

Mendip Caving Group

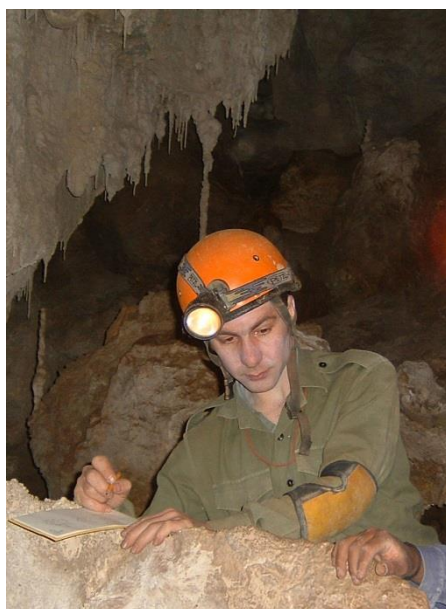
Argentina 2000 – 2006

MCG Occasional Publication No 6





Richard Carey (Photo Tim Francis)



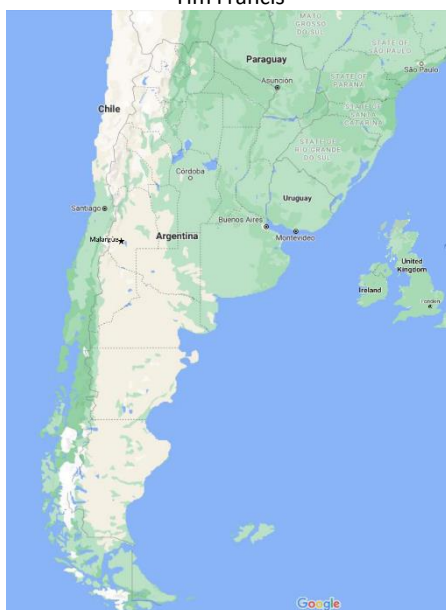
Tim Francis



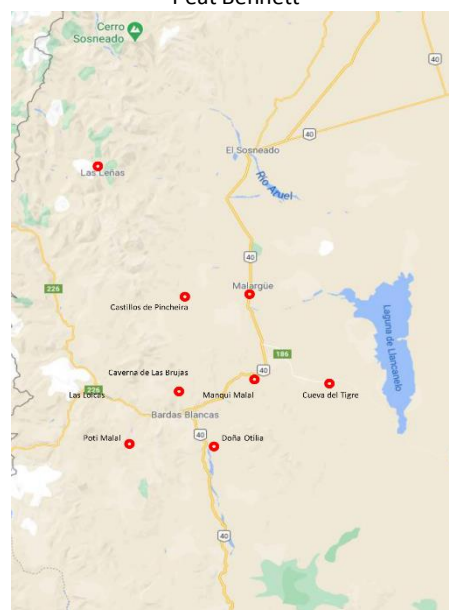
Peat Bennett



Julian Flavell (Photo Peat Bennett)



Map of Argentina (UK for scale) Google Maps



Map of Malargüe

The Mendip Caving Group in Argentina – compiled by Richard Carey

Introduction by Tim Francis

Over recent decades the Mendip Caving Group has tended to specialise in small, lightweight trips to unusual locations. And despite being less high profile than largescale, alpine expeditions these somewhat esoteric explorations have their own particular charm. The Group's frequent visits to an area of the Andes in Mendoza Province, Argentina in the early 2000s exemplify the appeal and nature of such caving expeditions. On a complete whim, and with almost no idea on what to expect, we decided to attend the first national caving conference of Argentina in January 2000. And subsequently, inspired by the warm hospitality we received, the majestic scenery, and new discoveries made during that conference, we returned to continue the exploration. The Andean rocks in this region are a fascinating variety of gypsums, lava flows, sandstones, shales and limestones which made for an eclectic mix of cave bearing rocks for us to investigate. This publication pulls together in one document the reports we wrote up in the Mendip Caving Group newsletter at the time and presented in associated lectures. We hope that you enjoy reading these informal accounts and are also inspired to visit the region, helmet and lamp 'in hand'.

The Mendip Caving Group in Argentina 2000 – 2006

Argentina 2000 – Malargüe – Richard M Carey

1st Argentine Caving Conference, Mendoza province, Argentina
Gypsum, Limestone Caves and Lava tubes

I was reading the Caver's Digest and I noticed an article on this conference. I pursued its web links and decided that it would be interesting to go caving in South America. I mentioned it to other members of the MCG and an initial large interest was expressed. However, due to the expense and the enormous distance involved it was only Tim Francis and I who arrived at Heathrow Airport on Saturday 28th January 2000 ready to embark on what was to become a very satisfying adventure.

We arrived three hours early on the basis that we would get a choice of seats only to discover that we were the last to arrive and we took the last two seats on the plane. The seats we occupied were next to a bulkhead and would scarcely recline so 13 hours later when we arrived in Buenos Aires, we were fairly tired, but our journey was only halfway over.

Internal flights in Argentina do not go from the international airport at Ezeiza and we had to get a taxi to travel the 30k to Jorge Newbery Airport. On our return we found that there is a link bus between the airports which represented a saving of some \$20. We had travelled by British Airways (the only direct flight from the UK) and they demand a 3-hour gap between international flights, so we had a 3-hour wait to take our onward flight to Mendoza. We just hung around at the airport and then took our onward flight.

Two and a half hours later we were standing in Mendoza Airport. We took a taxi to the bus station and things began to fall into place. The only information I had managed to glean from the Internet was that there was one bus a day to Malargüe and we would have another 3-hour wait. Mendoza has the biggest bus station I have ever seen with over 60 stands. We made enquiries and found out that a bus was leaving in 5 minutes if we would care to hurry. 6 hours later we were in Malargüe. I had thought we would arrive at midnight, so we had booked a hotel for the first night and the coach dropped us right outside the door. So, 26 hours after our departure we had finally arrived. We had dinner at the hotel and then went for a walk. We noticed the Tourist Information Office still had people inside at 11pm so we tried the door. Apparently, they don't close until midnight. They told us where the conference was being held to my immense relief, as we had had no

reply either from my emails or the faxes we had sent to register at the conference.

We woke up to a beautiful morning, had breakfast and packed our stuff. We paid our bill, which was rather expensive, since a misunderstanding had caused us to order fillet steak (chorizo de bife) rather than chorizo sausage for our evening meal. We then set out to find the conference, which was being held in a local school. I need to say that at this point the only conference I have been to before was at Bristol some 5 or 6 years ago and I was amazed when we found that there were only about 40 people here. We were met by Aída Galán conference secretary and member of the INAE (The Argentine National Institute of Speleology) and then by Carlos Benedetto, President, who asked if we had come especially to be at the conference to which we naturally replied yes. They had not received our faxes and had not expected us. As it turned out there are more members of the MCG than there are cavers in Argentina.

We were immediately bombarded with offers of accommodation. We could stay in the school, we could stay in the local police station, the police had been recruited along with the local National Guard to participate in the conference (under orders from the local provincial governor) or we could stay with Aída at her house which naturally we accepted.



Tim at the conference

We paid our \$70 inscription and started with a lecture on surveying. All high-tech stuff although the laser-sighted compass seemed quite interesting. There were also lectures about their access problems and it seems that contrary to what has happened over here,

the interest in caving has coincided with the explosion of adventure tourism. They had been banned from a cave that they had discovered and mapped because it had been designated as a National Park and controlled by the Park Rangers who were charging \$25 for entry.



The Conference Delegates at Doña Otilia

Two days of the conference had been set aside for visits to caves and for rescue practices, hence the involvement of the police and army as they had transport. We all chipped in for fuel and the entire conference climbed into the back of trucks and pickups and we headed off into the back of beyond. Once outside of the towns and off the main routes the roads are not metalled, and we were treated to a roller coaster of a ride. The Argentinians were a little offended by my description of being in the middle of nowhere but once I had explained our situation on the Mendips they understood. The nearest city was over a 100 miles away, away something unfathomable to us.



The plain at Doña Otilia, can you spot the entrance?

Our first visit was to a lava tube called **Doña Otilia**. We had no idea as to what to expect. We appeared to be on a pretty barren plain when all of a sudden there was a small depression with an entrance. A short crawl and we were in a large horizontal walking

passage with a sandy floor. This passage led on for some 800m before ending in a collapse. There were some formations which considering these caves are basaltic is quite an achievement. Tim as usual wasn't going to let a mere choke stop him and pushed on all the leads but this time to no avail. This would be long term dig although much cleaner than Pinetree Pot.



The Entrance to Doña Otilia



Surface Stretcher Carry practice

Next to come was the underground rescue practice. André Slagmolen, rescue expert of the International Union of Speleology had come all the way from Belgium to help out with their rescue practice, so this was now a truly international affair. Unfortunately, some of the participants refused to take part in the rescue until they had visited the entire cave, so they were obviously not taking the rescue very seriously. Whilst the Indians were very willing the Chiefs didn't really have a clue of what they were doing. Tim assisted inside the cave whilst I remained outside to watch what was going on. They did not even have a list of who was in the cave until I suggested it and the Surface Controller got bored and decided to go into the cave to see what was going on. Even so I think a valuable lesson was learnt by all.



