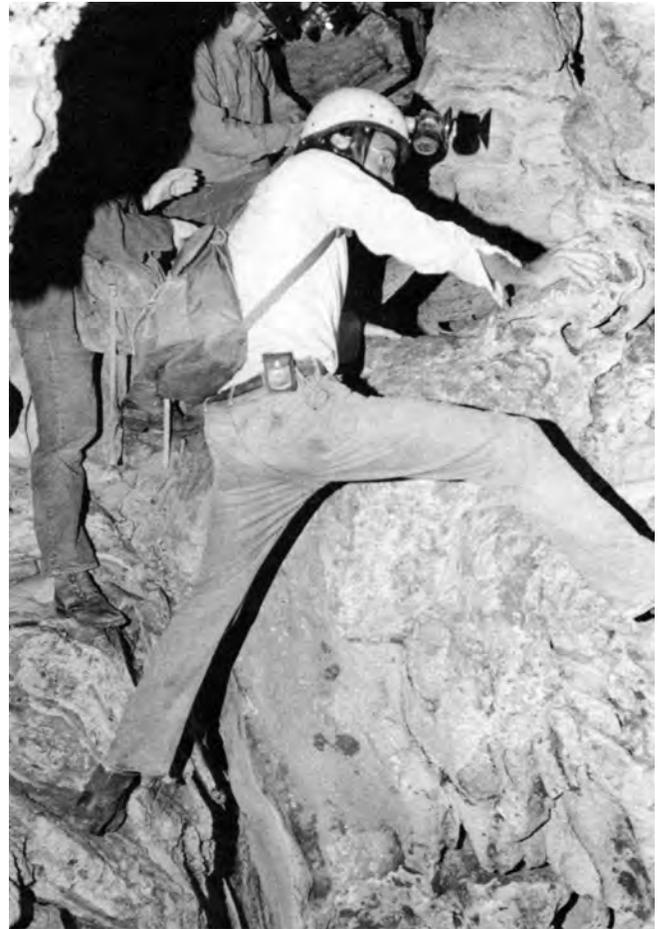
by Peter Sprouse



With the PEP now reaching its fifteenth year, it is a great time to look back on its history and evolution. In 1978 David Honea expressed the Project's goals in a "statement of hope and intent" which we can feel proud to have accomplished. Those goals of excellence in speleology and respect for the area's environment and inhabitants have guided us through the years. On my first trip to the Purificación Karst Area in 1976, it could be described as basically another speleological reconnaissance zone, with a few moderately extensive caves but nothing yet major. A core group of cavers grasped its potential, virtually moved into the area, and with the adoption of a name became the first of the modern Mexican caving projects. And ever since, there has been steady and spectacular progress in developing some of the world's outstanding cave systems. Sistema Purificación, now 76,332 meters long and 904 meters deep, is the longest surveyed cave in México, and other caves of the area such as 28-kilometer-long Cueva del Tecolote are rising fast. Yet it seems likely that most of the potential of this vast underground complex has yet to be realized.

The Purificación Karst Area straddles the border between the southern parts of the Mexican states of Tamaulipas and Nuevo León. It comprises the front ranges of the Sierra Madre Oriental which rise from an elevation of 400 meters at Ciudad Victoria to an altitude of 3500 meters on Cerro el Viejo, the area's highest peak. Moderately fractured Lower Cretaceous limestones on the west flank of a major anticline have provided an ideal environment for development of extensive cave systems. The boundaries of the PEP study area have been selected using major surface drainages which might be expected to limit the

extent of any subterranean drainage systems (see area map). The coastal plain forms the area boundary on the east, and to the south of Cd. Victoria it proceeds west up the Arroyo Juan Capitán to the Río Chihue. It follows this drainage to the northwest up the Río Alamar branch to San Pablo, then north past El Refugio to the Río Blanco. The area boundary then follows the Río Blanco east to its confluence with the Río Purificación at the coastal plain.



T.R. Evans bridges canyon 150 meters inside of Cueva del Brinco. 1978 photo by William Elliott.

Cavers first entered the high mountains northwest of Ciudad Victoria, Tamaulipas in 1971, and in the ensuing five years Texans from Houston, Austin, and McAllen made independent forays from time to

**PURIFICACION KARST REGION
NUEVO LEON/TAMAULIPAS, MEXICO**

BOUNDARIES OF STUDY AREA

SURFACE AREA = 2150 SQUARE KILOMETERS

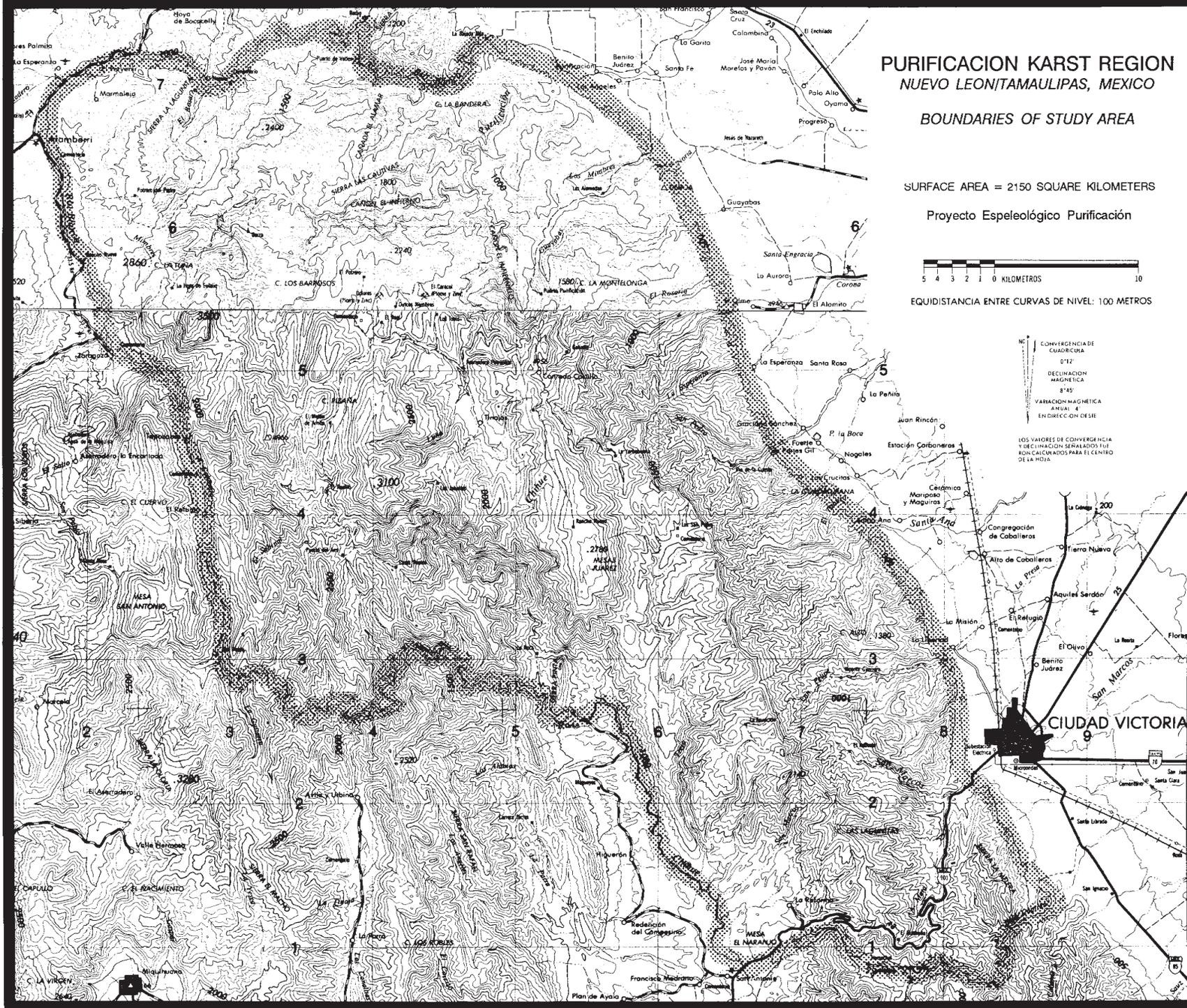
Proyecto Espeleológico Purificación



EQUIDISTANCIA ENTRE CURVAS DE NIVEL: 100 METROS

CONVERGENCIA DE CUADRICULA 0°12'
DECLINACION MAGNETICA 8°45'
VARIACION MAGNETICA ANUAL 4'
DIRECCION OESTE

LOS VALORES DE CONVERGENCIA Y RECAPICACION SERAN LOS QUE SE CALCULADOS PARA EL CENTRO DE LA HOJA.



The Death Coral Cover No. 1

time, following the myriad logging roads through the pine forest and exploring various caves and pits. Longest of these was Cueva del Brinco ("Jump Cave"), which had been mapped for about 1000 meters by David McKenzie and companions. The beginnings of the PEP can be traced back to May 1976, when McKenzie led a trip back to Brinco. Situated at 1900 meters elevation in an east-facing mountain cove, the entrance to Brinco opens into a steadily descending bedding plane passage, with regular and complex side passages leading off. In a series of trips over a year's time various stream passages were pushed steadily downward, reaching the a major trunk passage called the World Beyond at a depth of 200 meters.

At the same time, a group of cavers from the Greater Houston Grotto had begun the exploration of Cueva de Infiernillo, located 5 kilometers north of Brinco and 820 meters lower in Cañon el Infiernillo. This canyon begins abruptly at the base of a cliff hundreds of meters tall, and 40 meters up this wall is the large entrance to Infiernillo ("little hell"), a tunnel 20 meters wide and 25 meters high. In April 1976 the Houston cavers led by Charles Fromén led a route up into this entrance, and found a large network of tunnels trending upward to the south, blowing air. We immediately saw the potential for connecting the two caves, and started the survey of Infiernillo's vast complex of passages. Due to an access time of about 4 hours to hike to the entrance and ascend up to it, underground camps were used from the beginning to explore and map all passages in Infiernillo. An initial complex of ascending passages and boreholes soon led to a bewildering maze in scalloped bedrock, the Confusion Tubes. While a route was soon found through the Tubes to a continuing level borehole, the Tubes themselves steadily grew into an enormous complex which even today still contains hundreds of unexplored leads.

Throughout 1977 rapid progress was made in both Infiernillo and Brinco. By June 1978, we had mapped 9568 meters in Brinco to a depth of 389 meters, and 7148 meters in Infiernillo to an overall height of 442 meters. The remaining gap between the two caves was 1300 meters horizontal and 125 meters vertical. Camp II was established nearly 3000 meters inside of Infiernillo, and a fortuitous lead off of the Nile River area was explored upwards into the lower reaches of Brinco. When the survey was mapped downward from the Brinco end a few weeks later, Sistema Purificación was at once the longest cave in México at 20,068 meters, the deepest cave in the Western Hemisphere at 884 meters, and contained the

deepest through-trip in the world at 820 meters.

EXTENDING THE SYSTEM

Much of the post-connection efforts in Sistema Purificación concentrated on pushing to the south, where we suspected there was a lot more cave and perhaps more depth to be added. An examination of the geology and passage trends of the system suggest the prospect of extensive upstream feeders coming from the south, particularly considering that the mountain in which the cave is formed continues some 20 kilometers in that direction and extends some 800 meters higher than the known portion of the cave. In 1981 we put in the first camp through the Brinco entrance, Camp III, with the specific goal of pushing to the south. This camp was a new challenge for us, 2500 meters in and 350 meters deep. Six cavers spent five days surveying from Camp III, mapping 5 kilometers of new passage. At first we seemed to be having no luck in making major extensions to the south, but on the fourth day we descended a fault-dip maze to the level of the Infiernillo complex and intersected a major north-south lead, the Southbound Borehole. The last survey day there resulted in 2000 meters mapped, and we left a great lead going south. A couple of grueling pushes from the surface to the Redrock Breakdown convinced us that we had to set another deep camp in Brinco to continue south.

So in March 1986 twelve cavers established Camp IV in the Southbound Borehole, twice as far in as Camp III had been and 600 meters deep. Camp was set up in a low, wide sandy passage scattered with the ever-present death coral (tower coralloid) common to the Infiernillo level. Survey teams worked in a variety of areas around camp, steadily racking up more meters, but no progress could be made to the south through the Redrock Breakdown or elsewhere. Then, as it so often happens, a breakthrough was made on the last survey day. An obscure lead off of the newly--discovered Texas Tunnel dropped into a southern extension, the Tex-Echo, ensuring a return expedition. One fortunate find on the Camp IV trip was a new route to the Infiernillo complex, allowing an easier exit through the lower entrance rather than the arduous climb back up to Brinco.

One year later we set up Camp V along the Nile River near the original survey connection point of Brinco and Infiernillo. We hadn't worked extensively in this area since the connection was made nine years earlier. Numerous leads needed to be checked close to camp, besides the more remote Tex-Echo. This time



Arne Saknussemm Borehole near the Nile River in Infiernillo. 1987 photo by Susie Lasko.

we had 14 cavers and planned to stay in for 10 days, our longest camp yet. Two principal south-trending passages from camp were Goes One and Never Stops Going. Both of these yielded considerable new passage but presented an abundance of death coral, hampering progress. Various leads off the Goes One area earned names such as ¡Hay Chihuahua Mamacita! and God Let It End. In Never Stops Going an arrow-straight south trend led through 2-meter-tall reefs of death coral named Reefer Madness. Loss of blood and clothing is the only obstacle in these areas. A more pleasant complex near camp called the Tetricos Trunk yielded easier meters.

The main attraction was of course the Tex--Echo at the south end of the system. About 700 meters of wet and windy new passage was mapped to another new stream, the Midnight River. This was followed southward for 300 meters upstream to a sump, a new southernmost point for the cave system. The airflow had apparently gone up some high leads in the canyons before the river. So the way south into the heart of the mountain is not opening up easily, and the remoteness of this part of the cave is a major impediment. Still, Camp V was the most successful PEP camp to date,

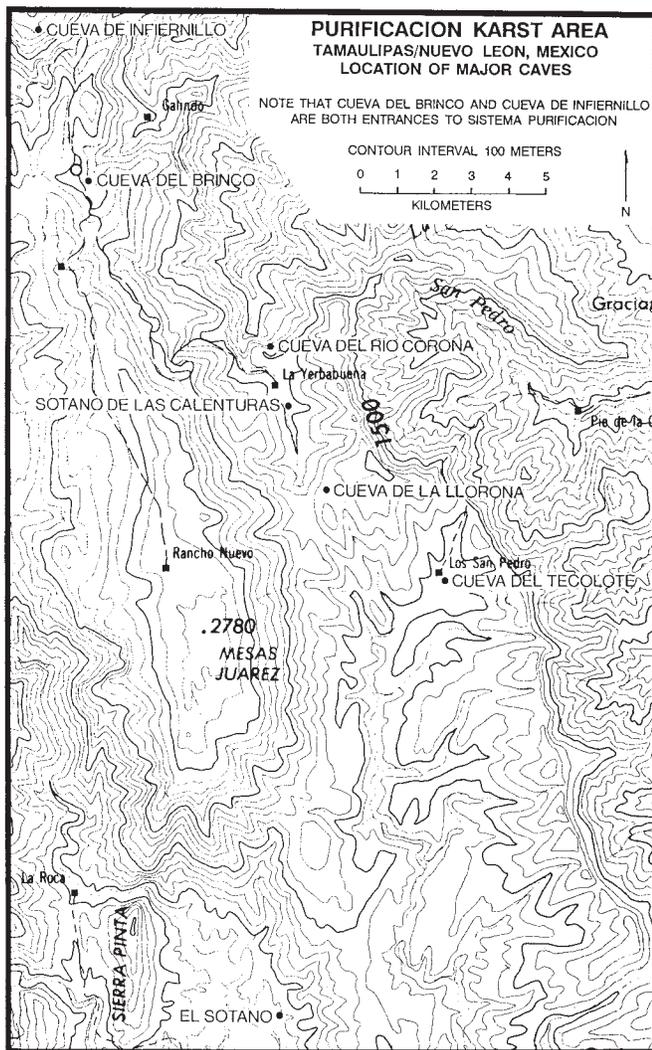
with 6341 meters mapped.

CAMP I AREA

Despite the emphasis on pushing Sistema Purificación to the south, the more easily accessible areas near the Infiernillo entrance were not neglected. Camp I was reoccupied in March 1988 and November 1989. On the first of these camps 10 cavers spent eight days underground, mapping 3976 meters of new passage. As is usual for Camp I, some pleasant trips were made mapping more passage in the Confusion Tubes complex, complicating the line plot ever further. The most significant discovery of the trip happened on an off-day of "clean-up" mapping in the D-Survey, between camp and the Tubes. A climb up into a previously overlooked hole in the ceiling led to a dry, ascending maze area which became known as Arrakis (from the novel *Dune*). This desiccated passage produced over 1500 meters of new survey, and numerous leads remained.