Gypsum Flowers in Doña Otilia



Road to La Caverna de las Brujas



Entrance to Cueva del Tigre



Flowstone in La Caverna de las Brujas

Next, we went to La Cueva del Tigre, another lava tube. This one was a bit deeper and had a fixed steel ladder to enable access, which had been installed by some adventure tourism company. The local cavers are somewhat offended by this fixed aid since people are being taken underground without lights or helmets. They have the permission of the landowner to remove the ladder although it will need a tow truck to remove it. The passage is large and walking size and although the upstream end of the cave is the toilet, offers 200m of large passageway ending in the traditional collapse. However, this time there was a howling gale and Tim suggested that this was an evident digging site. One of them stayed all night and pushed on a further 5m.

The second field trip took two forms, the first to a limestone area to the Caverna de las Brujas, this is the one controlled by the National Park. As this was a National Conference, we had been given permission to enter without paying although we had to stick to the tourist route. There are no lights, but some metal walkways have been provided and the little of the cave we saw was impressively decorated.

Next, we got back into the trucks and headed off to near the border with Chile(via Paso de Pehuenche) to visit La Cueva de San Agustín near Poti Malal. This cave is formed in gypsum and consists of a steep scree entrance slope with a huge chamber and a steep slope on the other side. Time for rescue practice number 2.



Road to Poti Malal

Whilst this was going on some of the non-participants went for a wander and found a new cave. It was also

in gypsum and after an initial crawl encountered a large chamber.



The Entrance to La Cueva de San Agustín

The Argentinians appear not to like bending down and it was assumed that there were no further leads. Enter Tim; Tim discovered a way on although it did involve some crawling much to the discomfort of the Argentinian lads who were with him, who every time it looked like it was closing down wanted to give up. A further 80m was discovered and is still going. As this conference was to discuss the formation of a national caving body it was boringly called La Cueva de la Federación. Well, it's their country so they can call it what they like.

The people are the friendliest I have ever met. We had our evening meal with them at the conference most evenings. There was no animosity whatsoever over the Falklands and they are positively embarrassed by Maradona's "Hand of God". This is caving in its

infancy, there are no hard trips and there are caves just waiting to be discovered. Argentina is a long way away but really is worth the visit and with a few refinements to the travel arrangements travelling will take 4 hours less (hindsight and experience are wonderful). I shall definitely be returning, and this time shall spend a little more time to look around the rest of Argentina.



The Farewell Dinner

Special thanks to Aída Galán for her tremendous hospitality, to Carlos Benedetto, INAE, for the marvellous welcome and to the Grupo Espeleológica de Rincón de los Sauces for the rollercoaster ride (las montañas rusas), the Grupo Espeleológico de Neuquén, Centro Espeleológico Córdoba, Organización de Investigaciones Espeleológicas not forgetting Luis Carabelli of the Cuerpo de Espeleología, Rescate y Montañismo de Argentina and Gabriel Redonte of the Grupo Espeleológica de Argentina and of course to the local police and National Guard.

Argentina 2001 - Tim Francis

The primary objective of the expedition was to survey La Cueva de la Federación, a new discovery found during last year's conference. Secondary objectives were to visit the other caving areas around Malargüe, in particular a large strip of gypsum is found in the foothills of the Andes, roughly parallel to the Chilean border. Several caves have already been recorded suggesting that the gypsum in Argentina is a promising cave bearing rock. The caving areas are located several hours drive from the nearest 'tarmac' road and are not accessible during the winter months due to snow.

Poti Malal - South West of Malargüe, close to the Chilean border, is the small valley of Poti Malal, a tributary of the Rio Grande. The gypsum in this area is notable for the impressive entrance of San Agustín and the recent discovery, La Cueva de la Federación. Although we spent only two half days in the valley it soon became apparent that there is potential here for further discoveries. San Agustín is essentially a large collapse feature that has resulted in rubble ramp that descends as far as the water table. Opposite the entrance ramp is a huge boulder slope that ascends into the hill as high as the entrance. In periods of wet weather, the floor is covered by water.

There are no side passages and no realistic possibility for extensions.



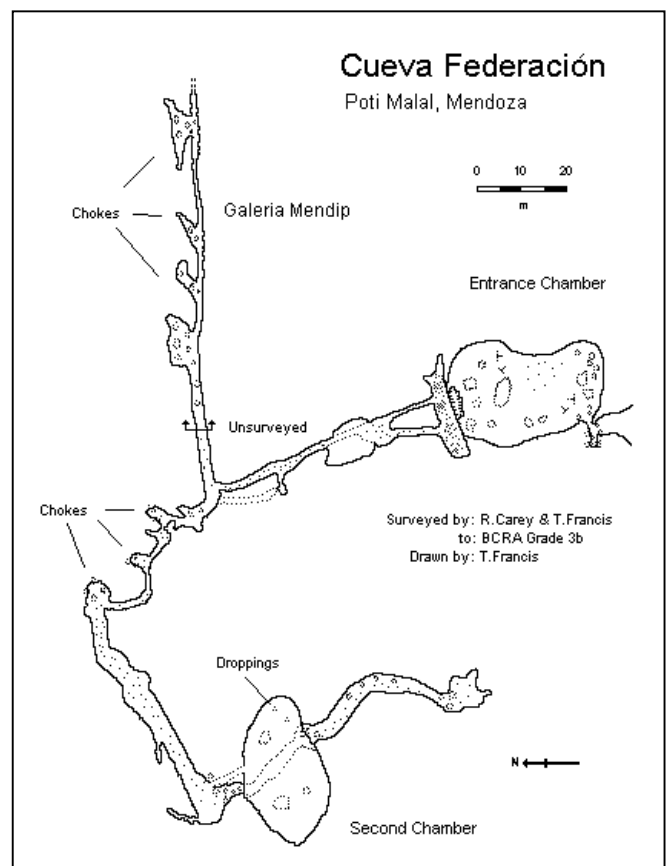
The entrance to Cueva de la Federación
Photo Peat Bennett

The focus of our visits to Poti Malal was to undertake a survey of La Cueva de la Federación and explore leads left from 2000. Typically for gypsum, the cave begins with a loose, bouldery entrance. Beyond the choke is a large chamber littered with rocks and dominated by one large boulder on the left. The only exit from this chamber is a descent through boulders on the left-hand side. At this point the character of the cave changes and the passages are low sandy crawls. The draft in Federación is particularly noticeable in these crawls but is lost in area of chokes above the T-junction. The choke can be climbed into, directly above the T-junction, to access a steeply inclined rift. No way at the top was apparent and the choke could only be followed in a loop that re-joins the sandy crawl further back.

To the right at the T-junction is Galería Mendip. This extremely sharp, and in places rather tight, passage can be followed for approximately 100m until the way on is impassable. At several places there are voids in the choke on the left-hand side, but none can be followed far. An effort with a hammer and crowbar might extend this fault-controlled passage further. Much of Galería Mendip is well decorated. Turning left at the T-junction a low passage enters an area of boulder chokes. These are passed by descending a squeeze hidden behind a boulder on the left and wriggling along a flat out sandy crawl. The area beyond the squeeze was a new discovery for 2001. The choke can be accessed at several points, but we found no obvious way on. After 30m the crawl pops out into some fine stooping sized passage. The small passages on the right hand side are blind. Inevitably the passage ends in another boulder choke. This is passed at floor level to regain walking sized passage.

The choke is easily climbed at this point to enter the Second Chamber. This is slightly smaller than the

entrance chamber and is similarly boulder floored. The presence of animal droppings suggests that there may have been an entrance at this point in the past, now blocked by boulders. The survey does indicate that this chamber lies not far from the valley side. A second route into the chamber (unsurveyed) was forced through boulders to a connection with the passage below. Continuing along the main passage the cave has developed into a fine meander: not what we were expecting in gypsum. This abruptly ends in yet another choke. Immediately beyond this choke is a small chamber with a floor of damp sand. There is a slight draft here, but the choke could not be passed at roof level. Around the walls of the chamber is a tide mark that indicates that in wet weather it may half fill with water. The cave length is 350m including roughly 100m of passage in Galería Mendip left unsurveyed.



The only other notable cave in the Poti Malal valley is Doña Palmira. Although it is only 20m in length this cave is extremely significant. It is located on the valley side just above the level of the river. Immediately inside is a large sump (undived) which suggests that there is a flooded phreatic layer in the valley. Above the sump is a short length of fine phreatic passage, stooping sized in height, with a small vadose trench. This is blocked after a short distance, but the vadose trench looks diggable. (Extended in 2002)

Other Spelaeological features were noted in the valley. A possible fossil resurgence was spotted immediately below the entrance of Federación. This

drafts slightly but was only given a cursory dig. However further down valley is an active resurgence with water emerging from a bank of soil. Above Federación we briefly looked at the hillside. The gypsum here is extremely weathered and there are small caves associated with faults and weathering. One did have a strong draft but needs a bit of digging out. From the top of the ridge we were able to look down on the next valley which also contains gypsum. This has not been looked at and may be worth a visit.