The return trip to Camp I in 1989 picked up where the previous trip had left off. In Arrakis a new side passage called the Noogy Borehole splits into two

CUEVA DEL TECOLOTE



prongs heading south, and keeps going as the most promising lead in that area. Many more tube loops were added in the Confusion Tubes and along the Jersey Turnpike, where a new maze nearly a kilometer long was mapped. One area which we hadn't worked for awhile was Babylon, off of the southwestern Confusion Tubes. Two teams mapping two leads in this area connected the Polka Dot Passage and the Puppy Glue Passage, creating a long loop. An up-trending lead off the southern end of this loop was explored to intersect a new high borehole, the Tachyon Tunnel. This major passage forms a large horseshoe shape over the old Babylon complex. A south-trending passage, the Meager Borehole, which seems to be a continuation of the entrance-series dip-slope was mapped for 350 meters up-dip. This six-day camp added 3801 meters of new survey, making Sistema Purificación 76,110 meters long.

While Sistema Purificación is the bohemoth of the area, Cueva del Tecolote is certainly rising fast, and could eventually eclipse it - or connect to it. The entrance to Tecolote ("owl" in the Nahuatl language) lies in the bottom of a solution valley 14.5 kilometers downrange to the southeast of the Brinco entrance to Sistema Purificación. The 22-meter-high entrance takes an arroyo which drains about 5 square kilometers of mountainside, receiving refuse from the village of Los San Pedros. This cave was initially explored by Charles Fromén and others of the Greater Houston Grotto around 1974, who went in about 250 meters to a lake or possible sump. The PEP cavers got around to starting a survey in 1980, discovering that the cave continued on past the lake. During occasional pushes in the early 1980s Tecolote was followed down a series of drops and horizontal stretches to a depth of over 200 meters, where the cave opened up into a major complex of level boreholes. Beginning in November 1984 were a series of four annual Thanksgiving expeditions which increased the length of Tecolote from 1977 meters to 13,550 meters. Tecolote was developing into a sprawling complex of boreholes in an 2-kilometer- square area, and it was time to establish the first camp in order to reduce commuting time.

In March 1989 fourteen cavers from México and the U.S. carried duffles down the entrance drop series to Camp I. The 10-day camp produced 4104 meters of new survey, and led to the discovery of a new wet borehole called the Chihue Frihue, which was headed southwest toward the probable resurgence 12 kilometers away on the Río Chihue. A year later six cavers picked up the exploration from Camp I, pushing the Chihue Frihue on to tee into a major new dry section called Megaland. Another 3136 meters were added and a new camp was planned, for Megaland was 3300 meters from Camp I.

Camp II was set in March 1991 by 13 cavers from the U.S., Canada, and Britain, requiring a 5-kilometer trip in from the entrance. Initial explorations in the Megaland area either sumped downstream or went up domes in the upstream parts, although a number of nice loops were added too. Then a lucky breakthrough led to a new parallel borehole, the Standard Borehole Unit. This led some 700 meters southwest and continued as the massive Mother of all Boreholes. Here the cave splits into two major routes, the Death Coral Borehole going northwest and the Wellie Way continuing southwest. After the 1991

expedition mapped a record 7323 meters, we left more big going leads than ever before, leads that are now a very long way from the entrance.

OTHER AREA CAVES

In the center of the 14-kilometer gap separating Sistema Purificación and Cueva del Tecolote lies the entrance to Sótano de Las Calenturas ("the fevers"). The Calenturas entrance is remarkably similar to Tecolote: twenty meters across and deep, it takes the drainage of a major arroyo, and at 1450 meters is at the same elevation. It is currently 6587 meters long and 121 meters deep. Off the base of the entrance drop are a series of large passages which intersect segments of a flowing stream periodically blocked by sumps. This stream is believed to be the Río Corona, a surface river which emerges from Cueva del Río Corona to the north. In Calenturas this stream has been dived in the upstream direction by divers of the Proyecto Espeleológico de Buceo Sierra Madre Oriental under the leadership of Jim Bowden. They have explored nearly a kilometer upstream to the north through four sumps and intervening canal passage into a fifth sump.

The bulk of Sótano de Las Calenturas consists of the Turas Tubes, a maze of interconnecting bedrock tubes which range in size from borehole to body-size. These dip northwesterly down to the Thanksgiving Thruway, a 500-meter-long borehole which ends in flooded passages at the deepest and northernmost point in the cave. From there it is a 500-meter gap to the

presumed continuation at the upstream sump in Cueva del Río Corona. This 906-meter-long cave is comprised mostly of the stream cascading down to the sumped spring entrance, the source of the surface Río Corona. Both of these caves have been explored and mapped during the period 1979-1990.

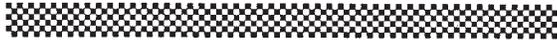
Nineteen hundred meters to the south and 400 meters higher than Calenturas is the entrance to Cueva de La Llorona. Llorona is a friendly cave, composed of a steeply descending flowstone passage with frequent handline and rope drops. At a depth of around 250 meters two large interconnected chambers are reached. These are called the Blue Flowstone Room and the California Chamber, each of them about 100 meters across and floored with breakdown. Numerous passages lead off of these rooms, one of which eventually pinches out in tiny tubes at a depth of 412 meters. PEP mapping efforts since 1984 have produced a length of 3491 meters, with more left to do.

While much of the efforts of the project have concentrated on extending the major caves, a considerable amount of wide-ranging recon has been done. To date over 300 entrances have been documented in the project study area, with emphasis on the higher karst ridges and on areas between major caves which might aid connection efforts. Many of these entrances are vertical shafts, including 154-meter-deep Pozo de Las Chinas, the deepest explored thus far. But as with many karst areas, most of these shafts are blind, and the search for a "go-er" never ends.

PURIFICACION SPELEOMETRY

		Length	Depth (in meters)
1.	Sistema Purificación	76,332	904
2.	Cueva del Tecolote	28,119	408
3.	Sótano del Las Calenturas	6,578	121
4.	Cueva de La Llorona	3,540	412
5.	Sótano de la Cuchilla	1,123	172
6.	Cueva del Borrego	1,186	58
7.	Sótano de Trejo	1,160	80
8.	Sótano de San Marcos	1,019	126
9.	Cueva del Rio Corona	906	36
10.	Pozo de Las Chinas	--	162

PURIFICACION NEWS



Compiled by Peter Sprouse

PUSHING UPSTREAM BRINCO

In late May 1990 sixteen cavers spend a few days in Conrado Castillo checking leads in the upper part of **Sistema Purificación**. An initial trip via the **Franceses** entrance to the Valkyrie River at -200 meters was a disappointment, with little passage being discovered. The next trip in through the **Brinco** entrance was more successful, and five cavers managed to pass the drier Gates of the North, which had been sumped during the Camp VI trip in November 1988. Proceeding to the upstream limit of the Dragon River, several lead climbs were put up the waterfall source of the river. John Fogarty, Susie Lasko, and Peter Sprouse managed to scale three cascades, mapping about 200 meters upstream to a fourth climb. This promising lead could eventually lead to a higher extension or entrance to the system. New mapping increased the length of Sistema Purificación to 76,332, a 222 meter gain. Some work was also done in nearby **Cueva del Borrego** in hopes of connecting it into the system. A squeeze reported by Bill Farr in 1988 was passed which led to a small pit, which unfortunately pinched at the bottom. Minor surveying increased Borrego's length to 1186 meters.

PINO SOLO RECON

Four cavers looked around the Pino Solo area along Highway 101 in September 1990, near the southern limit of the Purificación area. Susie Lasko, Raul Puente, Peter Sprouse, and Corey Zeigler attempted to relocate some reported breakdown caves near a radio tower complex but found several other ones instead. In a shallow sink just north of the towers a 15-meter-long rift called **Cueva de los Treboles** was discovered. South of the towers was a larger tectonic cave, **Cueva de la Caseta Forestal**, 55 meters long with several skylights.

CORONA CANYON

While the November 1990 Calenturas Expedition was going on in the mountains (see separate article) several cavers were exploring in the lower reaches of the Corona (Olmo) Canyon. Jerry Atkinson,

Chuck Cluck, and Rich Rohwer mapped a large guano cave called **Cueva de Tiguer**, reported by Charles Fromén in the mid 1970's. It is a 300- meter-long borehole formed in Lower Tamaulipas beds on the east flank of the Peregrina-Huisachal Anticline. A month later Paul Fambro led a 10-person group back to the upper Corona Canyon area. They mapped a cave west of Yerbabuena found the previous month called **Cueva de las Palmas**, 70 meters long. They also hiked down into the Corona Canyon below **Cueva del Río Corona** in order to get a better look an entrance they'd spotted in the massive box canyon headwall. This appeared to probably be only a shelter, but below that they could see a large cave entrance in the cliff face. These will likely be the objective of an upcoming expedition.

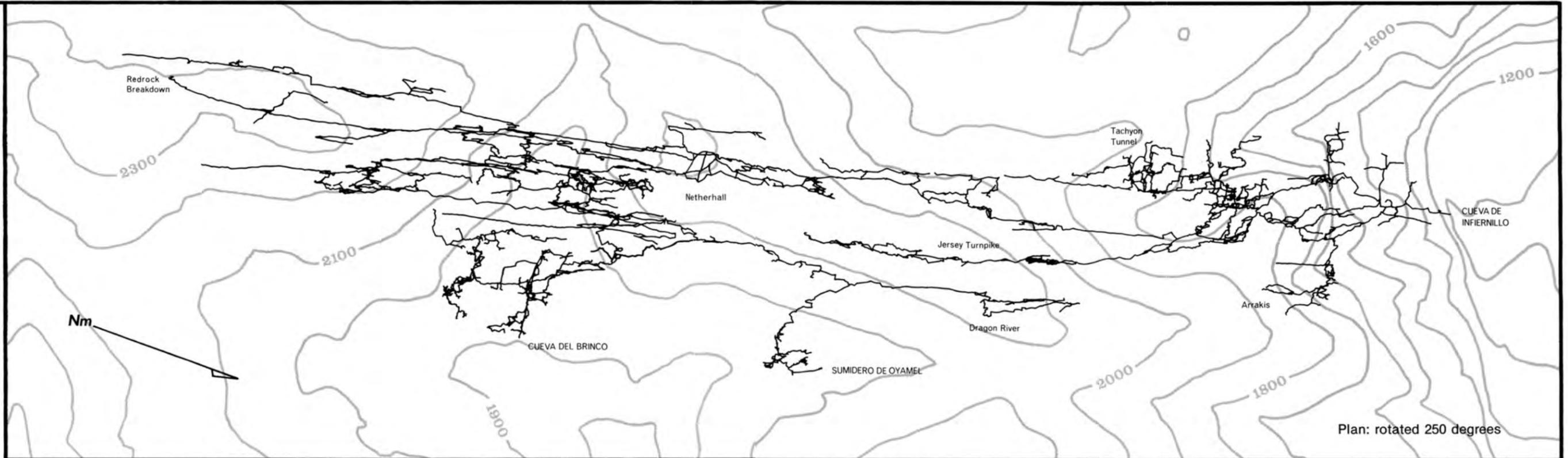
CUEVA DE LA LLORONA

In late May 1991 a group of 10 cavers returned to Cueva de la Llorona, which hadn't seen any attention since December 1988. They rigged down to the big rooms at -250 meters and proceeded to the Frankenstein Room, which hadn't been thoroughly checked the last time. Extensive searching failed to reveal a way on, and only 50 meters of survey was gained. Other leads were checked in the California Chamber, Blue Flowstone Room, and the Shirt Pocket Room, with similar results. A number of small caves were mapped near Llorona and tied into the surface survey: **Sótano de la Silla** (9 m deep), **Sótano Sin Ramales** (9 m deep), and **Cueva Diente de Tiburón** (10 m deep). Near El Chihue field three more caves were found: **Cueva Buzz** (12 m long), **Cueva Pico y Pala** (10 m), and **Cueva Saluki** (10 m). The spectacular 108-meter pit **El Hundido** was dropped and given a quick re-check, and it seems possibilities could always exist there.

TECOLOTE '91

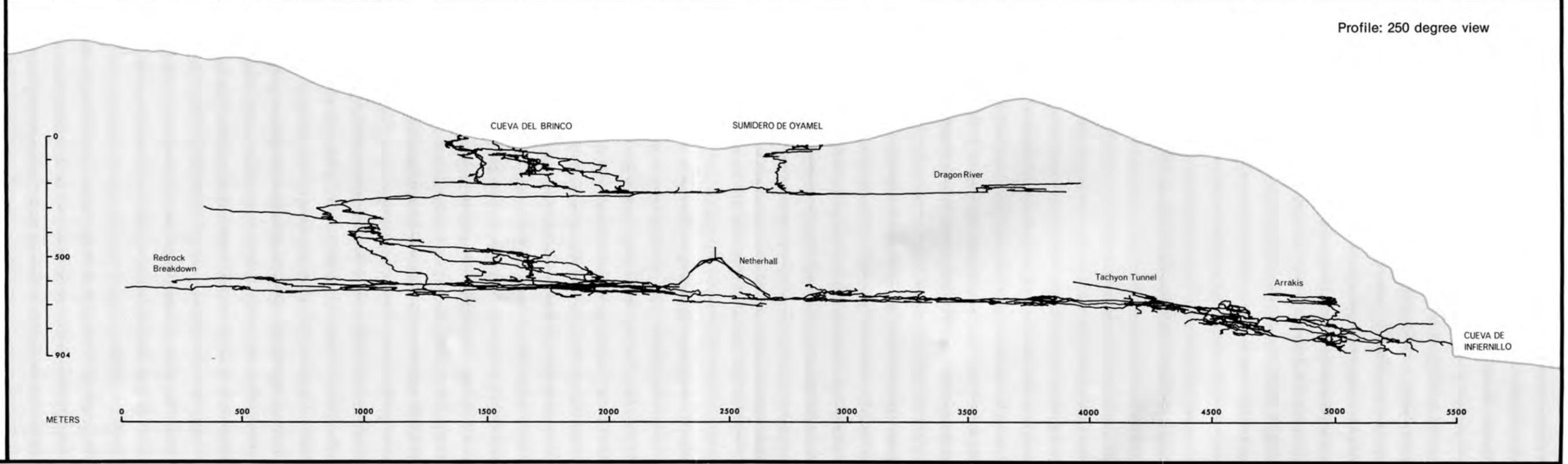
In March 1991, thirteen cavers established Camp II 5 kilometers inside **Cueva del Tecolote**. The 9-day camp resulted in over 7200 meters of new passage surveyed, the most successful PEP camp ever. A full report on Tecolote, now 28,119 meters long, will appear in the next *Death Coral Caver*.

PROYECTO ESPELEOLOGICO PURIFICACION
Surveys 1973-1989
Length: 76110 meters
Depth: 904 meters
Plotted by Ellipse
Drafted by Peter Sprouse



Plan: rotated 250 degrees

SISTEMA PURIFICACION
TAMAULIPAS, MEXICO



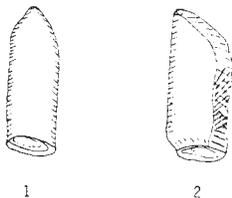
Profile: 250 degree view

Death Coral!

A coralloid speleothem in the Sistema Purificación, Mexico

by Dave Hubbard, Ron Simmons and Richard S. Mitchell

"Death Coral" is the printable moniker by which cavers working in the Sistema Purificación refer to a variety of coralloid speleothems. The cave system, with over 76 kilometers of mapped passage, is situated to the northwest of Ciudad Victoria, in the State of Tamaulipas in the eastern range of the Sierra Madre Oriental Mountains of northern Mexico. Death coral occurs in the lower levels of the system and ranges in form from individual short (a few centimeters high) finger-like projections from the floors and walls to a branching, bush-like form (up to 2.4 meters high) reminiscent of marine staghorn coral forms. In most areas of coralloid development there is a definite upper limit of growth. Mud is often found on the coralloids, floors and walls up to the growth limit horizon, indicative of former water levels. Death coral in crawlways and walkways represents a painful to treacherous obstacle in passage negotiation.

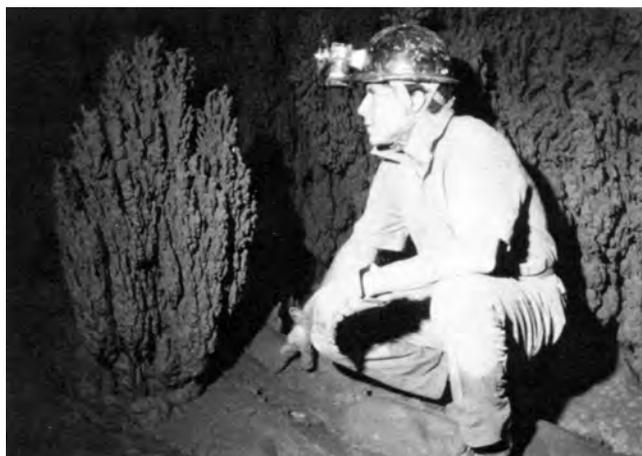


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Sample specimens of death coral

Two specimens of finger-like coralloids were sampled from the Goes 2 passages about six kilometers from the Infiernillo entrance. Sample one was from a locality where coralloids with a nearly round

cross-section, about one centimeter in diameter, projected from the floor one to seven centimeter. Sample two was collected from a locality where coralloids were grouped on an old flowstone surface and extended two to five centimeters in height. These coralloids were hemicircular in cross-section with the flattened face directed upstream and their tops bevelled diagonally upward and downstream. Sample two is about 1.5 centimeters in diameter across the flattened face.