Castillos de Pincheira

Nearer to Malargüe, to the west, is small outcrop of gypsum at Pincheira. This was worth the visit if only for the impressive scenery and in particular the picturesque weathered rocks at Castillos de Pincheira. The outcrop of gypsum, much of which is being quarried away, contains a number of small caves. Most are extremely loose and dusty although in places they are well decorated. We visited four or five just to get a flavour of the place. There is little potential for large cave development here, and the landscape was reminiscent of the hillside above Poti Malal.

Las Leñas - The gypsum can be accessed again further to the north near to the ski resort of Las Leñas. The area is notable for some hot springs and the Pozo de Las Animas. The latter are two large water-filled holes in the lateral moraine of the Rio Salado valley. Due to the atrocious weather we virtually did not leave the car but did note one cave by the roadside. The road was poor, so we did not drive much beyond the resort. With hindsight I think this area would be worth further investigation.

Cueva del Tigre - This was the only lava tube that we visited this year. The cave is used as a wild show cave due to its close proximity to the road and easy walking sized passage. Our interest in the cave was to see if

we could follow the huge draft at the end. Four hours were spent digging out a sand-filled tube. Digging conditions were horrendous. The basalt was extremely sharp, and the visibility was virtually zero as we stirred up huge clouds of dust. Fortunately, we had come equipped with a bag of dust masks. Excellent progress was made but we were unable to break through. The dig ended under an area of boulders with airspace and a howling draft. More passage here is a certainty!

Above ground we headed off across the featureless lava plain to see if we could find another entrance. After a couple of hours under the blazing sunshine we called it a day. On a previous day we had driven around looking for a cave that a local farmer had spotted. As is always the way with these things the location description didn't fit the topography. But bearing in mind the huge expanse of basalt in the area related to the El Payún volcano, there are undoubtedly more lava tubes to be found.

Bardas Blancas - Near to Malargüe there is a relatively large area of Jurassic limestone which contains the Caverna de Las Brujas. Las Brujas has been converted into a show cave and the limestone hills surrounding it form part of a reserve. There is no access to Brujas for cavers or the promising limestone behind it for exploration. Hence, we were restricted to exploring some of the outlying fragments of limestone that top some of the hill tops around the reserve. These fragments are too steeply bedded and too thin to contain significant lengths of passage. Despite this we did find a couple of small caves with one surveyed to a length of 24m.

Conclusion - Of all the cave bearing rocks near Malargüe the gypsums would seem to hold out the best prospect for large cave development. Although lack of good roads means that the best way forward would be to camp at Poti Malal for several days to maximise use of time. At present the most promising area of limestone that lies behind the back of Caverna de Las Brujas is off limits to cavers. There is undoubtedly considerable scope for further lava tube discoveries although exploration of the remote basalt scrub will be difficult.

Our Argentinian caving friends can be found at the web site of the Instituto Argentino de Investigaciones Espeleológicas, <http://www.pettersen.com.ar/fade/in ae.htm>.

We seemed doomed straight from the beginning. We arrived at Gatwick in good time to discover that the BA computer had broken down and that all check-ins were being done manually. We joined a huge queue and finally there was Tim Francis, Pete Bennett and me waiting to get on the plane to Buenos Aires. It was only two hours late when we eventually took off. After the usual uncomfortable flight, we arrived at Ezeiza Airport on Saturday morning, changed some money at the bank and got a taxi to take us to the GEA (Grupo Espeleológico Argentino) headquarters where they had been expecting us several hours earlier. Once the taxi driver had asked several times for directions, we turned up. We discussed our plan of action whilst we were going to be in Malargüe and went out to a restaurant to have lunch. We were left pretty much to our own devices and went into the centre in the evening for a look around the centre. We spent Sunday doing the usual touristy things, checking out the sites of interest, monuments, tango dancing etc.

On Monday we went to the government map shop to buy maps of the area we were going to look at. We got to the airport in plenty of time to take the internal flight to San Rafael where we would be picking up the hire car. So far so good. We arrived in San Rafael on time and found the car hire guy waiting for us. We sorted out the paperwork loaded up the car and headed off towards Malargüe. We stopped to get some fuel and within moments whilst I was driving down the road, I spotted a lorry that was obviously having difficulties. There were sparks coming from the rear axle. It was only then that I noticed that it had lost a wheel and that it was heading straight towards us. There was nothing I could have done to avoid it and it hit us fair and square. It had taken out the radiator. Fortunately, the wheel rebounded and did not go over the car (apparently this is not such an unusual event). The police had been called.

We finally sorted out the documents and got the car towed away. Then we called the owner of the car and everything went pear shaped. The damage waiver I had signed apparently allows the owner of the car to take money for the damages regardless of whose fault it is. I would then be reimbursed by the insurance company. I asked for our money back but was told that he hadn't yet received it from the agency we had booked through. The owner told me that he didn't have another car to replace it and we would have to wait for it to be repaired. We managed to find a hostel to stay in and bedded down for the night.

The next morning, we set off for the police station to make a statement regarding the accident. By the time we found the right one it was too late, and we were told to come back in the evening. I phoned several times to find out the progress of the car. We had not come so far to waste time in San Rafael. We returned to the police station in the evening to be told that they don't take traffic statements in the evening. This was becoming silly. As we stood outside the police station trying to work out what to do, Carlos Benedetto, president of the INAE (Instituto Nacional Argentino de Espeleología), turned up. He explained that he just happened to be passing. I was feeling particularly stressed by this time and wondered who this man was staring at me. Well it was Argentina to the rescue. They got on the phone to the car hirer. Finally, it transpired that he had tried to get money on my credit card for the damages but that it had been refused (fortunately I did not have sufficient credit). He then washed his hands of the whole situation and refused to hire us another car. We went back the hostel and arranged to hire another car and 20 minutes later it arrived. Tim dealt with the credit card damage waiver, which this time was only \$500 instead of the \$1500 I had signed for. Hooray and we set off for Malargüe. We were only one day late.

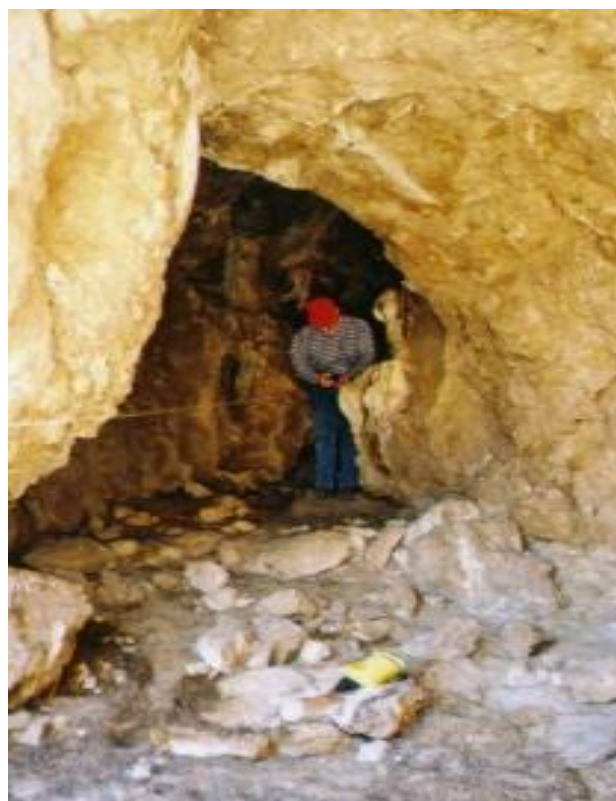
The journey only took a couple of hours and soon we were reunited with all our friends from the year before. After dinner we went to Ariel Benedetto's house and crashed out. We had finally arrived, we thought. It hadn't rained for 5 months and then it rained non-stop for 3 days. Only the main roads between cities in Argentina have tarmac and it would be impossible to get to Cueva de la Federación, which had been discovered only last year during the Congress. This was the main reason for our return as there were unpushed leads (caverns measureless to discover) and a survey to make. Transport is a real problem here and the locals hadn't visited it since March last year. There was nothing to do but wait. We made several attempts to visit places. We tried going up into the mountains but could not get through the pass because of snow. The next day we managed to get through and went to see some hot springs and visit Las Leñas (Argentina's equivalent of St Moritz). There was some gypsum that looked promising. On the 3rd day we attempted to go to Castillos de Pincheira, but a dry riverbed had turned into a raging torrent and we felt it was unwise to try and cross.



The second hire car

Dusty roads - Yippee! It's finally stopped raining and we, (plus Ariel and Carlos Benedetto) set off to go to Cueva de la Federación. We got through the pass without any problems and stopped on the way to look at what appeared to be a promising location for caves. The bed was very thin and our walk in the midday heat went unrewarded. The entrance we thought we had seen was nothing more than a damp patch leaking out between the bedding planes. We arrived at Bardas Blancas and the end of the tarmac and headed off down the dirt road. Travelling down these sorts of roads creates an awful lot of dust. The valley runs along the Rio Grande and provides some very impressive views. We reported to the border post at Poti Malal and headed off down the track to where Federación was. The rain had brought down a lot of rocks onto the track and our progress was delayed by having to clear them away. We arrived, parked the car and using a footbridge that had been built since last year, crossed the river. We spoke to the landowner who is apparently a bit miffed by the number of tourist visits to San Agustín; they feel they should get something if the guides are charging the tourists. It's on their land after all. We finally arrived and it was agreed that Tim and I would survey in whilst Pete and Ariel go exploring. Carlos would stay outside. After two hours Tim and I had surveyed up as far as we had explored last year (The T junction) I declined to follow the right hand passage to the very end as it was very tight and also very sharp in the gypsum. There were some small but spectacular crystal formations. We had thought that the left hand passage closed down almost straight away but Pete found a way through and another 200 metres of passage including a substantial chamber was found. We were running out of time as Ariel had to go to work and we agreed to return to complete the survey. We managed to get off the track before nightfall but although the main roads have tarmac, there are very many potholes that make for a very slow drive.

Mad dogs and Englishmen - As it was such a hard drive to Federación we decided that we would have a look around the limestone area of Bardas Blancas. This is where Caverna de Las Brujas (the longest limestone cave in Argentina) is to be found. The cavers are not allowed to enter Brujas despite the fact that they discovered, explored and mapped it. Bureaucracy is a many-legged octopus in Argentina, and it appears that we were only allowed last year because the then new governor didn't know what the score was. Unable to explore within the park itself we had to satisfy ourselves with looking around the outskirts. This area is a fossil-hunter's dream. The ground is absolutely laden with fossils and with a little bit of patience perfect ammonites could be found. Despite the midday heat we push on up valley towards Brujas and soon found some limestone. We quickly found a hole high up on a cliff face but were unable to climb up to it. Thus, thwarted we carried on up valley and finally were rewarded by a huge entrance (about 5m wide X 3m high) high up the hillside very near the top. The sides were quite steep and although I could see it, it took a long time before I could actually reach it. Tim was there first, closely followed by Pete who both waited for me to arrive before entering. This cave still remains to be named and although it is probably not a new discovery, we surveyed all 20 metres of it.



Fragment Photo Tim Francis

It was becoming evident that outside of the park there would only be fragments such as this, so we decided to call it a day. On our way back we spotted another

entrance and duly climbed up to explore it. Once again Tim was the first there. This cave was formed on a bedding plane and was very narrow. Tim duly climbed up to enter it and reported that he could see light. A possible through trip I walked round to the other side of the hill and could see the hole that Tim was trying to get through (about 10" X 4"). On the way back round, I spotted a large descending passage. This was a through trip and after 20m exited onto the shaded side of the hill. We did not survey these two. We were told by the local shop owner that he knew of a man who knew of a cave beyond Brujas and if we would like to hire some horses from him, he would surely take us there. Unfortunately, he wouldn't be around for 2 weeks.

Back down the dusty track to complete the survey of Federación. Thankfully there weren't so many stones to clear this time although we did have to wait for the local gauchos while they brought their cattle down to pasture. We completed the survey and checked out all the leads but without digging in the boulder chokes we had found it was impossible to find any more cave. There are several other sites of interest near Federación. There was Doña Palmyra, a short phreatic tube with a vadose trench complete with what looked like a passable sump at river level. A bit nearer Federación, a resurgence was found which apparently only runs in wet weather and an old resurgence under the entrance of Federación was also found. This area is becoming increasingly interesting as it appears that there may well be a system waiting to be discovered.

The next day we went for a return visit to Cueva del Tigre to give Peat a taste of a lava tube. This time I fully explored it as last year I had only gone downslope. Tim checked out the end of the passage to see how much had been dug since last year. Tim and Pete returned the next day along with Gustavo Tejerina to pursue the draught. This has now increased but still no breakthrough. I don't particularly like digging so I went to the local school to help out with their English classes.

Our final caving visit was to Castillos de Pincheira. The river was dry once again. This is an incredibly photogenic site with some very impressive cliffs. The caves were a bit further on in a gypsum quarry. These, although quite pretty, were fairly short and not desperately stable. Four of them were visited covering a total of 80 metres in length. We were told of a newly discovered lava tube in the vicinity of Tigre but the description and the map we had been given were conflicting and we were unable to find it. We had hoped it might be the continuation of Tigre we were looking for.



Caves at Pincheira

We were very well looked after by our Argentine friends and despite the setbacks of the car and weather it all went fairly well. Although it turned out to be desperately expensive, I am sure we will return as there is much work to be done in the Federación area as well as the dig at Tigre. In terms of limestone caves, until the locals can sort out the bureaucracy, I don't think there will be many major discoveries.

Many thanks to the GEA for putting us up during our stay in Buenos Aires and especially to Ariel Benedetto and Ileana Tejerina who looked after us during our stay in Malargüe. The Expedition members were Pedro Benedetto alias Pete Bennett, Tim Francis, Richard Carey - MCG, Ariel and Carlos Benedetto, Gustavo Tejerina, Diego Torres and Rubén Cepeda - INAE.

Argentina 2002 – Tim Francis

Exploration at Poti Malal (photos Peat Bennett)

This was our third visit to Malargüe and the focus this year was to be the Late Jurassic gypsum outcrops of the Poti Malal valley. Our main objective was to thoroughly explore the valley and note methodically any points of speleological interest. Due to the huge distances involved and variable road quality we elected to camp rather than drive in and out of

Malargüe each day. A secondary aim was to push a couple of new caves that El Instituto Argentino De Investigaciones Espeleológicas (I.N.A.E.) had explored on a rather cold and wet day in November 2001. It was also hoped that we might have time to visit a couple of other sites in the area and almost certainly Cueva del Tigre. Our visit coincided with a Curso de

Rescate en Cavernas to be run by la Comisión de Espeleosocorro de la FEALC (the Caribbean and Latin American Caving Federation) and supported by la Federación Argentina de Espeleología (F.A.d.E.). I.N.A.E. who were hosting the event.

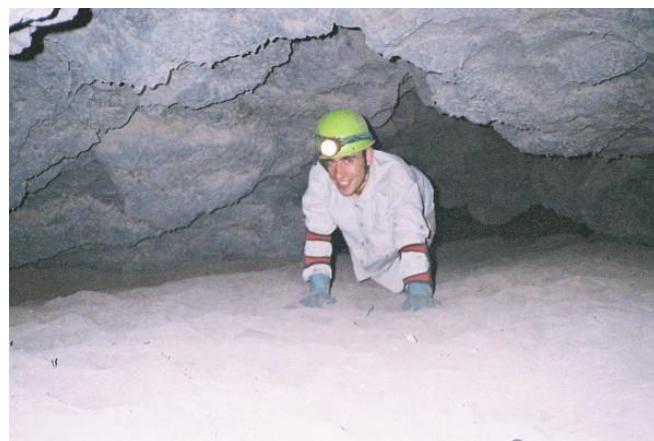
Cueva del Tigre - An old favourite, is the nearest cave to Malargüe and hence the first cave that we normally pop down just to get ourselves back into the swing of caving, Argentinean style. A feature of the entrance used to be a large metal staircase which made access extremely easy for adventurous tourists and vandals alike. The cave was going to be used later in the week for the rescue training Curso (we were not going to be delegates) and hence the local cavers were keen to see its removal. Recently I.N.A.E. had finally been able to drag the whole thing out using a lorry and hence the cave 'luego de retirada la escalera' now has a pleasant 15ft entrance pitch. The ladder removal and general clean-up was reported in Los Andes, a regional newspaper for the state of Mendoza, with Carlos commenting that "*encontramos enormes cantidades de basura, antorchas, casquillos de bala y restos de comida*".



Rubén Cepeda, Descent into Tigre

The MCG elected to drop the pitch using a short length of ladder (donated by Richard in 2001) rigged from a natural belay whilst the others went for a suicidal single rope hang from a pair of extremely suspect and blatantly wobbly anchors. These were a couple of angle irons bashed into the rock and held in place by concrete. So, fearing for their health, I converted the 'rigging' into a Y-hang backed up by a couple of shrubs. True Tim-style expedition rigging but it held. Next year we'll take along the bolting kit and sort the thing out. Various bits of kit were cobbled together from the I.N.A.E. tackle store to enable Rubén, Diego Torres and Ariel to get in a spot of SRT training.

At the sharp end our old dig from 2001 was still draughting a hoolie but the focus of this year's rummage was up flow - the cave being a lava tube rather than water formed. A low sandy section, spotted by Peat, was opened up at the end of the low crawl on the right but there doesn't seem to be a way on. However later in March I.N.A.E. reported some further progress here so I'm intrigued to see whether there is actually a way on.



Peat in the low crawl

Poti Malal Valley - Camp was established on the inside of a meander just upstream of a small resurgence. Although this meant that we were extremely exposed to dust whipped up by the strong winds, conditions were generally comfortable enough. The ubiquitous goats didn't seem to come over this side of the river, so we were rarely disturbed. The downside was that the car was parked on the other side of the river and wading across with gear was extremely uncomfortable, particularly in the morning when the water was extremely cold. By the end of the afternoon the blazing heat allows the water to warm up sufficiently to make a swim rather pleasant. After a long hot walk and dusty day in the hills that's just what you need.



Campsite at Poti Malal

Our expedition routine was dictated by the fierce sunshine, which meant that we had to get up as soon as the first rays of sun struck the tent. But true to form we never got going much before mid-morning. Our main problems were keeping covered up to avoid sunburn and heat stroke and carrying sufficient water to see us through the day. At that altitude, circa. 2500-3000m, you quickly dehydrate especially if you're digging out entrances on the valley sides.