Macro and microscopic examinations, and x-ray diffraction data suggest that these are speleothems of an accretionary nature as opposed to speleogens formed by corrosion, or coral fossils weathered from the bedrock. X-ray diffraction data indicate that the mud coatings on the death coral specimens are composed of extremely small particles of quartz, illite and a trace of dolomite. Coralloid specimens were identi-



Mauricio Tapie inspects a death coral bush. 1987 photo by Ron Simmons.

fied by x-ray diffraction as composed of calcite and quartz with traces of dolomite and illite. Fragments of the specimens were dissolved in dilute hydrochloric acid and the resultant residue was washed and the x-rayed. The residue was composed of quartz, with lesser amounts of dolomite and a trace of faint concentric growth structure. Growth layers appear to represent different lengths of submergence under different conditions of turbidity and calcite saturation. Most all layers, with the exception of the outer mud coating, contain fine silt-sized quartz and illite cemented by calcite. Both of the collected specimens resemble the tower coralloids depicted in Hill (1978) except for a finer degree of internal concentric layering and a greater percentage of impurities.

The "death coral" coralloids are apparently formed in backwater flood areas of Sistema Purificación. Coralloid growth layers have been deposited subaqueously over multiple flood episodes. Flood waters responsible for deposition are apparently turbid but periodically contain high enough concentrations of calcite to indurate mud drapes, consisting of very fine-grained quartz and the clay mineral illite, with a calcite cement. The calcite concentrations in these back waters may become enriched after the mud suspensions have settled and drip waters falling from ceilings and walls replenish the evaporating pools. In some areas a dominant flow direction is indicated by morphological symmetry. Other areas contain sculpted coralloids indicative of modification by flowing aggressive waters. The branching coralloid forms were not examined in detail in this study.

Reference: Hill, C. A., 1978, Mineralogy of Ogle Cave: NSS News, v. 40, n. 1, p. 19-24.

SOTANO DE LAS CALENTURAS

November 1990 Expedition
by Mack Pitchford and Peter Sprouse

Sótano de Las Calenturas was first explored in March 1979 by PEP cavers investigating the area around Yerbabuena, Tamaulipas. A number of expeditions since that time have brought the cave to its current length of 6587 meters and depth of 121 meters. Calenturas is located just south of the small village of Yerbabuena at an elevation of 1455 meters. The entrance is in a pine forest and takes the drainage of a sizeable arroyo. The initial passages below the 20-meter entrance drop are large boreholes, followed by a large complex of dipping bedrock tubes known as the Turas Tubes. These lead north to the Thanksgiving Thruway, which ultimately drops down to a sump level. Upstream from the entrance to the south is an incoming stream passage which in recent years has been explored through a series of sumps by divers of the Proyecto Espeleológico de Buceo Sierra Madre Oriental, under the leadership of Jim Bowden. The goal on this 1990 expedition was to continue the exploration and mapping of Calenturas, as well as that of Cueva del Río Corona and other caves in that canyon.

The team left Austin on 16 November 1990 in a fleet of five four-wheel-drive vehicles. Participating were Liz Canning, Jon Cradit, Mark Crapelle, Andrea Dakoski, Val Ellis, Dave Engel, Paul Fambro, John Fogarty, Mike Futrell, Terry Gregston, Kris Green, Pat Kambesis, Jack Kehoe, Susie Lasko, Chris Lloyd, Bill Mixon, Mack Pitchford, Scott Scheibner, Angus Shand, Peter Sprouse, Carol Vesely, and Cyndie Walck, 22 cavers in all. Driving through the night to the 4WD track into the mountains, The fleet found themselves stopped behind Mark Minton's vehicle, who along with a number of others were going up mountain-biking in the area. They couldn't get up a steep, slick grade and were putting chains on the tires. Due to this and other delays a premature camp was made that night about 5 kilometers short of Yerbabuena, which was reached the following morning.



Bill Mixon lights up the Thanksgiving Thruway in Calenturas. 1990 photo by Peter Sprouse.

CALENTURAS

Exploration and mapping took place in various parts of Calenturas. On the first survey day (18 Nov.) two teams mapped in the complex heart of the Turas Tubes near the Roman Pit (as in, all tubes lead to Rome). Carol, Jon and Dave mapped a tube which dropped steadily down to connect to the Pitchpine Tube. Peter, Val and Scott entered a tube just to the right of theirs. Also dropping down in scoured bedrock, they tied into the other team's survey via the Lilliputian Tube, and also connected a previously known tube complex at Stoned Bat Junction. John, Cyndie, Chris, Angus, and Mark went first into Calenturas to look at a known crawl going south from the bottom of Stoned Salamander Pit. They saw about 150 meters of passage but nothing went (this was mapped by Carol, Chris, and Liz three days later). On the way back they checked some small leads off of the Alien

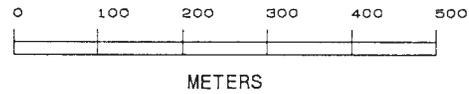
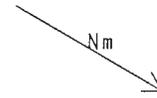


PLAN

SOTANO DE LAS CALENTURAS



CUEVA DEL RIO CORONA

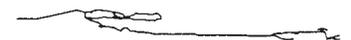


PROFILE

SOTANO DE LAS CALENTURAS



CUEVA DEL RIO CORONA



CORONA AREA
YERBABUENA, MUNICIPIO DE GUEMEZ
TAMAULIPAS, MEXICO

SURVEYS 1979-1990 BY
PROYECTO ESPELEOLOGICO PURIFICACION
CAVEVIEW LINE PLOTS PREPARED BY PETER SPROUSE © 1990

Tube, but again had no luck. Mike, Jack, and Andrea looked for new passage in the Cobble Factory area, but they also found little. Susie, Mack, and Bill went in to the Sand Sump to try to re-open it. This is a place where an angle-of-repose sand slope covers a crawl leading to an upstream extension of the cave. They made good progress on digging it out.

On Day 2 Susie led a Sand Sump team which included Carol, Val, Dave, and Liz. They finished the dig through into Sandialand and went north past Onza Falls. A wet lead got small, but Susie found a high climb up to an area with live frogs. It seemed a likely place for a new entrance, but it got too tight. Scott and Peter went into the Vampire Passage (behind the old Captain's Log) in Calenturas and pushed two crawls which joined and led to the base of a blowing dome. This looked promising, so Peter resurfaced to collect lead-climbing gear, picking up Jon, who had been out on the Point spotting for the cliff crew with Mack and Bill Mixon. Scott belayed Peter up the 12-meter dome climb, at the top of which was a short passage to a new entrance, which we named Cueva de la Bolsa. The next day Scott, Pat, Kris, Liz, and Mack pushed the end of the Vampire Passage, where they got to a tiny new entrance which they named Arañas. The passage was named Arachnophilia for the large number of spiders which seemed to take a liking to the survey team. Flagging tape was pushed through the small entrance, but attempts to find it from the outside failed. Later examination of the survey data showed it to be uphill from the Bolsa entrance. A pig skull and other surface debris were found in the Arachnophilia passage that seem unlikely to have gotten there through the Arañas entrance.

The lower part of Calenturas was worked beginning Day 5, when Chris and Mark headed in to check leads in the Thanksgiving Thruway. Peter and Bill Mixon went in awhile later to join them, but couldn't find them in the Thruway, so they started out. They were most of the way back to the entrance when they found them, confused. They had confused Champagne Pit with Crunch Pit, sending them into a sumped dead-end. Bill left while the other three went back down to the Thruway and checked various leads. A left-hand crawl which joins a ledge above the pit into Turkey Sump went 20 meters to a mildly drafting pinch. Chris led a climb up one dome but it didn't go. Peter started to lead a bigger dome but didn't get too far. Chris, Mark, Angus, and Dave returned the next day and mapped an eastern side lead off of the Thanksgiving Thruway for 140 meters, the Scallop Passage. It trended back toward the Turas Tubes,

ending in a tight dome lead.



Cueva de la Garganta entrance. 1989 photo by Peter Sprouse.

INTO THE CANYON

Jim Feely arrived half a day late, bringing his dad Bill Feely and Bill Schultz. They joined Paul and Terry on a hike up the old road in from El Violfn. They made for a cliffside roadcut where an entrance can be seen in the west cliff-face of the Yerbabuena Point. It was about 45 meters below the top of the cliff, with a pine tree growing on the ledge in front of it. They took azimuths for later backsight location of the rig point above it.

The next day John, Chris, and Mark got a ride with Paul and Terry back out that road to the northwest to attempt a rappell into a much larger cliffside hole. Paul and Terry found several small caves near the old sawmill site, while the other three descended through the forest to the top of the far western cliffs above the large entrance which we had been eyeing for many years. They did a 50-meter rappel to a ledge and Chris traversed into the yawning mouth, 200 meters above the canyon floor, with the sounds of a stream welling up from below. He did a climb and got up into a large breakdown chamber, then retreated since they faced a long hike back in the dark.

On Day 3 an excited crew returned to this new find, now named Cueva de la Garganta, the Throat. Chris, John, Mark, Angus, Carol, Cyndie, Dave, and Paul participated in mapping and photographing this spectacular opening. Unfortunately it didn't go far, being essentially a breakdown chamber with deep tectonic fissures along the sides. But the view from the entrance was worth every bit of the trouble to get there. Paul and Terry, who had driven the cliff crew over to Garganta, mapped two caves near the old mill,

Cueva de los Venaditos and Cueva del Arzón.

CUEVA DEL RIO CORONA

On Day 3 the survey of the Cueva del Río Corona was begun. Mike, Jack, Andrea, Susie, Val, Jon, and Peter hiked down to beautiful sumped spring entrance, guided by Bill Mixon. Jon, Andrea, and Peter mapped the entrance and through the initial bypass crawl, while Mike took the others on through to map the main river passage. Mike's team passed up a 100-meter-long passage on the left, concentrating on the main stream. The river had several flowstone cascades and long swims. Peter's team mapped back from the upstream sump to join the others. They left a dry upper level complex with numerous leads. At the entrance they warmed by a fire before the long hike up getting back to camp at 2:30 a.m.



Andrea Dakoski climbs handline in Cueva del Río Corona. 1990 photo by Peter Sprouse.

Two days later a large crew set off to return, this time by rigging a 90-meter rappel from the Yerbabuena Notch. Rigging took a good while, Kris slipped and hurt his shoulder, and some people didn't like the exposed traverse required to reach the top of the drop. So in the end only Mike, Carol, and Andrea rappelled, and Val and Jack hiked around. The rest retreated. The five cavers in the Corona mapped several hundred meters in the dry maze section, but didn't complete it. Andrea set the last station in a lake passage before exploring 75 meters farther to a sump. "Drillboy" Mike inadvertently left the hammer and drill behind, thereby ensuring a return trip. On Day 6 a final effort was made by Cyndie, Carol, Pat, and Liz, who mapped more of the Drillboy Tubes. They stopped where they tied into Andrea's lake station from a high side-lead. They got disoriented in the fog on the hike back and didn't make it to camp until 5:00 a.m., a 5-hour hike.

CAVES NEAR CALENTURAS

A number of small caves were mapped near Calenturas. In the field to the east, Patty, Kris, and Cyndie mapped Cueva Pereza (Procrastination Pit). It was 68 meters long and had several pinches at the bottom. The cave had been previously explored and blasted in by Mark Minton and others. South and southeast of Calenturas three short caves were mapped by Peter and others. These were Cueva de la Tamabra (20 meters) Cueva del Comando (16 meters), and Cueva del Cuero (56 meters). Mike and Andrea sketched a small cave in a sink east of Yerbabuena, Cueva de Ohio.

Although it had been somewhat rainy late in the week, it dawned clear for the departure day. While everyone was packing, John entertained them by blowing up the campfire with a supposedly empty butane cannister. While most of the group headed north to Texas and beyond, the Canadians headed farther south for the winter (smart move!)

ACKNOWLEDGEMENTS

The PEP would like to thank the following for support during 1991:

Oregon Freeze-Dry Foods
John Fogarty
Preston Forsythe
David McKenzie
Bill Mixon

CAVES OF CERRO EL VIEJO



View of the east face of Cerro el Viejo, with fields of La Escondida visible on left side. 1989 photo by Peter Sprouse.

by Peter Sprouse

Cerro el Viejo is the highest point in the Purificación Karst Region, with an elevation of 3500 meters. It dominates the western part of the region, and the locals say its cloud-wrapped summit was the site of a plane crash years ago. It can be seen from the northeast as far away as Villa Hidalgo, 40 kilometers away. At the west foot of El Viejo seen from the town of Zaragoza, it is an imposing hulk of a mountain, rising 2000 meters in a distance of 6 kilometers.

Most of the El Viejo area is pine forest mixed with oak and soyate palm. In the higher north-facing zones aspen and oyamel (hemlock) can also be found. In recent years logging companies based out of Zaragoza have built roads to the east side of El Viejo to remove pine. These private companies are a contrast to the ejido logging operations in Tamaulipas on the

east side of the range.

Cerro el Viejo reaches such a high altitude because a low-angle thrust fault shoved a thick section of the Middle Cretaceous El Abra limestone up, and subsequently eastward over the shales of the Upper Cretaceous Mendez Formation. The trace of this fault can be seen along the east face of El Viejo and of Cerro el Niño (a.k.a. Grande or Vieja) to the north. Cerro el Viejo is therefore a vertically repeated section of the cave-forming Middle Cretaceous limestones separated by an intervening sequence of Upper Cretaceous shales. These shales would presumably prevent the development of continuous cave systems from the highest parts of El Viejo down to the low canyons to the east. Of the known caves of the El Viejo area, only **Cueva del Soyate Viejo** is formed in the over-

thrust limestone block. The **Cuevas de la Forja** seem to be formed along, and limited by, the plane of the thrust fault.

Prior to 1984, perhaps three groups of cavers had hiked near El Viejo, and no caves had been mapped in the area. Four subsequent trips by PEP cavers have resulted in the surveys of the 22 caves presented here. While there are undoubtedly many more caves to be discovered in the vicinity of El Viejo, the prolific shales would seem to limit the extent of cave development.

EXPLORATION AT EL VIEJO

JULY 1984

On 18 July 1984 we found ourselves stopped at the base of the Sierra Mocha near Palmillas, Tamaulipas, looking up a hopelessly washed-out road. As usual, I had a back-up plan: to check out a reported new road up Cerro el Viejo near Zaragoza. Our group included Audrey Cole, Jim Feely, Terri Treacy Sprouse, Barb Vinson, Duwain Whitis, Sarah Whitis, and me. Getting around the mountains to Zaragoza involved an all-day drive, so we arrived after dark and camped near the Salto del Río Blanco, a nice park with a waterfall.

The next morning we bathed in the beautiful cold waters of the Salto, then went down into the town of Zaragoza. We found the road going up to El Viejo and climbed steeply up for an hour or so. We crested out in an interesting sink area and had a look around. I soon located a cave that we called **Cueva de El**

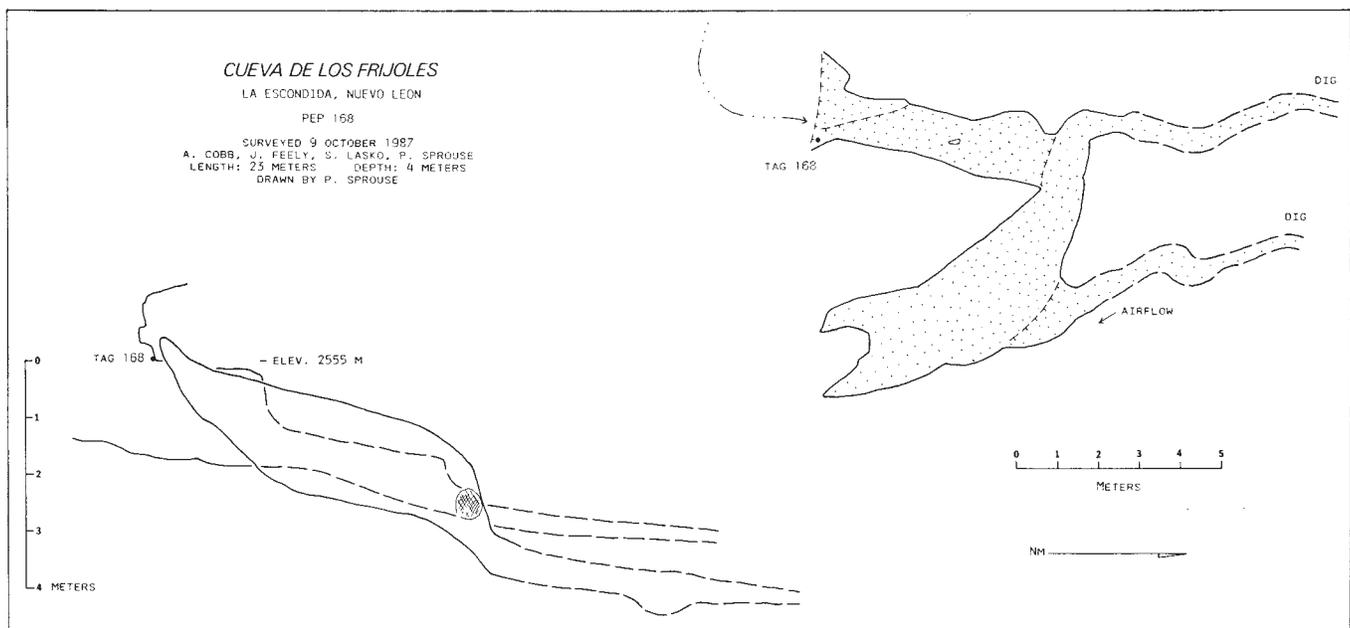
Viejo. It contained a nice-looking canyon passage which sloped down-dip. Terri, Barb and I mapped it for 162 meters to a terminal room at -64 meters. We drove on a little farther and camped at the pass before the village of La Escondida.