On the first day we went for a thorough recce of all the possible leads in Cueva Federación. A couple of small crawls were noted in the area around the T-junction boulder chokes but nothing of significance. I'm still convinced that there is a way on here, possibly a chamber above, as a reasonable draught seems to vanish at that point. We also, despite our protestations, crawled all the way to the end of Galería Mendip. Rubén was convinced he had found a way on at the end but as suspected there is no way on. And no, we weren't persuaded to do the survey of this horrendous crawl so the sketch will have to suffice. (See MCG Newsletter 299 for the survey).

So, after the tourist bit it was down to the hard work. After our first night at camp we decided to systematically walk the gypsum. All the gypsum exposure along the left-hand side of the valley and behind San Agustín was looked at. The theory was that there must be a sink or at least some sort of cave on the other side to explain the resurgence next to the campsite. Bear in mind that it was mid-summer and the resurgence was flowing strongly. But there really wasn't a lot to report apart from Jules getting struck down with heat stroke and going all dizzy. The whole place seems to be pretty much devoid of cave apart from a few weathered pockets above Federación. The only cave we did find was a hideously loose slot running along a fault. On the last day we discovered a small hole that lay directly above a projected upstream continuation of the resurgence, and that draughted outwards extremely strongly.

Despite some vigorous hammering we were unable to make much progress. But a decent drill would make short work of the gypsum.

Doña Palmira - After a frustrating day wandering the gypsum we went for a well-earned splash in the river. But our thoughts turned to the only other notable cave in the Poti Malal valley, Doña Palmira. Although only 20m in length this cave is extremely significant in that it is located on the valley side just above the level of the river. Immediately inside is a large sump (undived) which suggests that there is a flooded phreatic layer in the valley. Above the sump is a short length of fine phreatic passage, stooping-size in height, with a small vadose trench. This is blocked by a roof collapse after a short distance but my notes from 2001 suggested that the vadose trench in the floor might be diggable. So very late on in the afternoon after a swim we wandered around the corner to go and take a look at the blockage. A way on can be seen off to the right but my digging efforts only succeeded in bringing down the ceiling. With hindsight this is definitely worth pursuing, as the small tube off to the left cannot account for the large trunk passage above the sump.



Julian in Doña Palmira

Efforts switched to the vadose trench off to the left. I was quickly able to make progress and cleared a route up to an extremely low phreatic tube. A way on could be seen so despite the long day I persevered and eventually excavated a couple of low squeezes. 30ft of flat-out crawling suddenly popped up into a larger continuation. A cursory look around revealed that the way on would probably be through a nasty looking area of breakdown. Not wanting to commit myself to some sporting solo exploration I returned to the others where we planned a return for the following day. It was certainly good to be back underground where the temperature is much more tolerable.

The following day we continued on where I'd left off and negotiated a route onwards through the choke. To quote Peat from the log, "Jules and I let Tim have

the honour of testing the route, offering to dig him out if the ceiling caved in." Everything beyond was tight and low. Every few feet a squeeze or loose section required digging out and eventually the passage became too heavily blocked to continue. A side passage was noted on the way out where the in-fill was sediment rather than gypsum blocks. Some progress was made with a couple of larger bits found but this will need serious digging.

Back at the first breakthrough our attention turned to other possibilities. Whilst Jules and I busied ourselves hammering at a squeeze that went nowhere, Peat followed the main crawl. A low squeeze was cleared and a lowish continuation discovered. We all piled through but again a roof collapse seemed to be blocking the way on. So, there was nothing to do but dig again. After an hour and a half, we had cleared the base of the blockage but were stopped by an extremely stubborn boulder. We lost a digging tool down a hole in the floor but were determined to bash our way through. We could just peer over the boulder and the way on seemed large. More chipping and the squeeze almost went. It was now late afternoon and by twisting around it looked like we had found another entrance. Encouraged by this Peat, the thinnest on the trip, did a spot more chiselling and forced the squeeze. We were extremely keen to know where we had popped out, but Peat called back that we had done a complete circle. He had just stumbled upon our bags that we stashed by the sump pool at the beginning of the day. Oh well, a round trip was better than nothing. Peat did a spot more hammering and the rest of us were able to follow.

The next day was spent knocking off the survey and checking out all the possible leads. The problem with Doña Palmira is that it lies in a narrow band of gypsum. So, the cave is blocked by roof falls that bar progress in several places. At the far end there is a slight draught so a weekend's digging would undoubtedly be rewarded with more passage although undoubtedly small. My best guess for where to look is back at the vadose trench where we made our original breakthrough. I'm sure the main way on lies behind there somewhere and it should be reasonably large.

Burning Man Dig - After the success of Doña Palmira it was back to the slog of the gypsum hillsides. Ariel and Gustavo Tejerina took a few days out from the Curso Rescate and joined us for the next few days. This was marred straight away by a double puncture on our car, which meant that they would have to go back to Malargüe to get them repaired otherwise we were stranded. So, we wandered over to the tributary valley on the northern side of Poti Malal. There is a

small resurgence in the main valley just behind where we parked the cars, so we had high hopes of finding something. But as is the case in Poti Malal nothing is ever that simple. Several hours were spent getting extremely hot wandering around the mountains with little to show for it. The local farmer, Miranda, had said that there were a few caves on his land but the only one we came across was just a small fossil relic.



Burning Man Dig

Somewhat dejected we started to follow the valley back down to Poti Malal and lo and behold came across a large active sink! This was quite unexpected and got our spirits up. Not really having any suitable digging gear we left it for another day. Just around the corner was what looked like a flood overflow, but this was much too low for digging. We were now running low on food and water, Ariel and Gustavo having only brought wine and biscuits for two days camping, so we headed home. I climbed high onto the valley side to see if there was anything like a Doña Palmira entrance. And yes, there was, except this time the hole was too small to get into. Well not wanting to go back to the camp empty handed I proceeded to clear out the entrance. Rocks were soon flying out and an intriguing hole started to emerge. The others eventually wandered to see where I'd got to and lent a hand. After about an hour Ariel and Gustavo wandered back suffering from the effects of the heat. The glare from the gypsum was extremely intense and wearing sunglasses was advisable unless you were actually digging. Jules followed shortly after and that just left Peat, me and a pint of water. The afternoon wore on, but we were stopped from getting in by an extreme block of rock. I even resorted to stripping off to my underpants to see if I could force the squeeze but to no avail. We were finally too knackered to continue so headed home. Again, we had been thwarted. Oh, for an air chisel or Bosch drill.

On the way down just across the road from Miranda's farm we spotted another resurgence. This was larger than the one by the cars and looked pushable. So

reluctantly I dumped my rucksack and went for a look. I suppose the best way to describe the thing is that it was an Argentinean version of Springwell Rising, Fermanagh. I wriggled up the resurgence for a couple of body lengths but lacked the enthusiasm or energy to continue. Next year?



Resurgence

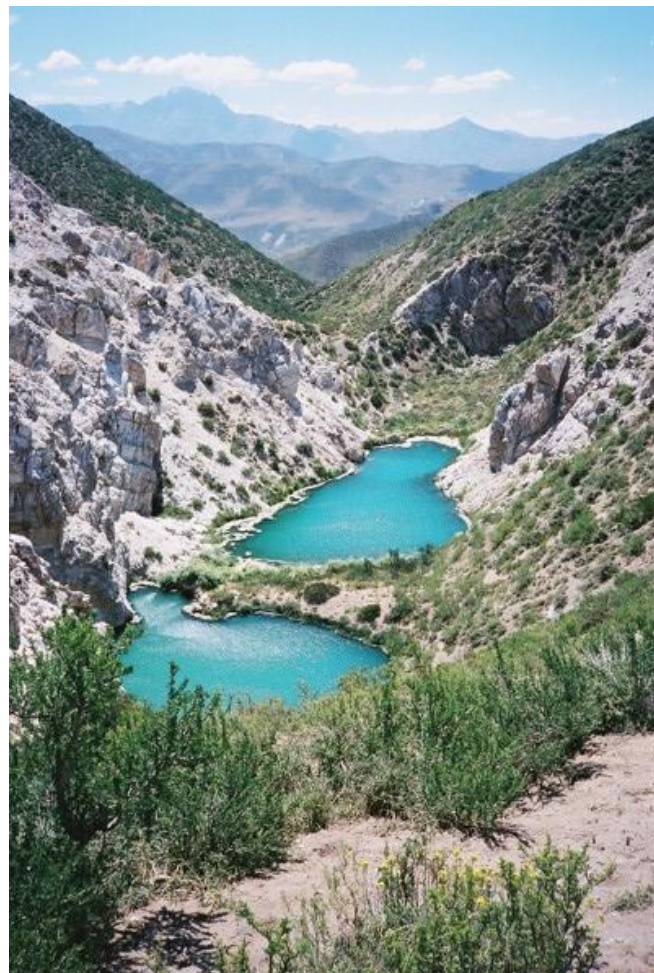
Another day was spent wandering around most of the rest of the valley. Nothing else was found apart from one or two prospective digs and another fossil remnant. There is now only one chunk of hillside we haven't looked at but that lies a bit further from the road. So, I think we've pretty much done Poti Malal and I expect that any new cave will be hard won.



Mendip Cavalry Group

The Green Lakes - Our final days' caving in Poti Malal was a real adventure. Back in November I.N.A.E. had explored a couple of small caves right on the watershed and almost in Chile. Our information on these was extremely sketchy but they seemed to lie in an isolated lump of gypsum several hours walk from the valley floor and 15kms away from our campsite. Ariel had it in his head that we were going to hire horses to minimise the time taken to get to the green lake. Ariel had ridden a horse when he was seven so thought this might be a good idea. I think in fact this was because he couldn't actually remember where the caves were so he was hoping that the local farmer

would take us there. After a hesitant start we negotiated a deal for seven horses and headed on our way. All very jolly except for the fact that none of us had ever ridden a horse before and the Andes aren't exactly Brighton beach terrain. Our walking boots were too big to fit into the stirrups, so it was a very interesting two hours of trekking before we made it to the Green Lakes.



The Green Lakes

But it was worth it. What a fantastic place! The horses were abandoned, and we steamed down the to the lakes to go caving. Essentially, it's a bit like a hanging valley with two small green lakes in the bottom. This doline feels very different from the alluvial filled suffusion dolines of Pozo de Las Animas near Las Leñas in that the walls are entirely in solid rock. All around the edge are possible entrances but none went very far. Across the far side of the first lake was a large entrance. Ariel did a daredevil climb, but I think we will need inner tubes or something similar to get to the entrance. So, our first port of call was Cueva de los Cangrejos. The photos we'd seen and stories we'd been told indicated a decent sized resurgence. And indeed, the entrance was walking size although this soon degenerated into a low duck, the I.N.A.E. limit. We crawled underneath but after a small enlargement the cave sumped. Ah well, a pretty cave

none the less. Just back from the sump I climbed up into a higher level, which could be followed for 30ft or so. We didn't bother to survey this, but a continuation can be seen beyond a mud / rock blockage. This might provide a sump bypass, but my guess is that the water that comes out of the sump is merely seepage from the bottom of the lakes. Back at the entrance portal there is another continuation off to the left. This can be seen going off into the distance, but we weren't prepared to trash the formations to get into the cave beyond.



Cueva de los Cangrejos

A quick bite to eat and then were off again, this time to Cueva de la Gotera. This is an impressive sink above the lakes and presumably takes a hefty stream in the spring. Essentially, it's just one large rubble floored chamber that slopes down to a sump. There was no possibility of further passage, but I assume there must be a hydrological link to the cave we could see at the back of the first green lake. Rafael knocked off a rough survey whilst the rest of us tended to the horses. After chivvying him along a bit we headed home, fossil collecting on the way. On the final stretch loco Ariel lead a gallop along the valley floor back to the farmhouse. As a result, we all suffered from being saddle sore the following day, particularly Ariel. A freshly-killed goat was purchased for our final meal in Malargüe the following evening, but we had one more night at camp to go before returning to town. Our final camp meal proved extremely difficult to prepare due to a horrendous dust storm. The food was rather gritty as a result, and Jules's tent turned into something akin to the Sahara due to a missing fly sheet.

Bar stool theories - As is usual with any expedition you soon get to discussing the what ifs, whys and wherefores. A number of the delegates from the Curso were able to make our final dinner back in the home of comforts of Malargüe. So along with I.N.A.E. we soon got to postulating as to the potential for finding more cave in Poti Malal. I think there needs to

be some good old Mendip-style digging to be done but there are a few obvious places to start.

1. Underground the best place to look would be the vadose trench choke in Doña Palmira or perhaps on the right hand side just after the phreatic tube breaks out into bigger stuff. There must be a continuation here that explains the large trunk passage that drops into the sump. Digging through the blockage will be relatively straightforward.

2. Above ground there are a number of promising-looking options notably the sink / resurgence system in the side valley. The water could easily be diverted down valley away from the swallet to allow digging with spades and perhaps access. Certainly, the water flows away nice and freely. The largest of the two resurgences is pushable although a little aqueous. I think both resurgences are part of the same system with perhaps the smaller of the two, by where the cars are parked, being an overflow or capture.

3. **Burning Man dig** - There is definitely cave in this valley but finding the way in is a problem. Another day's chiselling preferably with the aid of a drill would see this entrance passable. If there is anything more than an alcove beyond is anyone's guess.

4. The draughting hole across from San Agustín could be a way into what lies behind the resurgence. This will need drilling, hilti-ing or something. I'm sure the water must be sucking the air in but quite where the water is coming from is anyone's guess, as there seemed to be no obvious sources in the adjacent valley. Perhaps there is an element of water derived from condensation in the larger voids underneath the hill, but my best guess is that some of the surface stream is seeping away. There is some sort of geological control going on here as there is a surface exposure of a volcanic plug not far away.

5. Elsewhere in the valley somebody needs to check out that last chunk of gypsum. I suspect that there is nothing else there but as the old adage says: 'caves be where you find them'.

6. At the Green Lakes there is little else to do. Someone needs to swim across to the large entrance just to check it out and for completeness the possible sump bypass in Cangrejos needs pushing properly.

The key question on gypsum is where to look. It's been a bit of a learning-curve over the last few years as, although essentially the karst features are much like limestone, it's harder to see quite where the caves will be. At first glance the mountains look pretty barren. Cave features tend to be obscured, and presumably also prevented from forming (e.g. there are no karst-like pavements), by a layer of dust

whipped up by the strong winds. It seems that caves on the valley sides will be found where there are slight indications of water flow such as the shallow gully of Burning Man dig. These gullies are presumably associated with higher levels of water flow during the spring snowmelt. Where the surface layer of gypsum has been weathered, digging is easy, but underneath the stuff is reasonably hard. More persuasive measures may be required. Underground such as in Federación and Doña Palmira there is evidence that the gypsum can support reasonably large passage but invariably the ceiling collapses when the roof expanse becomes too large. The lower mechanical strength of the gypsum compared to limestone explains the more modest size of the passages e.g. compare Federación to Brujas.

Will we be going again? Money permitting, I suspect we will, if only for the jolly. But a key plan is to try and get permission for the limestone behind Brujas next year. I will aim to write to the park authorities to get permission, but the access politics are hideous. Although the caves found are rather small, I still maintain that there is still considerable potential for exploration in the gypsum around Malargüe. There must be other large chunks of gypsum between Poti Malal and Pincheira and then between Pincheira and Las Leñas. Just a complete lack of road access is the problem.

MCG - Peat Bennett, Jules Flavell, Tim Francis - I.N.A.E. Ariel Benedetto, Carlos Benedetto, Rubén Cepeda, Diego Torres - F.A.d.E. (Tandil) - Juan y Silvana Mendy Others - Carlos Cruz (Puerto Rico), Rafael Carreño (Venezuela), Gustavo Tejerina.

Argentina 2003 - Tim Francis

Our fourth visit to the caves of Malargüe and finally we've found something for the press to write about:

La cueva hallada sería parte de un gran sistema de ríos subterráneos Walter Aquino (Los Andes): La expedición anglo-argentina de espeleología que descubrió la caverna de yeso más extensa del país (Los Andes de ayer) y posiblemente de América Latina, espera poder profundizar los estudios de esta "maravilla", como ellos la definieron. A su regreso a Malargüe uno de los integrantes, Ariel Benedetto, detalló aspectos del descubrimiento que abre distintas posibilidades de investigación y se agrega a recientes hallazgos similares en las inmediaciones. El descubrimiento lo hicieron el martes 11 de febrero, los espeleólogos Tim Francis, Rubén Cepeda, Richard Carey y el mismo Ariel Benedetto durante la tercera Expedición Anglo-Argentina en el sur mendocino.

This year our key goal was to try and push the end of Brujas as we had managed to obtain permission from the park authorities to explore it. This was to be the first time in years that cavers would be able to obtain access to the system and both the MCG and INAE were keen to take advantage of this opportunity. However, we also wanted to tick off a few loose ends we left at Poti Malal last year and perhaps even explore new areas of gypsum if the weather and transportation permitted. As it turned out our two days caving at Poti Malal rather than Brujas were to be the most fruitful.

Cueva del Tigre - Just a bit of housekeeping here really. Since the removal of the fixed ladder in 2002 there was no suitable rigging point for the entrance

pitch apart from some extremely dodgy homemade bolts, a few shrubs and blocks of lava. I put in three 8mm bolts to allow a nice free hang for either ladder and line or SRT. A slight flaw was that I'd remembered the bolting kit but left the hangers at home. These were posted to Rubén, INAE tackle master, after our return to England. An interesting point to note is that there were considerably more bats roosting in the cave than we had seen in all of the previous years. One can speculate that this is due to fewer disturbances to the colony as the tourist visits have been restricted by the removal of the ladder. Perhaps an annual count should be conducted to monitor trends?

Caverna de las Brujas - We had previously made a cursory visit to Brujas in February 2000 as part of the Caving Conference, but we had seen no more of the cave than the standard tourist route. And above ground we had made a half day's visit to the valley of Chacay - Co in 2001 but only spotted one small fossil remnant. This year we wanted to look at some of the extreme ends of the cave to see whether there was anything worth pushing. The cave is located in a sizeable chunk of Jurassic limestone and at 2500m + is currently the longest cave in Argentina.