The following day Jim and Duwain checked a 19-meter-deep pit near Cueva de El Viejo which they named **Sótano de Escargot**. Terri and I met two boys who showed us three pits above the village. Two seemed quite deep, with 10-second bounces. The third was 30 meters wide and maybe 40 meters deep. We decided to rig the highest one, which we named **Sótano de La Escondida**. It was a 48 meter drop, then a slope down to -73 meters. At that point we were out of time for that trip, and we had to pack up after that and head down the mountain for home. Maps of the three caves surveyed on this trip can be found in AMCS Activities Newsletter No. 14, pages 11-12.

A number of weeks later Jim Feely led a group of eight back to Escondida (see trip report by Paul Fambro, which includes cave maps). They explored the lowest and deepest of the three pits above the village, **Pozo del Primero de Septiembre**. They also mapped a multi-drop cave to the north, **Pozo de El Niño**.

OCTOBER 1987

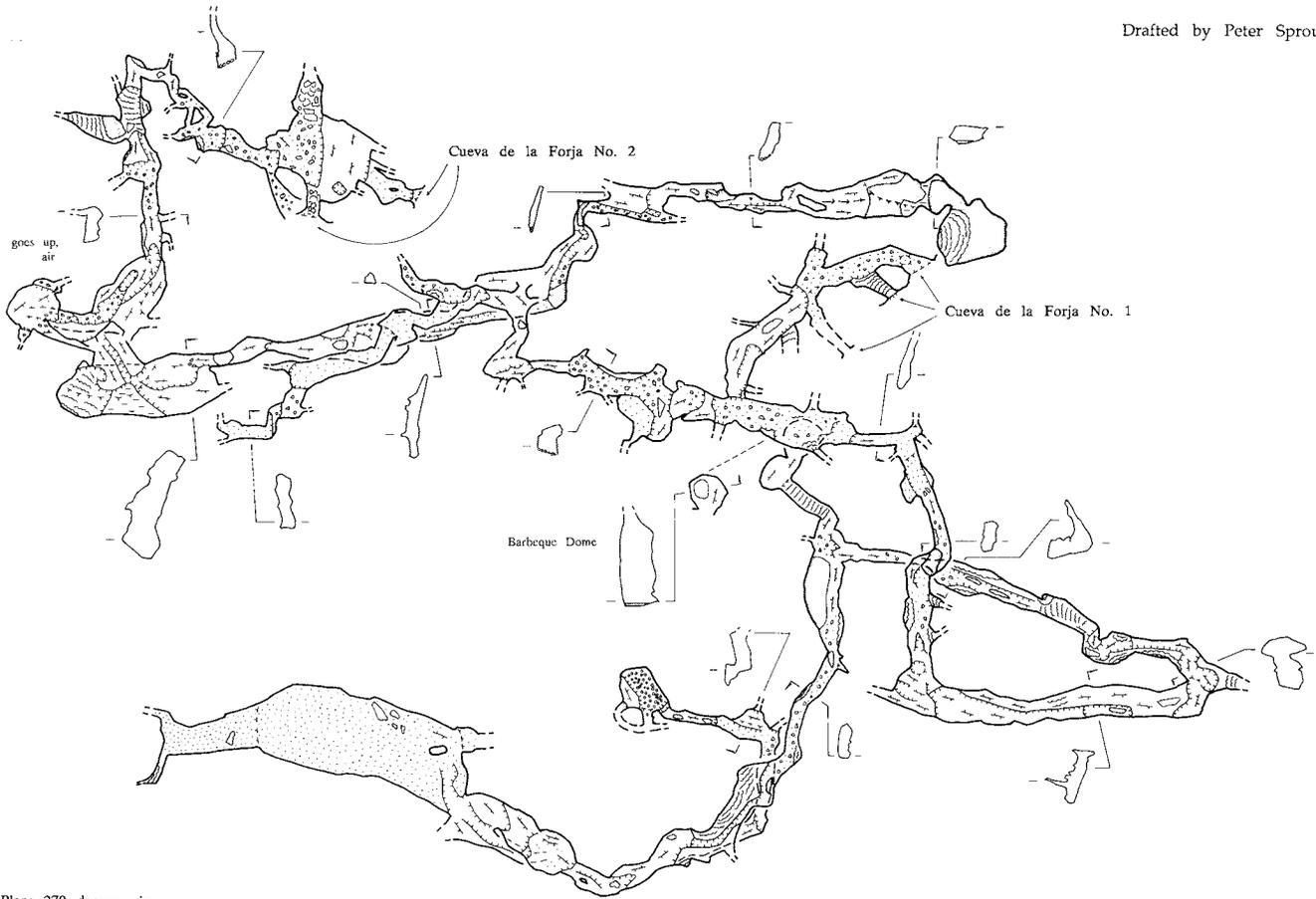
Allan Cobb, Jim Feely, Susie Lasko and I pulled into Zaragoza on the morning of 8 October 1987. We ate and picked up some supplies, then drove up El Viejo. We set up camp in our accustomed spot near Escondida, then hiked east on the ridge looking



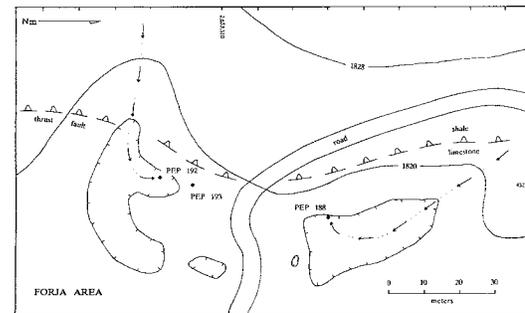
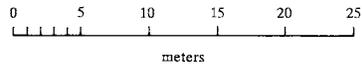
CUEVAS DE LA FORJA

CHUPADEROS, MUNICIPIO DE ZARAGOZA
NUEVO LEON, MEXICO

Drafted by Peter Sprouse © 1990

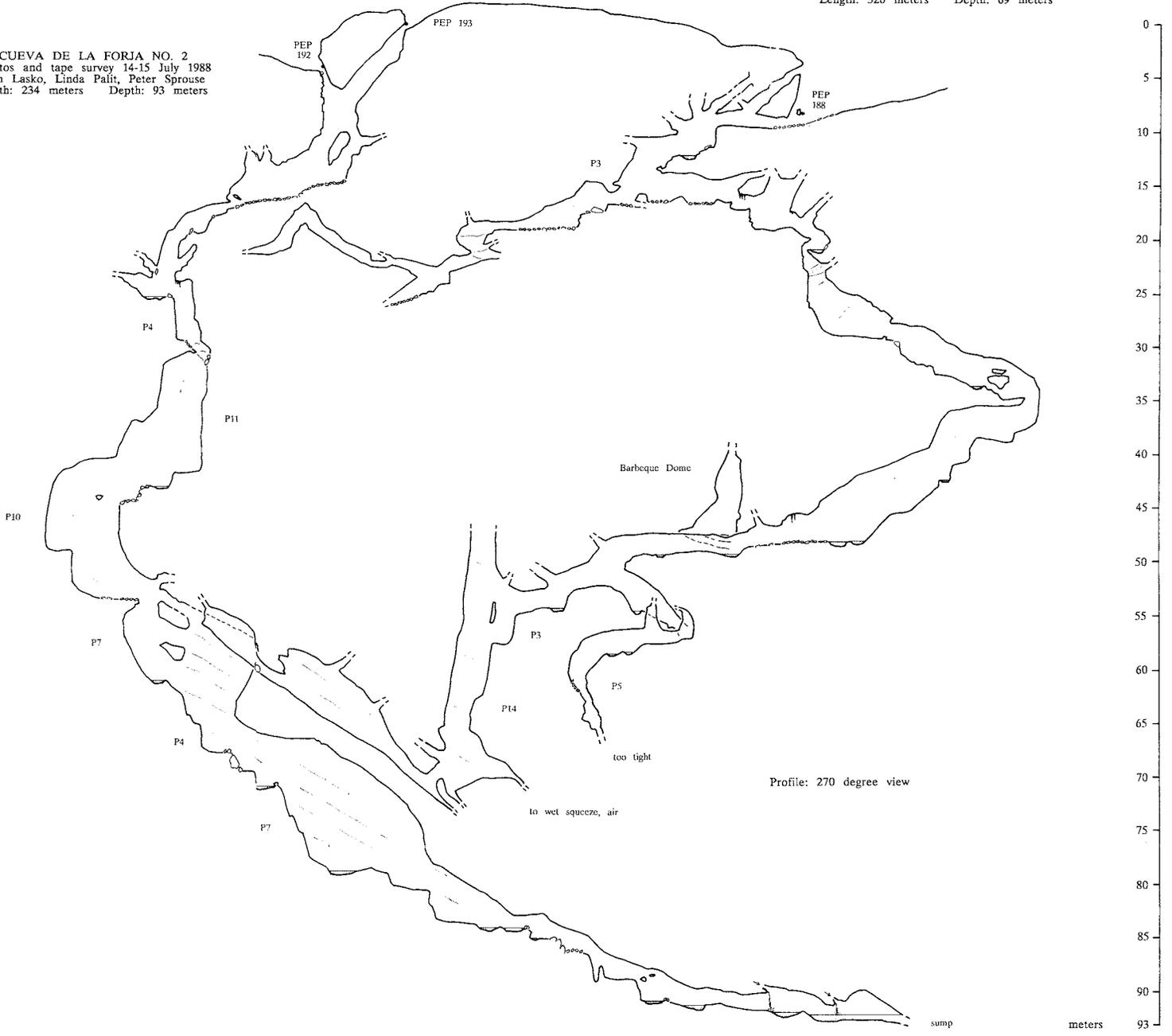


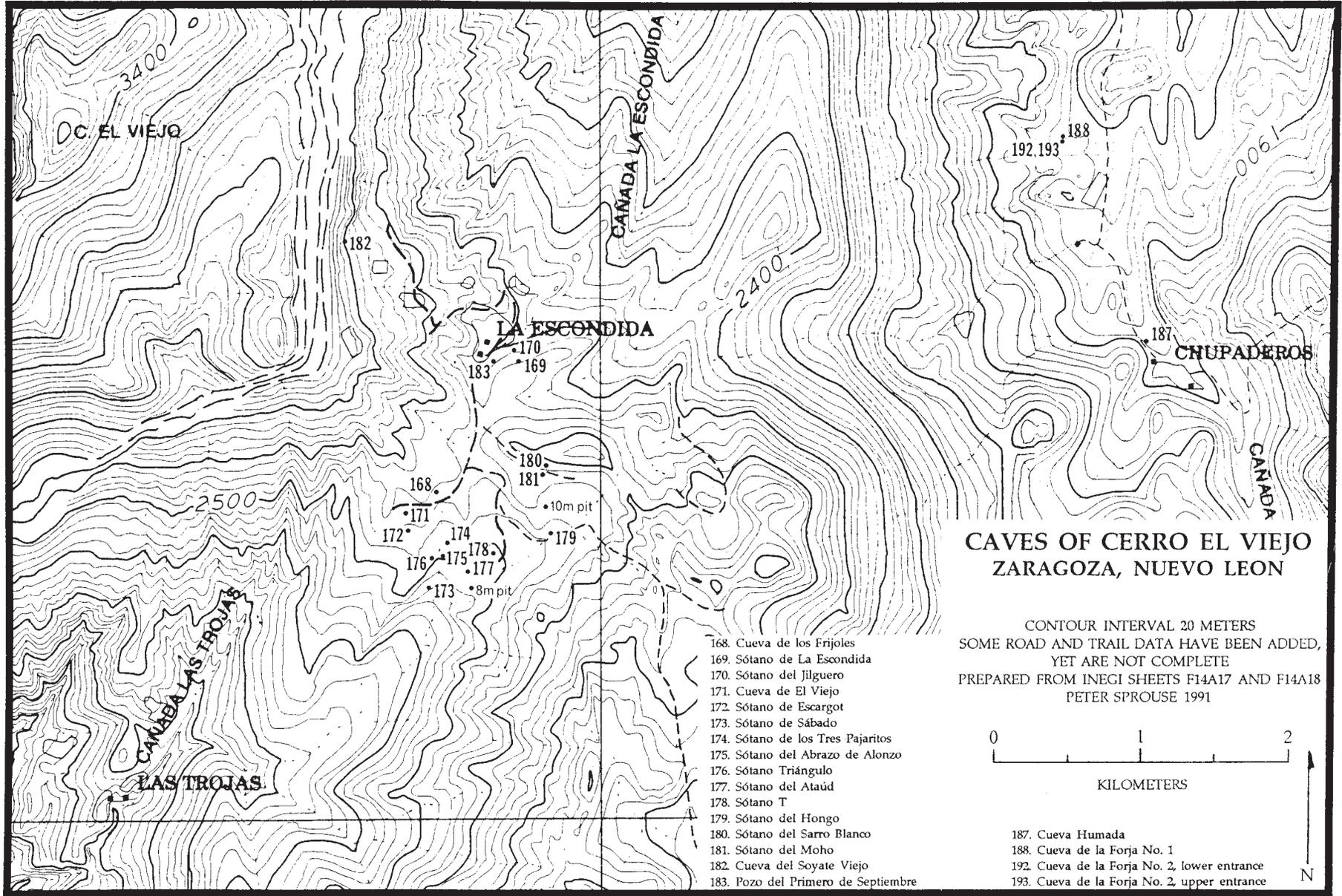
Plan: 270 degree view



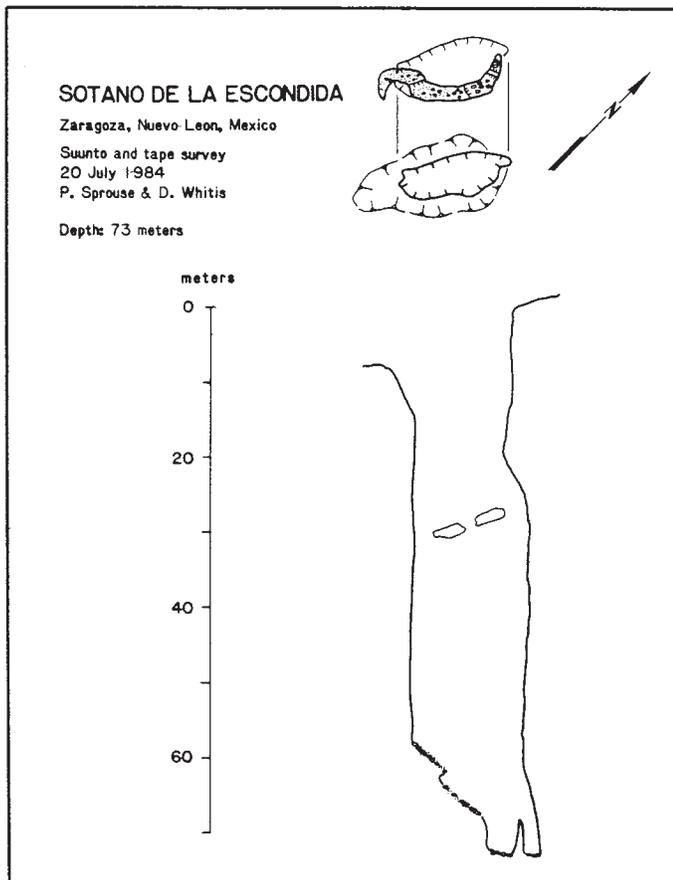
CUEVA DE LA FORJA NO. 1
Suuntos and tape survey 13 October 1987
Ailan Cobb, Jim Feely, Susan Lasko, Peter Sprouse
Length: 326 meters Depth: 69 meters

CUEVA DE LA FORJA NO. 2
Suuntos and tape survey 14-15 July 1988
Susan Lasko, Linda Palit, Peter Sprouse
Length: 234 meters Depth: 93 meters





for a pit I'd seen on aerial photos. It turned out to be only a shallow sink surrounded by tall trees. But we located several other pits, and talked to Jovito Rosales, whose family seemed to be the sole inhabitants of the village. He agreed to guide us to more pits the next day.



In the morning we set off with Jovito to see the various pits he knew of in the area south of our camp. We carefully noted the location of every pit he knew about in order to explore them the next day on our own time. On our return to camp he showed us a small cave taking an arroyo right across the road. Somehow we'd missed this one right under our noses. An empty bean can inspired the name **Cueva de los Frijoles**. It was a dirt-floored crawl which we were able to push for 25 meters until it got too tight to pursue without serious digging, but it did blow air.