Camping at Caverna de las Brujas

Arcita Fosilizada - In the event we only made two trips into the cave itself. The first was a scramble around the northern and Eastern corners. From the entrance several fossil galleries run northwards with a strong geological control determining the passage direction. We followed the most easterly gallery which is accessed by dropping straight down in the floor below the tourist route just after the entrance chamber. This area is quite confusing, but the survey is pretty good once you've worked it out. After checking out every hole we headed off down Arcita Fosilizada, which is the main route to the back end of this part of the cave. This proved to be quite a sporty rift section and nice and sharp which made for some pleasant climbing. Richard had a good play with his new digital camera. At the far end the rift closes down at an aven but it does seem to draught well. There were a couple of climbs in the roof, which I didn't tackle so there might be a way on. On the way out we spotted a bolt and a pitch down in the floor. All our kit was back at the tents, so we didn't descend this but it's not on the survey. The national park guides at Brujas reckon that there is connection between this and the next rift at Chimenea de Arcilla.

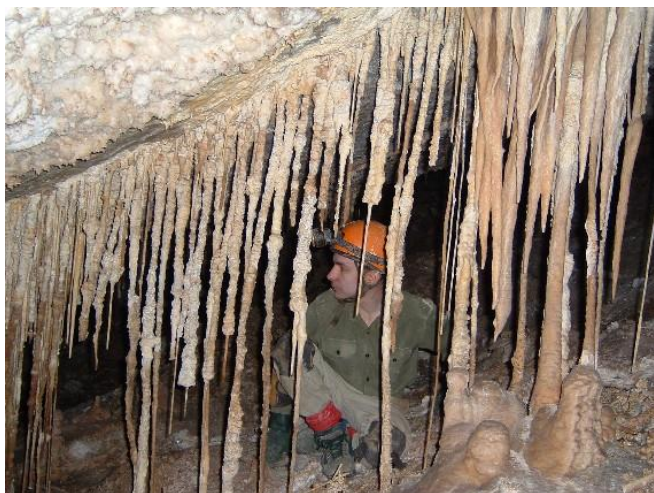
Sala de la Madre - This must be the best tourist trip underground in Argentina. The route into the western part of the cave is via a nice tube on the left after the entrance chamber, Galería del Tigre. The way in is not that obvious but is a small flowstone squeeze on the left, very reminiscent of the Mendips. This is a fine bit of passage and becomes progressively larger.

The floor starts to drop away, and one is forced to traverse along at roof level passing some fine formations on the way. Later on, we discovered that we were probably the first people to head in by this route. The normal route is to follow the floor down and then slip down a chimney just above the entrance to Sala de la Madre. We carried along at roof level making some 'interesting' climbs before finally dropping to floor level at Galería del Pez.



Rubén in Galería del Pez

As this roof traverse is not marked on the survey, we were a bit confused and didn't actually pinpoint where we were until we got to the far end of the Galería. After a quick consultation of the survey I pushed a rift at the far end along a very narrow section. This does draught but finally ends in some tight tubes with a cluster of nice helictites. We then spent a merry 30 minutes looking for the way on to Sala de la Madre. This is actually at a lower level than we'd expected. From here it was tourist time with Richard's camera going into overdrive. There are some fantastic stalactite grills at the far end, which are nothing like anything else in the cave. The Sumidero marked on the survey at the end of Madre is definitely not a canyon and definitely closes down. There is therefore no other way out of the chamber.



Sala de la Madre

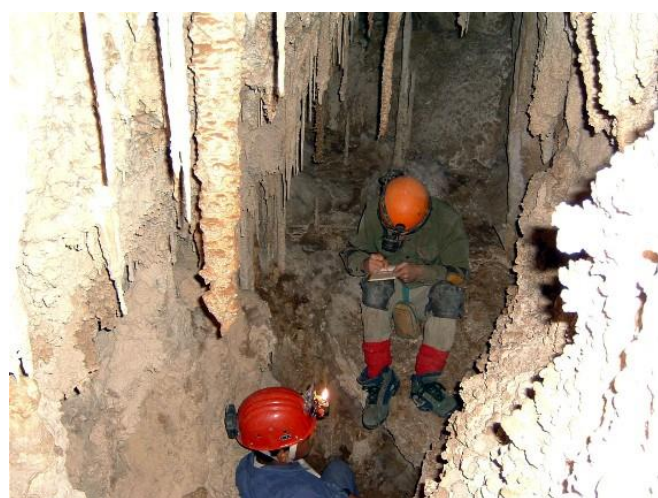
Afterwards we decided to check out some of the question marks in the blank area on the survey between Pez and Galería de Los Pinitos. In this area the survey is incomplete and to be honest needs redoing. For instance, both passages in the area of Galería de los Fósiles close down and do not connect with Sala del Libro. There is C.A.E. graffiti and an I.N.A.E laminated sign at the end of the low level passage. So, I'm reasonably certain that there is no connection here. But there is definitely one connecting passage at the Tigre junction as we bumped into the two chaps from the National Park who had come in for a wander to see what we were up to. They lead us out via an alternative route to Tigre. Volunteers for a survey?

Other sites in the Brujas national park - Above Brujas is a large lump of limestone. We spent a couple of days wandering around looking for other caves. We covered the whole of the limestone block nearest to Brujas including the cliff face overlooking Canada de los Enamorados. There was absolutely nothing here apart from a small 8m tube, the home of a chinchilla. But one area that at first seemed extremely promising was a large dry valley above Brujas to the North West. Long lines of fault-controlled rifts run along the bottom, several of which draught strongly. We hoped that they might provide a top entrance to Brujas, but it soon became apparent that this was not to be. A few needed digging into whereas one was huge. None showed any sign of cave potential and I think what we've got is a series of windy pits.

Brujas itself sits at the end of bowl shaped valley with limestone hills all around. One evening Tim and Rubén went for stroll along the south and eastern side. We covered all of the hills but didn't find anything other than a few cracks and well known existing caves - Las Cabras, del Viento and Tucu-Tucu. These are very small ancient caves and not of great interest. The steeply-bedded limestone in the area means that

most of the modern rainfall just runs straight off so I don't think there will be any more recent caves.

Cueva de los Jotes - On the same evening as the 'Tim and Rubén' ramble the park guards showed us an entrance about 30 minute walk from Las Brujas, on a bearing of 195° from the house. The entrance is right at the top of the cliff overlooking the Chacay-Co River and really is an ancient piece of cave. The following day we all returned to explore and knock off a survey. The cave is an 80m remnant of an old system but well decorated throughout. Much of the stal has been broken as a result of earthquake activity but still very attractive. The end is completely blocked and probably still lies very close to the cliff edge. (All that remains is for me to draw up the survey, perhaps in another article in the future).



Cueva de los Jotes

Poti Malal - After all the fun at Brujas we only had a couple of days to spare to do some more exploration in Poti Malal. Our first trip was to look at the two huge new chambers discovered in San Augustin by the Croatians. These are extremely impressive and a great discovery. Again, this is something that needs surveying, but we didn't have time to do this on this year's trip.

Cueva Miranda - In the afternoon after our visit to San Agustín I thought I'd show the others some of the features in the Miranda valley. Little did I guess that we would make our best Argentinean discovery so far. Last year Peat, Jules and I spent over a week wandering all over the gypsum at Poti Malal but failed to find anything significant. On the last day we nosed around in a small resurgence near the Miranda farmhouse as the log reveals: "On the way down just across the road from Miranda's farm we spotted another resurgence. This was larger than the one by the cars and looked pushable. So reluctantly I dumped my rucksack and went for a look. I suppose the best way to describe the thing is that it was an Argentinean

version of Springwell Rising, Fermanagh. I wriggled up the resurgence for a couple of body lengths but lacked the enthusiasm or energy to continue. Next year?"

As soon as we caught sight of the resurgence from a different angle the obvious location of where a cave entrance might be become apparent. Rubén nipped around to the back of the small cliff face where the water emerged and shouted that he'd found a cave. It was literally 20 feet away from the horrible thrutch I'd pushed in 2002. Essentially it was a window into the streamway that bypasses the final low bit.



The entrance to Cueva Miranda

Richard, Rubén and I crawled up the resurgence for 10 minutes or so before the water was found to emerge from a 3 inch bedding plane. But a dry overflow carried on for a bit further until it too was stopped by a too low bedding. Back from the end we spotted a way on off to the right that looked interesting. Unbelievably this continued on and on and on. The passage was like nothing we had encountered in Argentinean gypsum caves before. Low, crawly, wet and muddy. Ugghh. After 15 minutes of hard-going passing a few roots in the ceiling the passage popped out at the top of an aven. We could hear a streamway! A 30ft free climb and we were able to peer through a low gravel into the stream. Reluctantly we wriggled though to enter a parallel passage, perhaps crawling in height. Both upstream and downstream were given a cursory look but both seemed a bit desperate for us with only our minimalist caving gear.