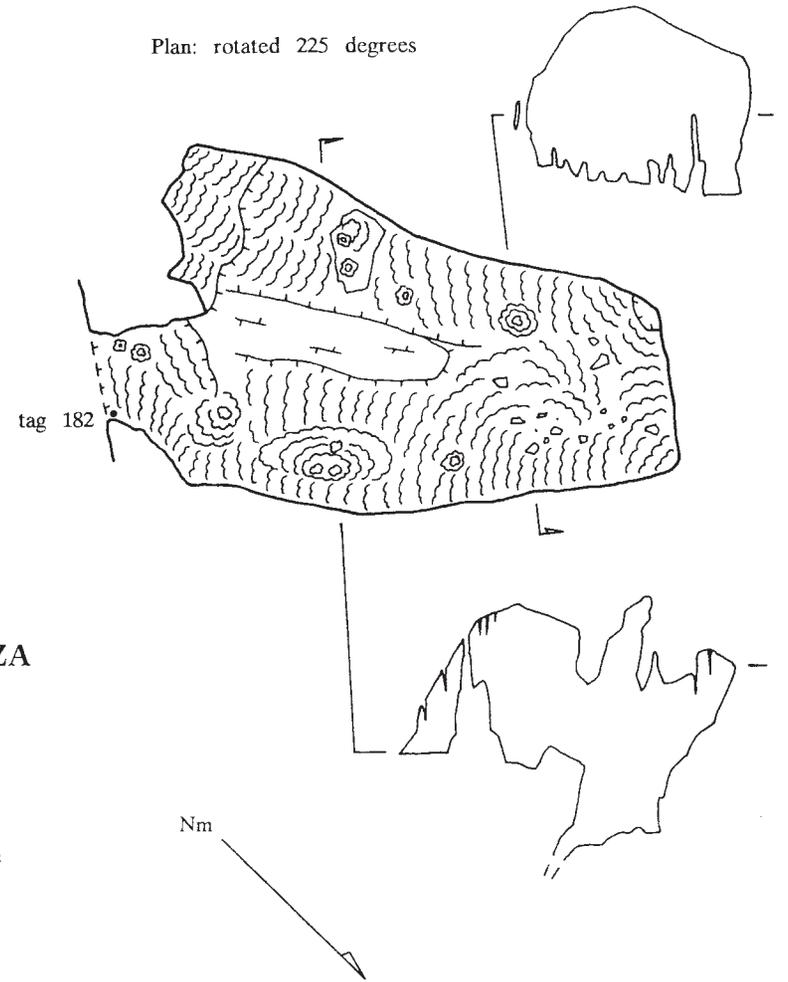
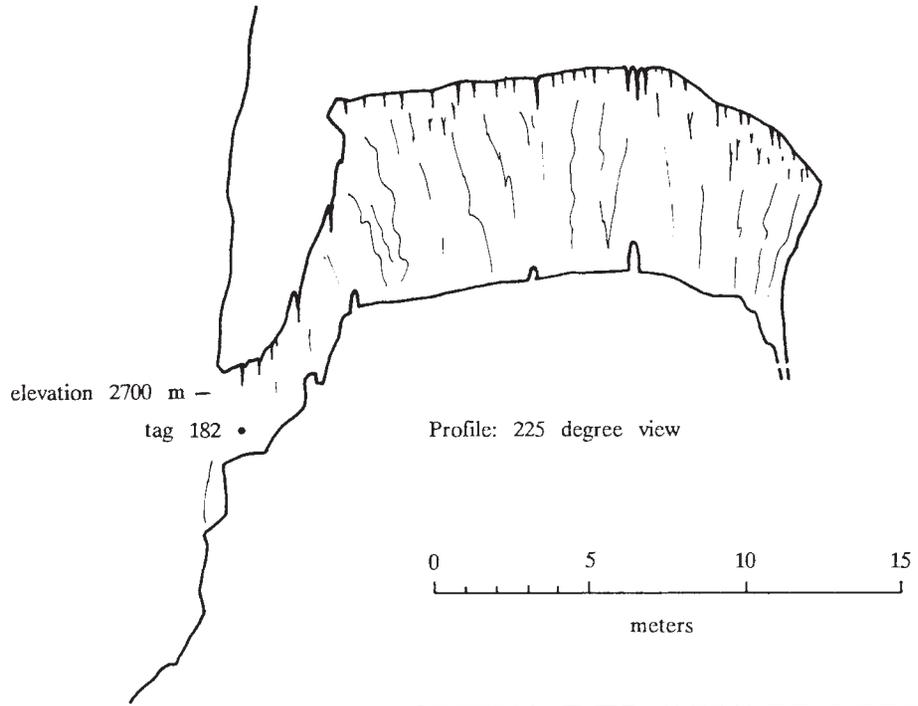
So we moved on to the large open-air pit above Escondida which we had first seen in 1985. **Sótano del Jilguero** (a type of bird) has a 38 meter low side drop to a floor which slopes back under the rig point. Allan, Susie, and I mapped through a narrow canyon and up a few climbs. Upon reaching a tall room we could see a small skylight high overhead. We managed to climb up an unstable route to reach it. I could just fit my head through the opening, and

hollered for Jim, our surface man. I got no response, so we proceeded to dig open the hole from below. Jovito's family had gathered, and his small daughter squealed in wonder as the three of us seemed to be birthed from Mother Earth. We tromped back up to the big entrance, and Susie rappelled in to retrieve our stashed vertical gear.

We spent the tenth of October exploring and mapping all nine of the pits Jovito had shown us the day before. All of them were blind, the deepest being 39 meters. The next day Jovito took us up to a cave at the base of the east cliff face of Cerro el Viejo. It took him a few minutes to relocate it, and we had to climb a palm tree to enter it. **Cueva del Soyate Viejo** was a spacious 30-meter-long formation room. Returning to camp, we packed up to move farther down the road. We stopped at Escondida to bathe in the small stream and to tag **Pozo del Primero de Septiembre**. Then we drove north down the twisty road toward El Niño, some 700 meters lower to the north. Along the way we looked for an arroyo cave Paul Fambro had



Allan Cobb exploring Sótano Triangulo. 1987 photo by Susie Lasko.



CUEVA DEL SOYATE VIEJO

LA ESCONDIDA, MUNICIPIO DE ZARAGOZA
NUEVO LEON, MEXICO

PEP 182

Suuntos and tape survey 11 October 1987

Allan Cobb, Jim Feely, Susie Lasko, Peter Sprouse

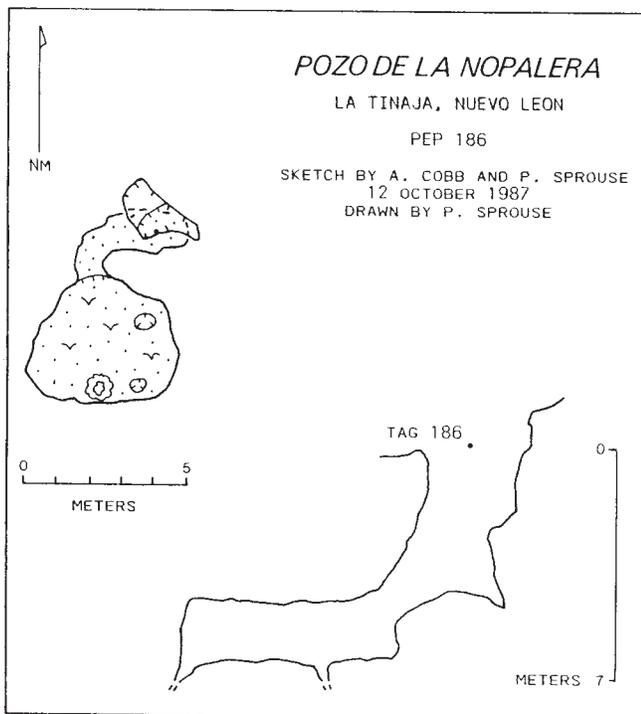
Drafted by Peter Sprouse

Length: 30 meters Depth: 13 meters

UTM coordinates E:428,730 N:2,652,890

reported seeing at a turn in the road. The apparent sink in question had been plugged with shale mud runoff from the road construction and now contained a muddy yellow pond. As we crossed Cañon el Niño we diverted briefly and tagged Pozo de El Niño. The road on to Garza was long and winding. We finally arrived to find a cascading stream lined with huge hemlock trees, a place they justly call El Paraíso. We set up camp and talked with a local who would guide us down into the canyons to the east to see **Cueva de los Monos**. This was reputed to be a mysterious cave, "muy oculto".

The next morning we had a pleasant 80 minute walk along great trails. We were on the shales nearly the whole way, making for smooth, rounded terrain. As we neared our destination we could see into the depths of Infierno canyon, an impressive sight. We dropped into a small arroyo and stood below the wide cave entrance. Our guide called up, as if to warn something of our presence. He hung back as we climbed up to the cave.



It was developed in steeply dipping, thin-bedded limestone, obviously close to the shale gradation. The floor was ground into fine dust by cattle which shelter inside. The cave consists of a maze of large passages with several entrances along the cliff face. As we mapped past a rotting cow, our guide finally joined us, however he clutched his rifle warily. We emerged into a large final chamber with a vampire bat colony. We figured they had their dinners delivered, since the

cows came right into their cave. Our faunal collections included pseudoscorpions and a scorpion. On the hike back Allan checked out a shallow pit, **Pozo de la Nopalera**, which contained a dead goat and more vampire bats.

Returning to Garza, we packed up camp and drove southeast to Chupaderos. This was a valley that we had first scouted from the east side in May 1976. Bill Steele and Bill Mayne had hiked from Dulces Nombres and had to do an unplanned overnight bivouac in a shelter cave.

The whole valley seemed to be filled with shallow blind sinks. We set up camp and some road workers showed us the entrance to the only well-known cave, **Cueva Humada**. We explored this cave the next day. It has a low entrance which opens right up into walking passage. Although spacious with a level ceiling, repeated floor obstacles kept us going up and down. We were surprised when the cave suddenly ended 100 meters in.

We then drove a spur road up a valley to the west, but all the sinks we checked were blind. The map indicated a large sink to the north, which Allan and I climbed down into. We found no cave at the bottom, but ate delicious apples off some trees growing there.

With no interesting leads to push we packed up and started the drive back. We hadn't gone 200 meters when from the bumper I spotted a sink taking an arroyo. Allan and I followed a scoured canyon passage to a short drop. At last, this looked like a real cave. We geared up and spent all evening mapping **Cueva de la Forja**. It split into several distributaries, all of which ended. After rigging several drops we bottomed it at -69 meters, having mapped 326 meters.

First thing the next morning we discovered another cave just across the road which also took an arroyo. But **Cueva de la Forja No. 2** would have to wait until the next trip.

JULY 1988

Less than a year later we were back. Allan, Susie and I were joined by Chuck Kennedy and Linda Palit. At midday on 14 July we arrived at Chupaderos. We ate lunch, then geared up for our first trip into **Cueva de la Forja No. 2**. It had two small entrances, one of which took drainage. Inside it opened right up into descending passage. Allan and Chuck went ahead rigging while Susie, Linda and I began the survey. We caught up with them when they ran out of rope after three drops, and quit for the day.

The next morning the riggers pushed down another three drops and we mapped behind them. The cave began to level out and then ended in a small sump at -93 meters, with a length of 234 meters. Before it got dark we surveyed between the two entrances and went hiking in a valley off to the east. This valley was floored with numerous sinks, but had no distinct entrances. Returning to camp we dried out our firewood, and tried to drink up all the alcohol we'd brought.

The following morning Susie and I hiked up the road to look at another sinking arroyo to the north. It hit a nice headwall, but any entrance was buried. Returning to camp, we joined the others to look at the second valley to the east. It too was filled with sinks, but none seemed to go more than 10 meters. Susie and I climbed up the ridge to look for two large sinks shown on the map, but couldn't find them before time ran out, although we did find a high sinkhole valley. Then we had to head back to Zaragoza, where we had a cool bath in the falls before driving north.

CAVE DESCRIPTIONS

(Faunal lists compiled by James R. Reddell)



Jim Feely at entrance to Cueva de los Frijoles. 1987 photo by Susie Lasko

CUEVA DE LOS FRIJOLES

PEP 168

La Escondida, Nuevo León

Length: 23 meters Depth: 4 meters

Cueva de los Frijoles is located 800 meters south-southwest of La Escondida at an elevation of 2555 meters. A small arroyo drains into it from the west. The entrance is 2 meters in diameter and quickly lowers to a crawl. Seven meters in there is a junction, where the left-hand passage becomes too small. To the right is a 3-meter-wide passage with another tight

crawl leading off. This crawl becomes too low to pass, but could possibly be dug open, and there is good airflow at this point. This cave was explored and surveyed on 9 October 1987 by Allan Cobb, Jim Feely, Susie Lasko, and Peter Sprouse.

Spiders: *Cicurina (Cicurella)* sp.

Modisimus rainesi Gertsch

Mites: Acarina undetermined

Harvestmen: Opiliona undetermined

Phalangiidae undetermined

Millipedes: Diplopoda undetermined

Rhachodesmidae genus and species

Xystodesmidae genus and species

Springtails: Collembola undetermined

Insects: Insecta undetermined (larvae)

Crickets: Orthoptera undetermined

Flies: Diptera undetermined



Allan Cobb (l) and Peter Sprouse mapping in Sótano del Jilguero. 1987 photo by Susie Lasko.

SOTANO DEL JILGUERO

PEP 170

La Escondida, Nuevo León

Length: 130 meters Depth: 39 meters

This large pit is located on the hillside 200 meters east of La Escondida at 2520 meters elevation. The entrance measures 20 by 30 meters, and has a low side drop of 38 meters to a fern-covered floor. A passage goes off to the north underneath the low side rig point. This passage goes for 70 meters to a climb-up to a small second entrance. It was located on 20 July 1984 by Peter Sprouse and Terri Treacy Sprouse. On 9 October 1987 the cave was surveyed by Allan Cobb, Susie Lasko, and Peter Sprouse.

Isopods: Trichoniscidae genus and species (troglobite)

Spiders: *Nesticus ?rainesi* Gertsch

Modisimus rainesi Gertsch

Millipedes: Diplopoda undetermined

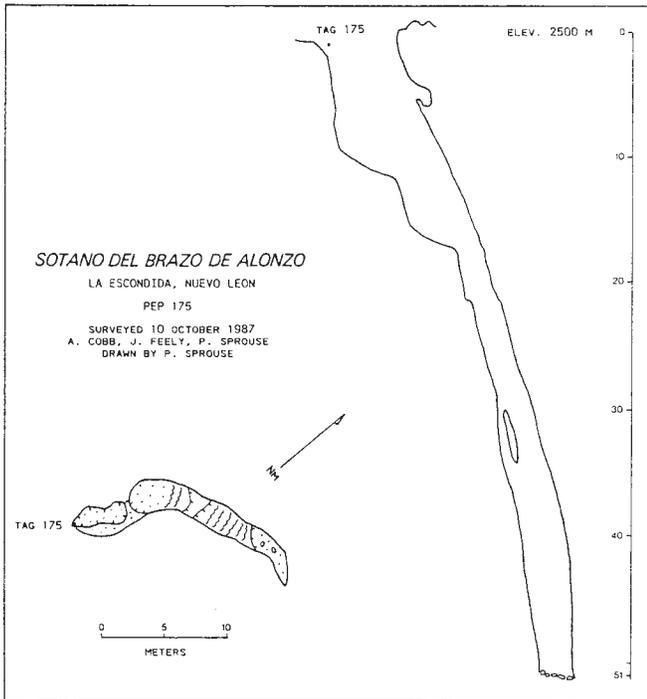
Slender entotrophs: Campodeidae genus and species

Cave crickets: Rhabdiphoridae genus and species
 Homopterans: Homoptera undetermined
 Bark lice: Psocoptera undetermined
 Ground beetles: Carabidae genus and species
 Flies: Diptera undetermined

SOTANO DE SABADO PEP 173
 La Escondida, Nuevo León
 Length: 20 meters Depth: 20 meters

This sótano is located 1250 meters south--southwest of La Escondida at an elevation of 2460 meters. The entrance is 2.5 meters in diameter, and the 20-meter-deep flowstone-lined shaft is filled at the bottom. It was surveyed on 10 October 1987 by Jim Feely and Peter Sprouse.

Spiders: *Modisimus rainesi* Gertsch
 Darkling beetles: *Eleodes (Caverneleodes)* new species



SOTANO DE LOS TRES PAJARITOS PEP 174
 La Escondida, Nuevo León
 Length: 45 meters Depth: 38 meters

This pit is situated 950 meters south of La Escondida at an elevation of 2510 meters. It measures 3 by 9 meters at the top, and is slightly longer and narrower at the bottom. The 38-meter drop lands on a gently sloping dirt floor. It was surveyed on 10 October 1987 by Susie Lasko and Peter Sprouse.

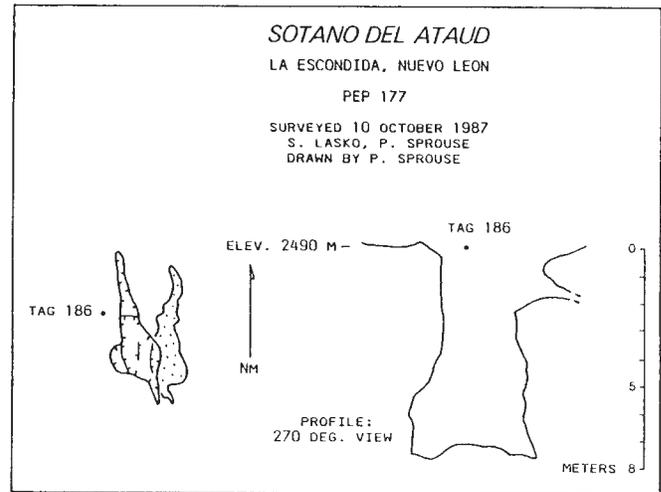
Spiders: *Modisimus rainesi* Gertsch
 Darkling beetles: *Eleodes (Caverneleodes)* new species

SOTANO DEL BRAZO DE ALONZO PEP 175
 La Escondida, Nuevo León
 Length: 60 meters Depth: 51 meters

This pit is located 1000 meters south of the village of La Escondida, at an elevation of 2500 meters. The entrance is 1.5 by 5 meters, and the shaft slopes steeply down at 70 degrees to a depth of 51 meters. It was surveyed on 10 October 1987 by Allan Cobb, Jim Feely, and Peter Sprouse.

SOTANO DEL ATAUD PEP 177
 La Escondida, Nuevo León
 Length: 10 meters Depth: 8 meters

This shallow pit is located 1100 meters south of La Escondida, at an elevation of 2490 meters. The entrance is a fissure measuring 1 by 5 meters, and it is an 8 meters drop to the bottom. It was mapped on 10 October 1987 by Susie Lasko and Peter Sprouse.



SOTANO TRIANGULO PEP 176
 La Escondida, Nuevo León
 Length: 25 meters Depth: 12 meters

This shallow pit is located 1000 meters south--southwest of La Escondida at an elevation of 2500 meters. The entrance is 3 meters across and it is a 10 meter drop to the floor. The bottom is roughly triangular in shape, about 10 by 12 meters. This pit was surveyed on 10 October 1987 by Allan Cobb and Peter Sprouse.

Mites: Acarina undetermined

Millipedes: Diplopoda undetermined
 Darkling beetles: *Eleodes (Caverneleodes)* new species

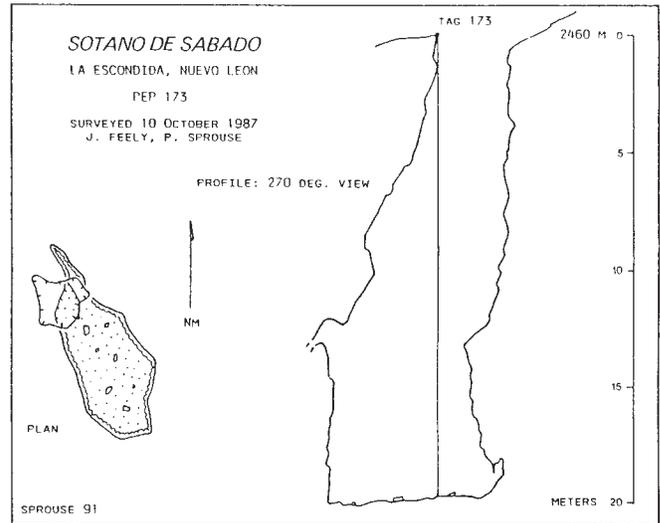
SOTANO DEL HONGO PEP 179
 La Escondida, Nuevo León
 Length: 30 meters Depth: 27 meters

This pit is located 1000 meters south-southeast of La Escondida, at an elevation of 2522 meters. The elongated entrance measures 2 by 8 meters, and it is a 24.5 meter drop to the floor. Sótano del Hongo was surveyed on 10 October 1987 by Jim Feely, Susie Lasko, and Peter Sprouse.

SOTANO DEL SARRO BLANCO PEP 180
 La Escondida, Nuevo León
 Length: 30 meters Depth: 28 meters

This sótano is located 650 meters southeast of La Escondida, at an elevation of 2580 meters. The pit is 2 meters across and drops 25 meters to a sloping floor.

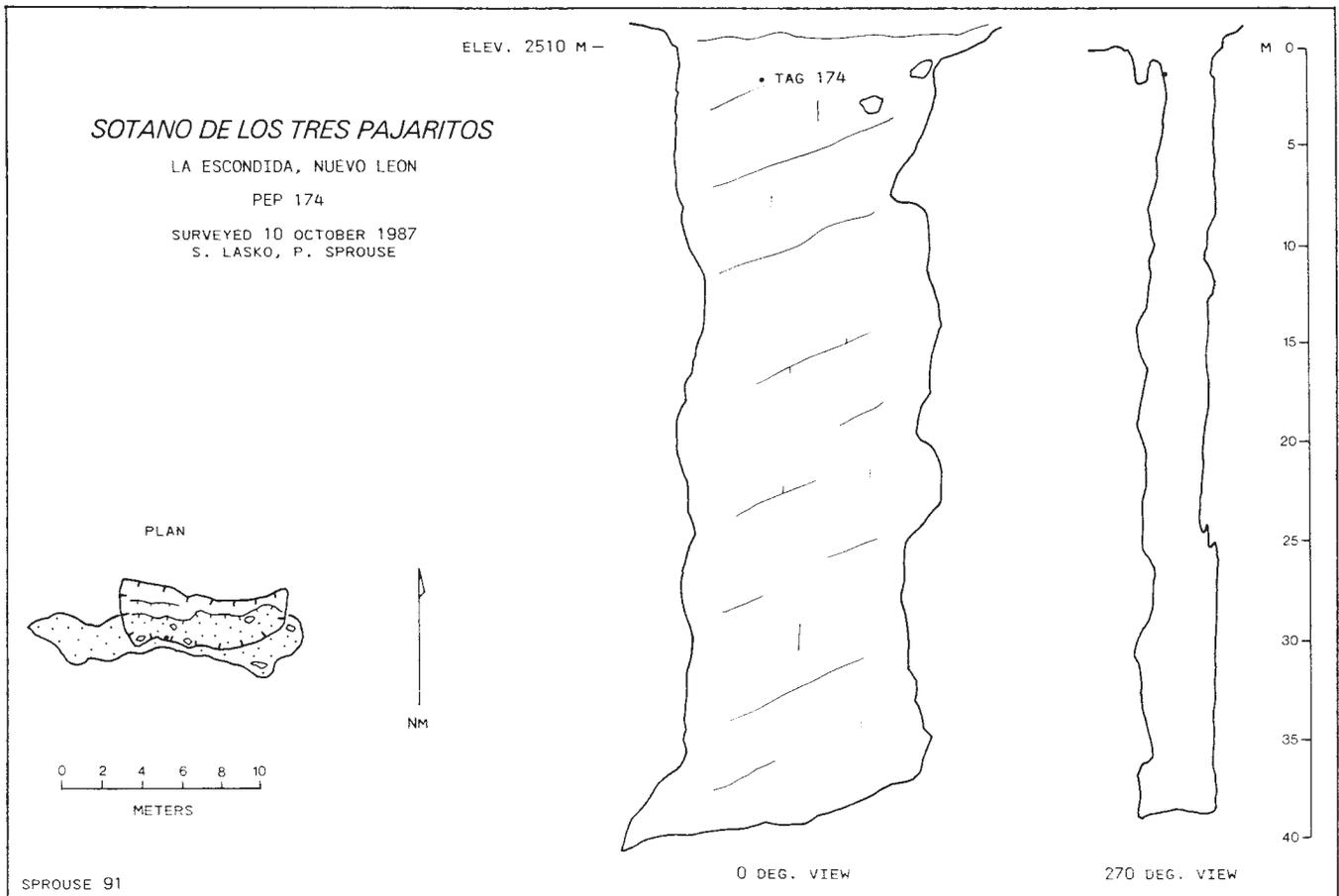
Spiders: *Modisimus rainesi* Gertsch
 Millipedes: Xystodesmidae genus and species

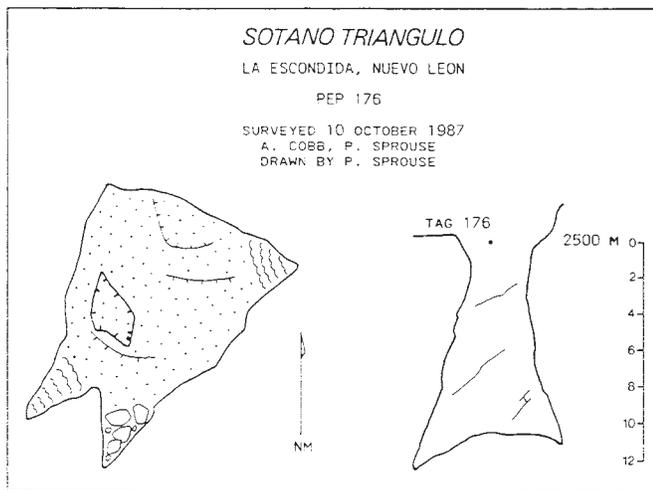


Slender entotrophs: Campodeidae genus and species
 Insects: Insecta undetermined (larvae)

SOTANO DEL MOHO PEP 181
 La Escondida, Nuevo León
 Length: 15 meters Depth: 13 meters

This shallow pit is located 650 meters south-east of La Escondida at an elevation of 2578 meters, and is only 10 meters south of Sótano del Sarro





Blanco. It is a 9 meter drop, with a floor sloping down to a total depth of 13 meters. Both of these pits were mapped on 10 October 1987 by Allan Cobb, Jim Feely, Susie Lasko, and Peter Sprouse.

CUEVA DEL SOYATE VIEJO PEP 182
La Escondida, Nuevo León
Length: 30 meters Depth: 13 meters

Cueva del Soyate Viejo is located at the the base of Cerro el Viejo's east cliff face, 900 meters northwest of the village of La Escondida at an elevation of 2700 meters. The 5-meter climb into the entrance is made easier by an old soyate palm. The cave consists of a single well-decorated chamber measuring 10 by 25 meters. It was surveyed on 11 October 1987 by Allan Cobb, Jim Feely, Susan Lasko, and Peter Sprouse. Although it was known to and likely explored by local residents, it had no local name.

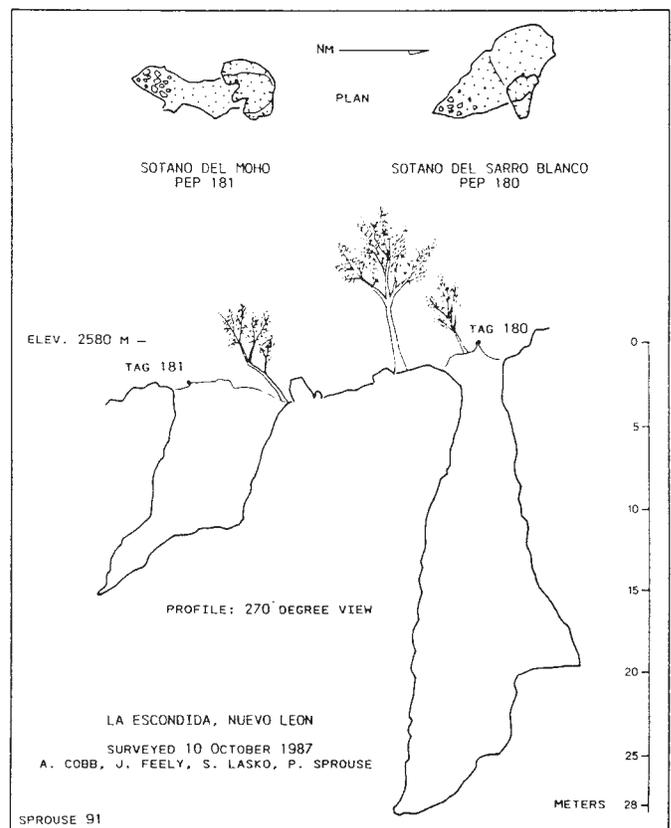
Spiders: *Phonotimpus* sp.
Coryssocnemis sp.
Modisimus rainesi Gertsch
Centipedes: Lithobiomorpha undetermined
Millipedes: Rhachodesmidae genus and species
Xystodesmidae genus and species
Darkling beetles: *Eleodes (Caverneleodes)* new species

CUEVA DE EL VIEJO PEP 171
La Escondida, Nuevo León
Length: 162 meters Depth: 64 meters

This cave is located 900 meters southwest of La Escondida at an elevation of 2550 meters. The entrance is a hole in a small sink which drops steeply for 10 meters to a sloping canyon passage. This passage

meanders steadily downward to a final chamber at a depth of 64 meters. It was explored and mapped on 19 July 1984 by Audrey Cole, Jim Feely, Peter Sprouse, Terri Treacy Sprouse, and Barbara Vinson.

Isopods: Trichoniscidae genus and species (troglomite)
Harvestmen: *Karos unispinosus* (Goodnight and Goodnight)
Leiobuninae new genus, new species
Mites: Acarina undetermined
Millipedes: Diplopoda undetermined
Xystodesmidae genus and species
Centipedes: Lithobiomorpha undetermined
Cave crickets: Rhaphidophoridae genus and species
Ground beetles: *Mexaphaenops mackenziei dulcinominis* Barr (troglomite)
Round fungus beetles: Leiodidae genus and species
Darkling beetles: *Eleodes (Caverneleodes)* new species



SOTANO DE LA ESCONDIDA PEP 169
La Escondida, Nuevo León
Length: 75 meters Depth: 73 meters

This pit is located 250 meters east of La Escondida at an elevation of 2530 meters. The entrance measures 5 by 13 meters, and it is a 50-meter low-side drop to the top of a steep slope. At the bottom of this slope the pit is plugged with fill at a

total depth of 73 meters. This pit was located and mapped on 20 July 1984 by Peter Sprouse, Terri Treacy Sprouse, and Duwain Whitis. It is not a locally used name.

Isopods: Trichoniscidae genus and species (troglomite)

Centipedes: Lithobiomorpha undetermined

Millipedes: Diplopoda undetermined

Xystodesmidae genus and species

Insects: Insecta undetermined (larvae)

Beetles: Coleoptera undetermined

Rove beetles: Staphylinidae genus and species

SOTANO DE ESCARGOT

PEP 172

La Escondida, Nuevo León

Length: 20 meters Depth: 19 meters

This pit is situated 1000 meters southwest of La Escondida at an elevation of 2530 meters. It is a fissure 19 meters deep, and contains large snails. It explored and surveyed on 20 July 1984 by Jim Feely and Duwain Whitis.

POZO DEL PRIMERO DE SEPTIEMBRE

PEP 183

La Escondida, Nuevo León

Length: 130 meters Depth: 122 meters

This pit is located 100 meters east of La Escondida at an elevation of 2520 meters. The entrance is on a northwest-facing slope and is 7 meters in diameter. The 116-meter entrance drop has a ledge 9 meters down after which it goes freefall to the bottom. The rope lands in the middle of a flat mud and rock floor measuring 15 by 19 meters. A passage can be seen 10 meters up the slightly overhanging wall. At floor level a narrow fissure descends a couple to 2-3 meter drops, and continues down, small and with no breeze. This pit was located on 20 July 1984 by Peter Sprouse and Terri Treacy Sprouse. It was explored and sketched on 1 September 1984 by Paul Fambro.

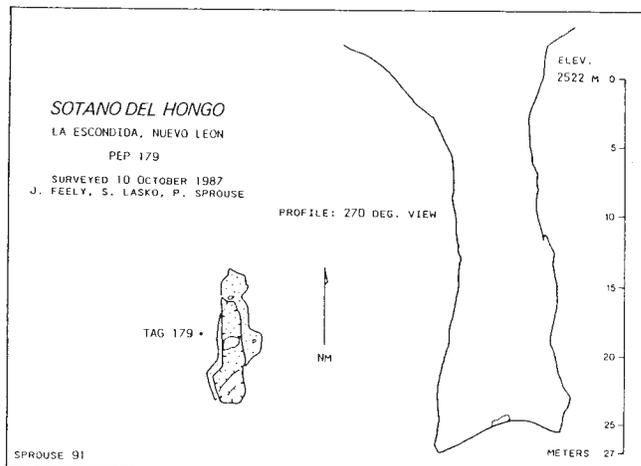
SOTANO T

PEP 178

La Escondida, Nuevo León

Length: 18 meters Depth: 11 meters

This small pit is located 1000 meters south of La Escondida at an elevation of 2495 meters. The 1-meter-diameter entrance drops 10 meters into a narrow cross-joint passage. Only about 10 meters of passage can be traversed at the bottom before it becomes too tight. Sótano T was explored and



sketched on 10 October 1987 by Peter Sprouse.

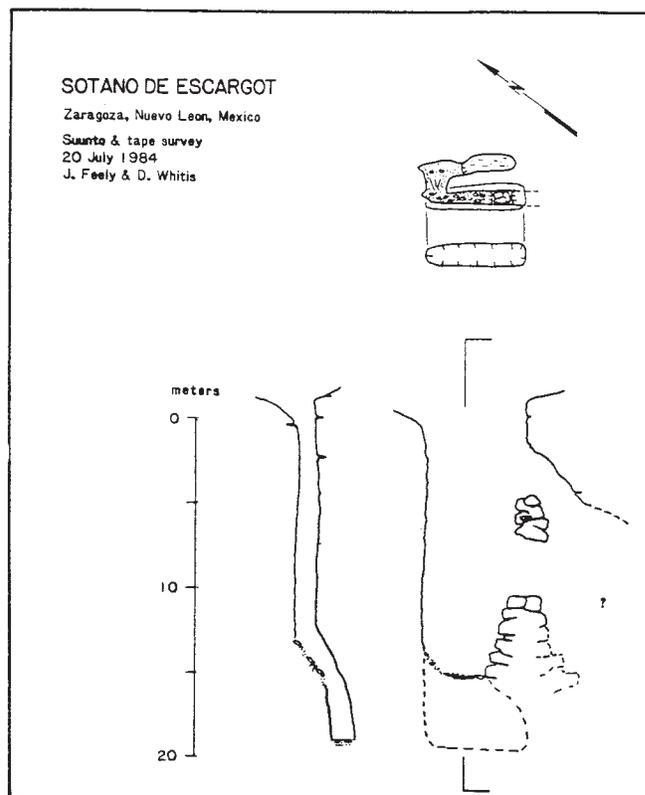
CUEVA HUMADA

PEP 187

Chupaderos, Nuevo León

Length: 110 meters Depth: 23 meters

This cave is located a few hundred meters north of Chupaderos (this is the northern of the two localities marked "Chupaderos" on the topo map). The low entrance is on the west side of the main road. The entrance crawl opens up immediately, passing under-



CUEVA HUMADA

CHUPADEROS, MUNICIPIO DE ZARAGOZA
NUEVO LEON, MEXICO

PEP 187

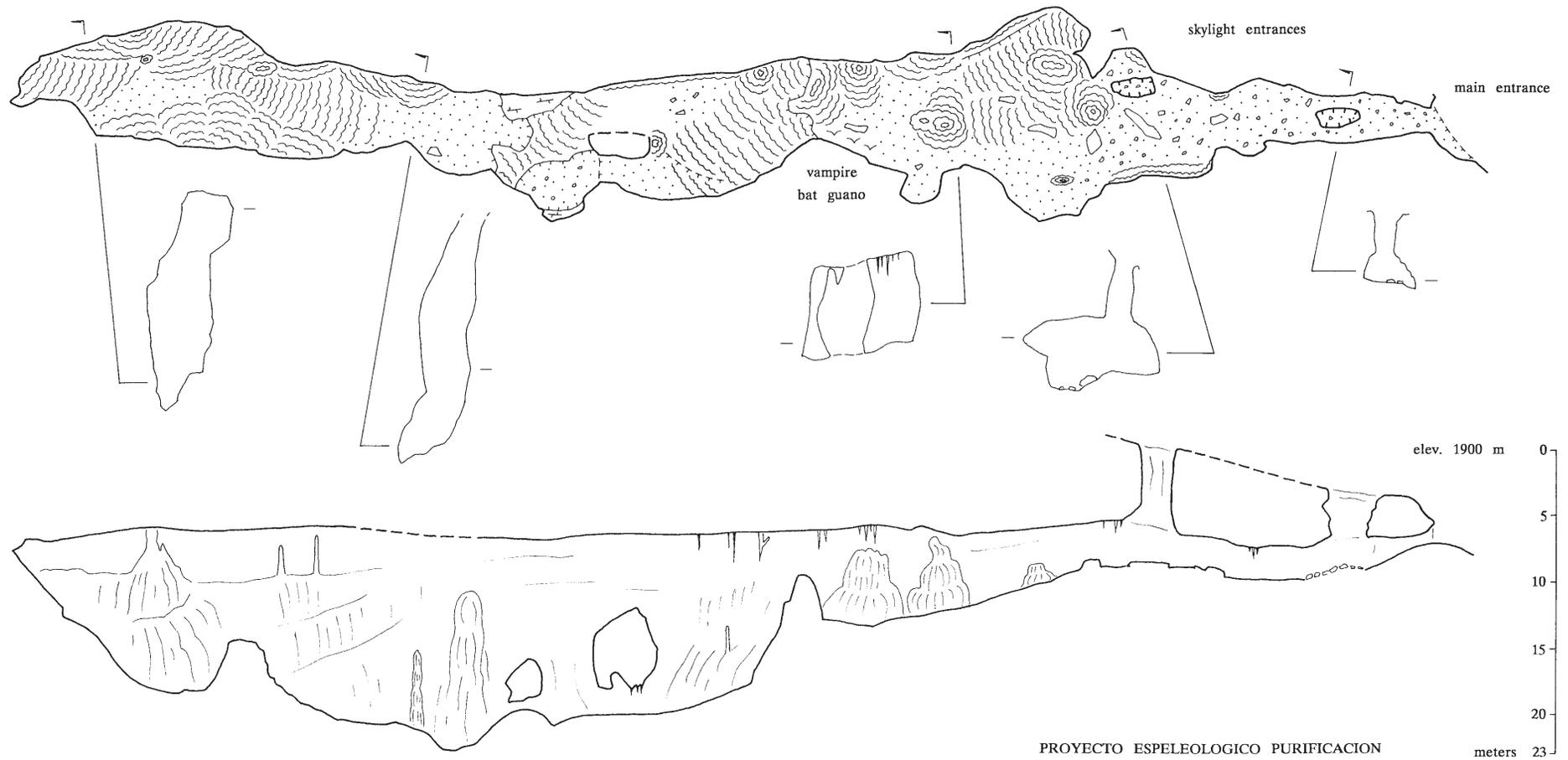
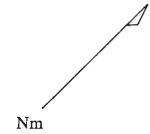
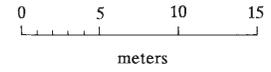
Suuntos and tape survey 13 October 1987

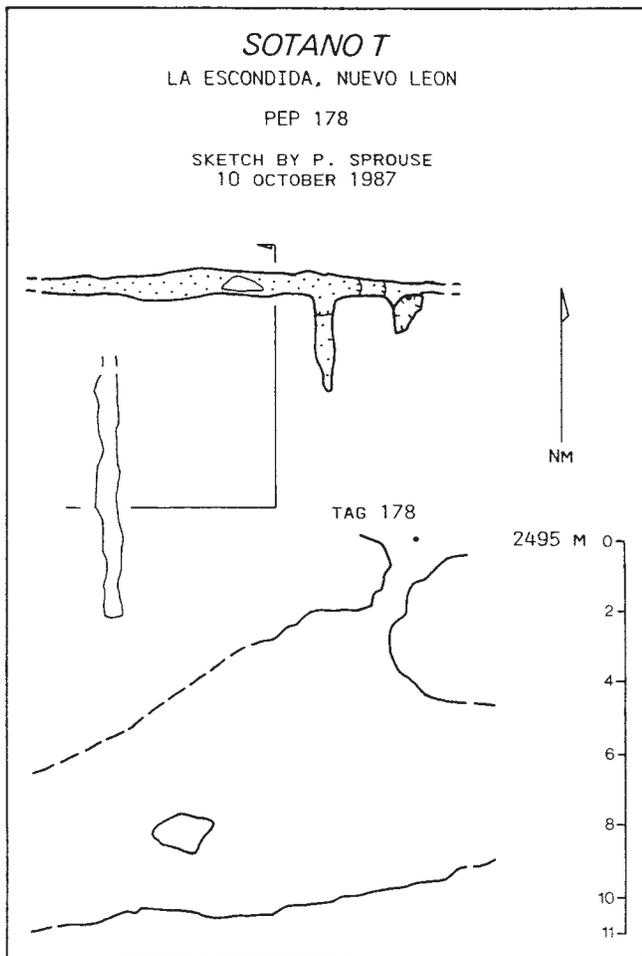
Jim Feely, Susie Lasko, Peter Sprouse

Drafted by Peter Sprouse

Length: 110 meters Depth: 23 meters

UTM coordinates E:432,720 N:2,652,345





neath two skylight entrances where it enlarges into a spacious formation gallery. This gallery averages 10 meters wide and 15 meters high, with several formation obstacles which must be climbed. It ends in complete flowstone fill. Vampire bat guano was observed halfway through the cave.

Cueva Humada was surveyed on 13 October 1987 by Jim Feely, Susie Lasko, and Peter Sprouse. The name is a locally used one.

Isopods: Triconiscidae genus and species (troglomite)

Spiders: *Modisimus rainesi* Gertsch

Harvestmen: Phalangidae genus and species

Mites: Acarina undetermined

Centipedes: Lithobiomorpha undetermined

Millipedes: Rhachodesmidae genus and species

Crickets: Orthoptera undetermined

Ground beetles: Trechinae genus and species (2 species) (troglomite)

?*Mexisphodrus* sp.

Darkling beetles: *Eleodes* (*Caverneleodes*) new species



Allan Cobb climbing 14m pitch in Cueva de la Forja No. 1 1987 photo by Susie Lasko.

CUEVA DE LA FORJA NO. 1

PEP 188

Chupaderos, Nuevo León

Length: 326 Depth: 69 meters

This cave is located 1300 meters northwest of Chupaderos (Norte) on the west flank of the Chupaderos Valley. It captures an arroyo draining the Escondida Ridge. Just above the arroyo entrance are two small side entrances. The clean-washed entrance passage goes 15 meters to a 3-meter drop, which lands in a north-south trending passage. To the south it goes about 50 meters, pinching in several digs. To the north the passage corkscrews around for 90 meters to a t-junction. To the right it goes 10 meters to an incoming shaft, Barbeque Dome. To the left it goes 25 meters to a climbdown to another tee. To the north it goes 25 meters to a pinch at the bottom of a 5 meter drop. To the left there is a broken pitch of 3 and 14 meters. At the bottom there is a wet squeeze with airflow, as well as a side passage going up a steep dirt slope to another pinch.

Cueva de la Forja No. 1 was discovered by Peter Sprouse on 12 October 1987, who mapped it the next day along with Allan Cobb, Jim Feely, and Susie Lasko.

Earthworms: Haplotaxida undetermined

Isopods: Triconiscidae genus and species (troglomite)

Spiders: *Coryssocnemis abernathyi* Gertsch

Metagonia new species

Modisimus rainesi Gertsch

Mites: Acarina undetermined

Harvestmen: Phalangodidae genus and species

Phalangiidae genus and species

Centipedes: Lithobiomorpha undetermined



CUEVA DEL MONO

LA TINAJA, NUEVO LEON

PEP 185

Suuntos and tape survey 12 October 1987

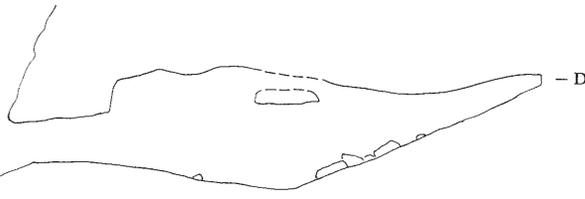
Allan Cobb, Jim Feely, Susie Lasko, Peter Sprouse

Drafted by Peter Sprouse

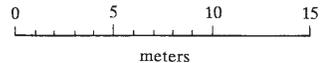
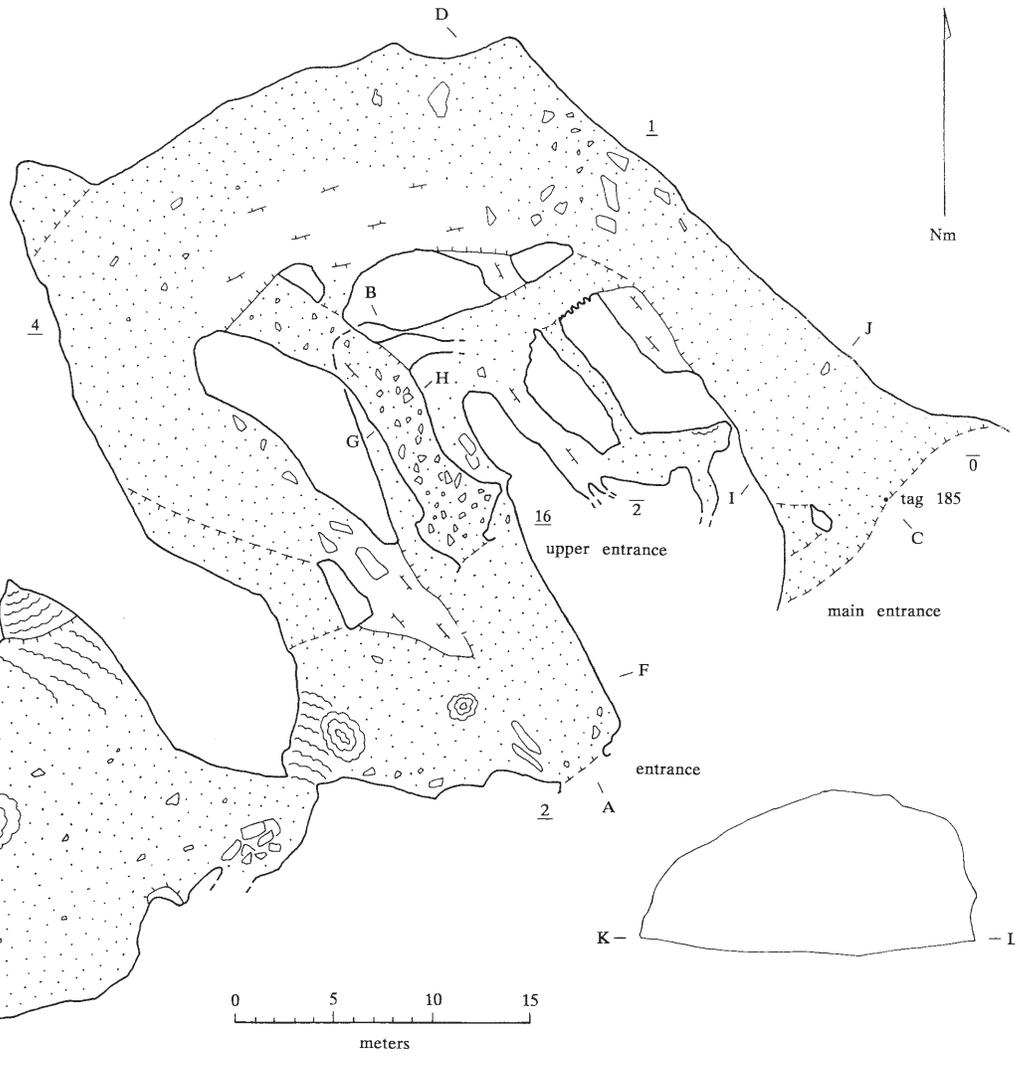
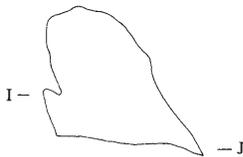
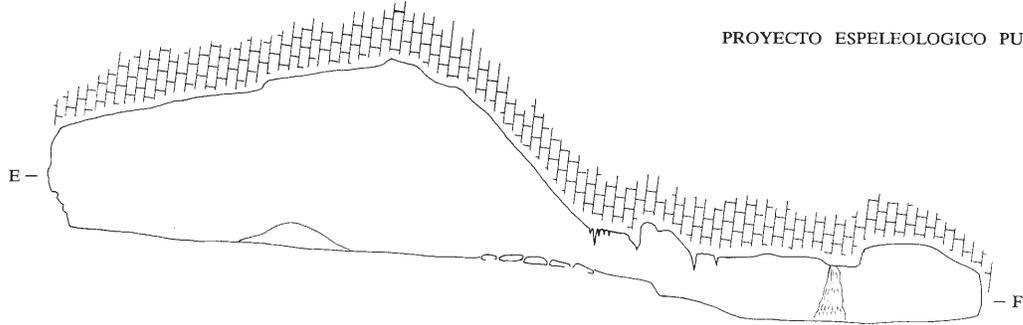
Length: 210 meters Depth: 19 meters

UTM coordinates E:434,205 N:2,659,645

C -
elev. 1270 m



PROYECTO ESPELEOLOGICO PURIFICACION



Millipedes: Diplopoda undetermined
 Rhachodesmidae genus and species (2 species)
 Springtails: Collembola undetermined
 Insects: Insecta undetermined (larvae)
 Cave crickets: Orthoptera undetermined
 Beetles: Coleoptera undetermined
 Ground beetles: Trechinae genus and species (troglobite)
 ?*Mexisphodrus* sp.
 Darkling beetles: *Eleodes* (*Caverneleodes*) new species
 Flies: Diptera undetermined (2 species)

CUEVA DE LA FORJA NO. 2 PEP 192, 193
 Chupaderos, Nuevo León
 Length: 234 meters Depth: 93 meters

This cave is located 40 meters south-southwest of Cueva de la Forja No. 1, and although it passes very close, the two caves have not been connected. Forja No. 2 also takes an arroyo, and has a higher dry entrance as well. A steep climbdown from the two entrances lands in a spacious passage, from which a low drain continues on. Past a short crawl is a steep flowstone climbdown, followed by a 4 and 11-meter pitches. A short stretch of canyon then leads to an 10-meter drop. At the bottom is a small unexplored inlet with airflow, while the main passage continues on down a series of drops of 7, 4, and 7 meters. The cave gradually loses gradient over the remaining 60 meters. Two pinched inlets feed in small cascades near the low, muddy terminal sump. This cave was discovered on 13 October 1987 by Jim Feely, and explored and mapped on 14-15 July 1988 by Allan Cobb, Chuck Kennedy, Susie Lasko, Linda Palit, and Peter Sprouse.

Flatworms: Tricladida undetermined
 Snails: Gastropoda undetermined
 Isopods: Isopoda undetermined
 Trichoniscidae genus and species (troglobite)
 Spiders: Linyphiinae genus and species
Coryssocnemis abernathyi Gertsch
Metagonia sp.
 Harvestmen: Phalangodidae genus and species
 Mites: Acarina undetermined
 Millipedes: Rhachodesmidae genus and species
 Crickets: Gryllidae genus and species
 Cave crickets: Rhabdophoridae genus and species
 Ground beetles: Carabidae genus and species
 Trechinae genus and species (troglobite)
 Round fungus beetles: Leiodidae genus and species
 Rove beetles: *Eustilicus* new species
 Flies: Diptera undetermined

(Note: the following caves are not within the area covered by the accompanying location map, but can be located using the UTM grid coordinates.)

POZO DE EL NINO PEP 184
 Agua del Toro, Nuevo León
 Length: 120 meters Depth: 82 meters
 UTM coordinates: E 430,390 N 2,655,735

This pit is located 2100 meters northwest of Agua del Toro, at an elevation of 1840 meters. It is in Cañon el Niño, about 130 meters south of the arroyo and 30 meters above it. The shaft entrance is less than 2 meters across, and falls 23 meters, with a bridge dividing part of it. This is followed by a 6-meter pit named Laughing Down. A 43-meter shaft follows which is shaped like an elongated cone. A final 8-meter drop into a 7-meter-long passage ends the cave. Pozo de El Niño was explored and mapped on 1-2 September 1984 by Jack Ackerman, David Dodge, Paul Fambro, Jim Feely, and Lynne Thompson.



Vampire bat colony in Cueva del Mono. 1987 photo by Susie Lasko.

CUEVA DEL MONO PEP 185
 La Tinaja, Nuevo León
 Length: 210 meters Depth: 19 meters
 UTM coordinates: E 434,180 N 2,659,647

Cueva del Mono is located 3000 meters east of the village of Garza at an elevation of 1260 meters. The entrance is on the north bank of an arroyo. The cave is developed in steeply-dipping thin-bedded limestone, near its contact with the shales to the west. The entrance passage is floored in deep dust, churned by livestock who shelter in the cave. The main passage makes a horseshoe bend to the left around to another entrance overlooking the arroyo. At this point a small flowstone opening to the west gives access to a large round chamber containing a roost of vampire bats. A complex of passages cuts across the entrance passage

horseshoe, including a ramp up to a higher third entrance.

Cueva del Mono was mapped on 12 October 1987 by Allan Cobb, Jim Feely, Susie Lasko, and Peter Sprouse. The name is locally used.

Scorpions: Scorpiones undetermined

Spiders: *Ctenus* sp.

Filistatoides sp.

Modisimus rainesi Gertsch

Pseudoscorpions: Pseudoscorpionida undetermined

Harvestmen: Phalangidae genus and species

Soft ticks: *Ornithodoros* sp.

Millipedes: Rhachodesmidae genus and species

Crickets: ?*Paracophus* sp.

Cave crickets: Rhaphidophoridae genus and species

Bark lice: Psocoptera undetermined

Darkling beetles: *Eleodes (Caverneleodes)* new species

Flies: Diptera undetermined

POZO DE LA NOPALERA

PEP 186

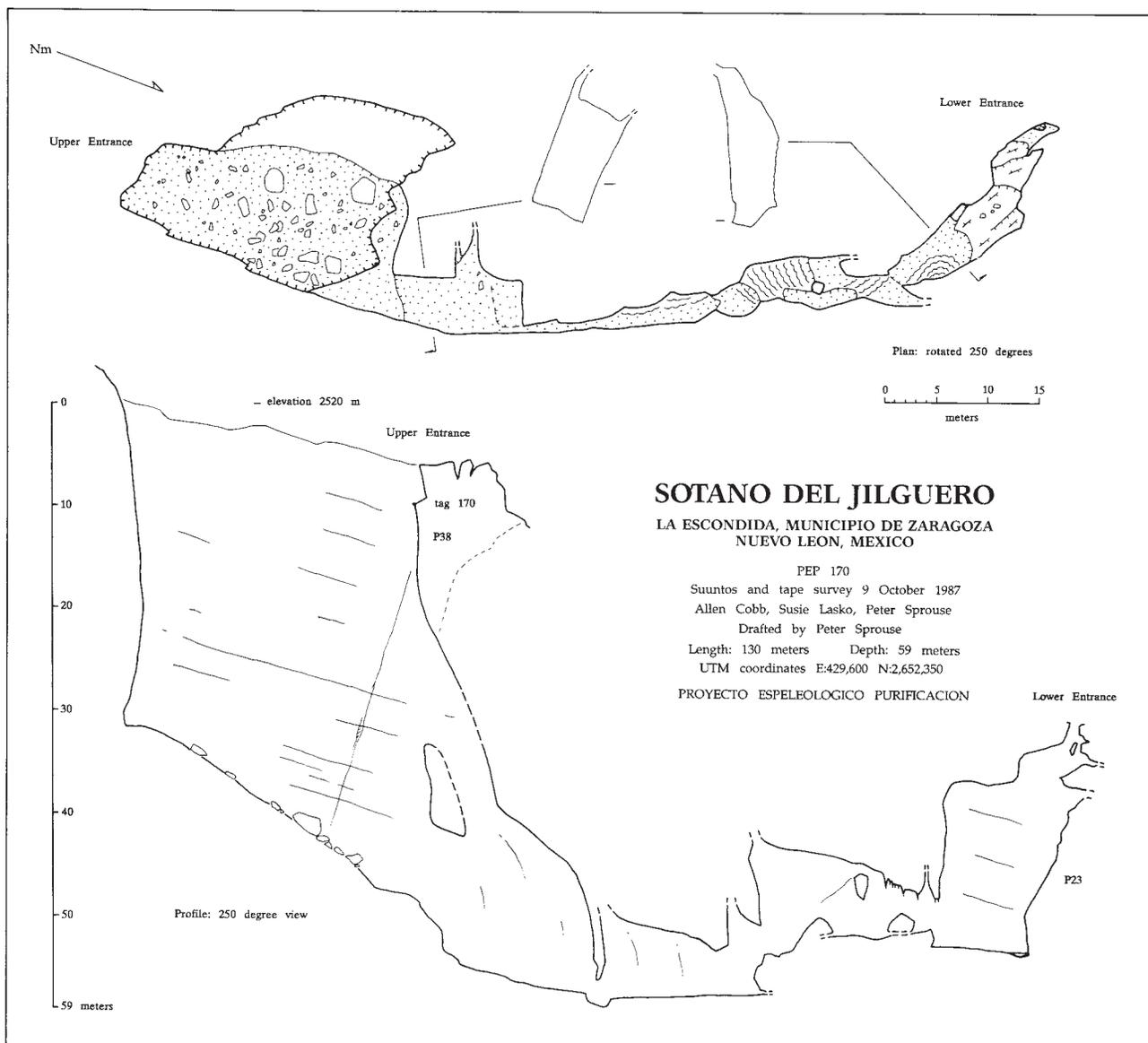
La Tinaja, Nuevo León

Length: 12 meters Depth: 7 meters

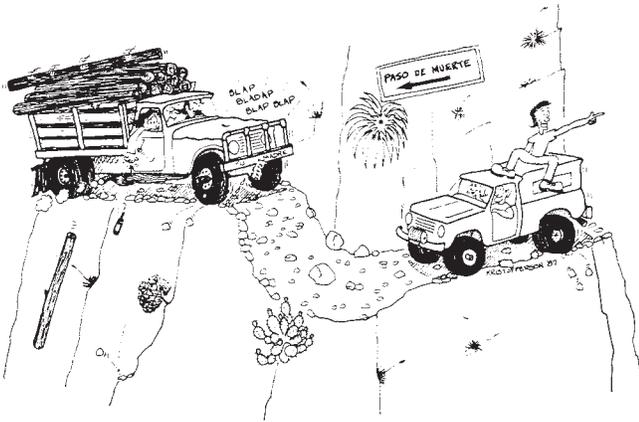
UTM coordinates: E 433,990 N 2,659,175

This pit is located 2800 meters east-southeast of Garza at an elevation of 1355 meters. It has a 5-meter entrance drop, followed by a 1.5-meter drop into a 4-meter-diameter terminal room. It contains vampire bats. Pozo de la Nopalera was explored and sketched on 12 October 1987 by Allan Cobb.

Harvestmen: Phalangidae genus and species



TRIP REPORTS



Area: Zaragoza / El Viejo, Nuevo León
 Personnel: David Dodge, Jim Feely, Randy Nutt, Jack Ackerman, Mary Sakry, Susan Davis, Paul Fambro, Lynne Thompson, Ruth Thompson
 Date: Aug. 30 - Sept. 3, 1984
 Reported By: Paul Fambro

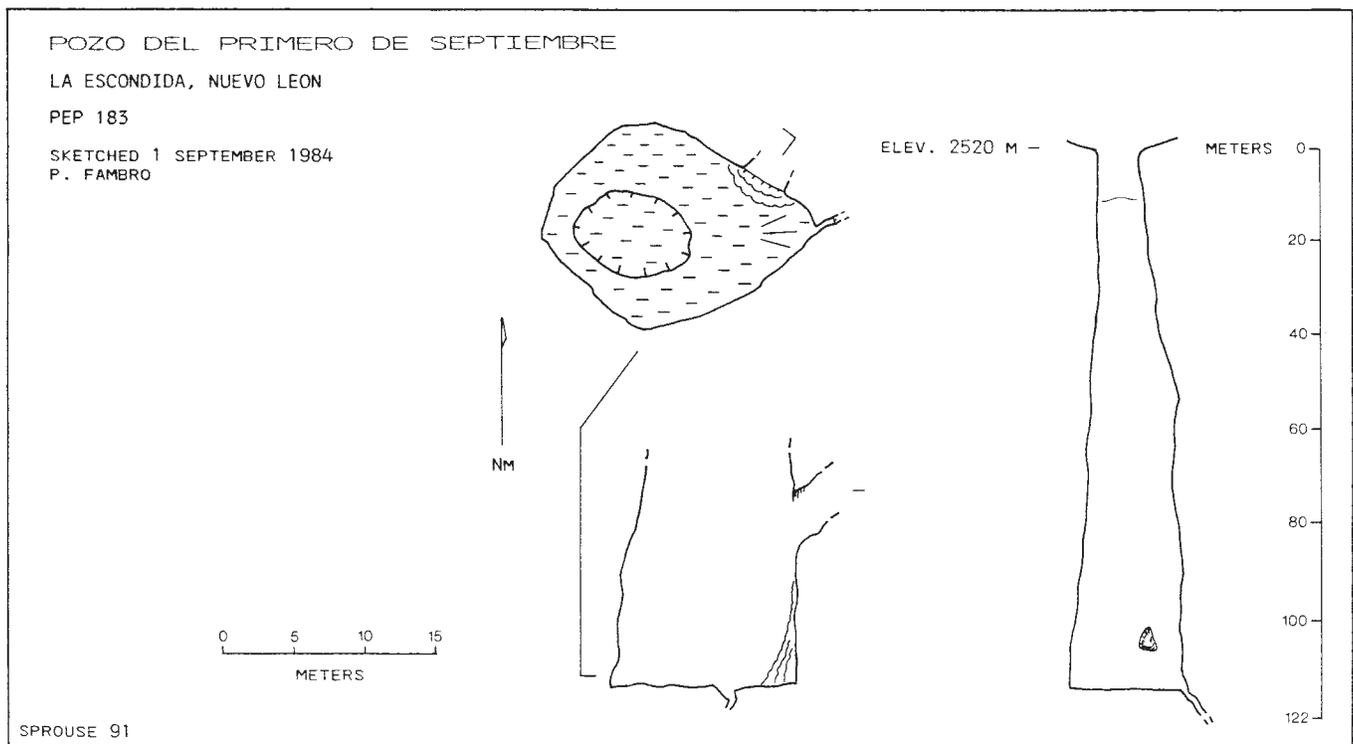
We left Austin in a three-vehicle caravan late Thursday afternoon and arrived at Laredo about midnight. The border crossing went well and we headed toward Monterrey. Sometime in the pre-dawn hours we arrived at Casa Blanca Canyon between Monterrey and Saltillo and camped. After a few hours sleep we packed up and continued our journey. It

took two-thirds of the day to reach Zaragoza where we promptly attended the moderately flooding El Salto (falls area) just outside of town. The bath was exciting and rather cool, but welcome.

Late in the afternoon we began the ascent of the road onto El Viejo. The CB chatter picked up, from previous daily "road reports," due to the increase in spectacular scenery. About an hour before dark we arrived at the camp location atop a ridge with an exceptional view - well, sort of - it promptly began raining as the engines were switched off. After a short deliberation and donning of rain gear, people began venturing out of the vehicles to collect 'wet' firewood. Oh, well, we didn't want a fire anyway.

The next morning we broke camp and drove a short distance along the road to La Escondida, a small mountain village and a home to some rather deep sótanos spotted on a previous trip by the Sprouses, Feely, Whitis, and Vinson. We parked the vehicles and ran up the hill to look at the first and deepest pit, **Pozo del Primero de Septiembre**. After a quick scout for a rigging point and a few ritual rock tosses the hauling of the 200-plus meter rope began.

I rappelled in over the ledge about 8 to 10 meters down and quickly realized how deep it really was. The rocks had indicated a good one, but... over 100 meters of free fall were below me. Reaching the bottom placed me in the middle of a 15 by 19 meter flat mud and rock floor with gently sloping overhung



walls. Approximately 10 meters up one wall, a gaping black hole entered the wall of the pit and near there a narrow fissure intersected the wall at floor level. I rigged the tail of my main rope as a hand-line and descended into the passage. It was tight, but passable. I went down a couple of 2 to 3 meter drops and stopped at the top of another. It was possible to continue but I turned around to exit the pit due to our schedule. After a long climb I reached the surface - the pit was 116 meters deep and has a grim going lead--no air.

We skipped a second pit for the time being and continued down the road to Paso El Niño to inquire about access to the head of Infierno Canyon where large sinks had been spotted on the topos. Along the way we spotted many sinks and a cave taking two arroyos. I crawled in about 10 meters -- it continued clean and scoured. Another cave to check later.

We basically learned that the road ended in a short distance in the direction that we had interest. It would be a 'pack-in' trip for the future. However, the boy we had met wanted to show us a sótano in a cliff wall above his house. Three of us scrambled up the hillside to the location. He pointed to a small hole on the cliff about 5 meters above the ground and gave an 'Oh yea, by the way' gesture to a 2 by 2 meter patch of great pictographs. We were totally blown away by the presence of the drawings in this area. By the time we took some pictures and looked at the cave (it didn't go) the boy had remembered a pozo he also wanted to show us. A short jaunt down the road brought us to a pull-out along an arroyo. The boy walked a short distance up the hill into the forest, moved a low pile of brush and pointed to a pit.

We scrambled for rope and gear since it was getting late. After a quick rig, Jack and Lynne entered with each landing on a different side of a then-unknown natural bridge. Jack, feeling a bit stranded after having the rope pulled up and dropped into the 'other' pit, found his way under and joined Lynne at the minus 23 meter level. They immediately located another pit, tossed the main rope tail on down and continued. This second pit was named "Laughing Down" because we could hear Lynne all the way to the surface -- laughing and yelling. A very short distance from the bottom of this 6-meter drop they found a small hole and yelled for more rope. David and I grabbed another long rope and began surveying in. We reached Lynne and Jack shortly and found them sitting over a drop with good potential. We decided to return the next morning since it was about dark outside as well as dinner time.

Jim, David, Jack and I got an early start and quickly rappelled in to the top of the new drop in **Pozo de El Niño**. Jim and I rigged the rope and I descended first, Jim second. The pit was a nice 43 meter elongated cone. It appeared initially to be a blind pit, but as we surveyed the room we noticed another small pit. We rigged this pit and Jim descended. The 8 meter drop put Jim in a horizontal passage 1 meter wide by 2 to 3 meters high. In 7 meters the passage ended with no continuation. Jim finished up the survey in the bottom section and we exited the cave.

The trucks were packed up and our caravan made it slowly back toward La Escondida. A new and interesting side road heading to the east was spotted and noted for future reconnaissance. In La Escondida we made a stop at the second pit that we had skipped the day before (Sótano del Jilguero -ed.). It was a large open air chamber with jungle at the bottom. Again due to time constraints we did not enter. We drove off El Viejo to Zaragoza and returned to the falls for a bath. Yep, still cold, uh, extremely cold.

Next stop was Galeana for dinner. It was dark when we arrived and intermittent light rain pattered on the plaza outside the restaurant. Had a great meal and then headed north on a road with unsure destination. Turned out to be the correct road but with no camping spots due to the road being etched along walls of a barranca. Eventually we spotted a meager camp site and crashed.

The following morning was bright and sunny, for a little while. We continued north, then followed the road east through the range and down to Montemorelos. The drive through the range was spectacular with the sheer walls and threatening clouds. It appears that a new paved road will be completed through this canyon soon.

With Monterrey being the next destination, we headed up Highway 85. Jim and Susan separated from us in Monterrey to sightsee and visit the map store. Well, the map store had moved again, but Jim found the address. Lack of available time prevented him from searching for the new location.

The rest of us continued on to the border and spent 2 hours in the Nuevo Laredo traffic approaching the bridge. Then, much to our amazement, both trucks were waved through U.S. Customs and we were Austin bound.