We elected to climb back up the aven and follow the roof. This carried on and on with some fine sharp flakes and chossy traverses above a deep rift. Eventually the floor rose to meet the ceiling and it

became tube-like again. We soldiered on, determined to push it to the end despite our aching knees, and so we were rewarded with another short piece of stooping-sized passage.



The entrance crawl

The streamway was rejoined with low continuations upstream and downstream. At this point we called it a day as we were in bits and further progress looked desperate. (Rubén has since pushed on a little bit further to a cascade). It's hard to tell how long the cave is but it took over an hour to exit so I guess we're looking at 600-800m. Once all the passages have been explored, I should think the cave would be longer than 1km and the longest gypsum cave discovered so far in Argentina.

Other sites at Poti Malal - Whilst the others looked around the 2002 extensions in Doña Palmira, I started a dig at the end of the phreatic bore, just beyond the breakthrough crawl. This didn't go so I think we'll need to dig in the vadose trench at the end of the old cave.

We spent half a day looking around the other sites in the Miranda valley. Rubén and I chiselled away at Burning Man dig, and eventually he was able to squeeze in. He reported that it doesn't go far. But after the discovery of Miranda anything on this side of the valley will be worth a look.

Valenciana - Rubén had spotted another piece of gypsum further along the Pincheira road, about 2 hours' drive from Malargüe. Unfortunately, it involved a bit of a soaking crossing a river to reach. We literally had only an hour of surface recce before we had to head back. At first glance the gypsum didn't look that good and very weathered as at Pincheira. But the gypsum does head off southwards out of sight so it may be worth another year.



The river crossing to Valenciana

Thoughts for 2004 - Richard has been out in Argentina since August and is putting in some excellent legwork (see below) for our next trip. Undoubtedly, he will have additional ideas to add to the following:

The Chacay - Co River - Presumably there is an air connection between Brujas and the valley side in the area beyond Galería del Pez. There is also the question of where the Brujas water ends up. I haven't quite got my head around the geology, but it might be worth looking for resurgences in this area.

Brujas - The main problem here is that the survey of known and rumoured passages needs to be

completed before we can be sure where to look. But the cave seems to be essentially made up of three parts. A section to the north and east, which consists of a series of fault-controlled rifts; a section to the west with a large chamber (Sala de la Madre) and rifts running east/west where the water would have joined the main cave and resurged at Brujas; and the modern active cave, which we didn't visit. Apparently, the Croatian cavers tried to follow this route but didn't get too far so it might be worth another look.

Jurassic limestone. I think we might be able to access the Northern end of the limestone by walking in from the Pincheira / Malargüe road.

Miranda - The major objective of 2004 will undoubtedly be to push the cave to a conclusion and complete a full survey. To this end we will be taking out Mendip-style caving clothing so we will be able to cope with the cold water and long sharp crawls.

Poti Malal - Doña Palmira might be worth another dig if we have time. Richard mentioned the possibility of another slab of gypsum in the valley beyond the border post at Poti Malal. It would be great to open up a new area of potential.

Team Richard Carey, Tim Francis (MCG), Rubén Cepeda, Ariel Benedetto, Carlos Benedetto, Diego Sánchez (INAE)

Argentina 2003 – 2004 Malargüe Caving Group – Richard M Carey

I have been in Argentina just over a month now and would like to tell you how things are. I arrived in Buenos Aires on time after a 16-hour flight. It now stops in São Paulo and is no longer a direct flight. You can take 32kg of luggage with BA but only 15 on the flight on to Mendoza so I had to pay excess baggage. It wasn't much given the current exchange rate of 4.5 pesos to the pound. I had to stay overnight as it is winter here and the bus was full of skiers going to Las Leñas. I arrived in Malargüe to find that it was warm and windy. Tim can tell you about the dust storms, but they are worse this time of year, it's like abrasive fog. The warm wind was due to La Zonda, which comes in off the Pacific Ocean and dumps its rain in Chile. It doesn't always blow but when it does, it is very pleasant apart from the dust. I understand that Europe is experiencing some extremely hot weather

and it is unseasonably warm here too. There is very little snow and the ski season is likely to close sooner than normal. The sky is blue, the sun is hot, and the days are warm; not quite T-shirt weather but I don't need to wear my RAB jacket during the day.

Cueva Pequenco 1. - This is about 5 miles from Malargüe on the way to Los Castillos de Pincheira so Rubén Cepeda and a new member Eduardo and I cycled some dusty roads to reach the cave. It is a very small cave only 120 feet long but was interesting in the fact that it is a limestone cave and is so close. The entrance is only 10ft from an old quarry, so the most notable feature is boulders that have fallen from the roof. It is called Cueva Pequenco 1 because they believed there must be others in the area. We had a surface exploration but did not find anything.



Carlos Benedetto



The ever faithful and reliable Renault 12

Cueva del Tigre - This is an old MCG favourite. Transport here is a real problem and fuel is expensive. Malargüe is quite small and the nearest city is over 100 miles away, so you don't really need a car. The distances here are huge, and most people travel by bus, but we managed to persuade Eduardo's father (20 pesos worth of fuel from club funds - treasurer beware - seemed to do the trick) to take us. I descended the 5m entrance using a ladder while the others used SRT. We had to use the old hangers because Rubén forgot to bring a spanner. A complete rummage was had, even to the point of excavating the sand at the end to push into a small chamber, with a continuation 5" high. Going to need some digging here because there is a substantial draught but bring facemasks as it is very dusty work. We had a mini rescue practice on the way out to assist a tired caver at the entrance pitch. Eduardo's father passed the time making a fire and drinking *mate*. We had a look around the surface to see if we could find where the draught was entering but to no avail. It will need to be well organised with plenty of bodies for a proper search.

I have now bought a Renault 12 with a gas conversion. The bureaucracy has to be experienced to be believed but unfortunately, it does have a certain logic to it. Everything has to be verified, engine number, chassis, address and so on. It makes sense although it is time consuming and expensive, well at least 250 pesos. No signature on the VRN and that's it here. As I said, it runs on gas and to try it out, myself, Rubén, Eduardo and a novice called Matías decided we would go to Poti Malal. The plan was to go to San Agustín first and then Federación and a quick shuftie in Miranda. Best laid plans and all, we went to Miranda.

Even though it is the driest part of the year, the resurgence was still flowing. I kitted up Mendip style and we entered. The stream wasn't that cold, it's amazing the difference a fleece makes and we made good progress. Unfortunately, it was all too much for Matías and he and I turned back at the Mud Bath we encountered in February. It was his first trip after all. Quite a baptism! He did enjoy it though and will begin some training. Rubén and Eduardo continued while Matías and I enjoyed the sunshine. They pushed on to the bitter end and found the pile of stones that Tim had left when we discovered the cave.

Basically, the cave ends with a small stream entering on the left in a small chamber. Rubén the "espeleoloco" had a look at the stream and managed to push it a bit but only reached a small cascade, which will need a bit of persuasion to continue. However, on the right was a low continuation which yielded to his perseverance and a chamber some 3m high, 3m wide, and perhaps 5m long. Two leads were followed. One at high level, which quickly closes down and one at low level that continues but will need enlarging for anyone bigger. Work will continue. The cost of the gas for the 180km round trip was 6.5 pesos, less than £1.50. No wonder gas cars are so popular!

Cueva Las Salinillas - A gypsum cave about 1 hour from Malargüe in the direction of San Rafael near El Sosneado. It's a 45 minute walk from where the track becomes too sandy for the car to continue, near an old quarry. It has a sizeable entrance depression and there were some caving paintings, now obscured by graffiti. A short drop reveals a large chamber (20m by 20m by 5m high) with some flowstone.



Phreatic Bore in Las Salinillas

The remarkable thing about this chamber is that there are some large phreatic tubes heading towards the surface. These were explored only to end in chokes. One was impossible to enter as it was in the roof. The way on was a descent through boulders and some

fairly tight squeezes to yield yet another chamber (10m by 5m by 5m high) with a lake. There were some very nice formations here with stalactites to compete with the best. There were even some columns below the water level. It remains unsurveyed and we will return.



Stalactites in Las Salinillas

Argentina 2004 - Richard M Carey Jackpot!

The 5th visit of the MCG to Argentina and definitely the most successful so far. This year's MCG were Peat Bennett, Tim Francis and me. The task in hand was to finish off the exploration of Poti Malal and complete the survey of Cueva Miranda, which was discovered on the last day of our expedition last year. As I had already been in Argentina for 5 months, I had prepared an itinerary of other visits but as usual in Argentina nothing goes to plan. Although this time we met with outstanding success: a whole new region discovered and 12 caves so far. There were no delays, no accidents this time although Tim did get held hostage for a while by the police.

This was the earliest that we had come to Argentina and I met Peat and Tim at Mendoza airport with my faithful Renault 12 and drove back to Malargüe in time to celebrate the New Year with our friends and a barbecued goat. We hadn't planned to do anything on New Year's Day but since the English contingent weren't feeling too jet lagged, we decided to go fetch Rubén and visit Las Salinillas. Normally Tigre would be our introductory trip but this year no lava tubes were visited. We had a general rummage with Peat and Tim sticking their heads in every nook and cranny. Peat even shoved his camera into a sump pool to see if it went. Rubén had surveyed the cave, but Tim managed to persuade him that just because you use a

theodolite doesn't make it a grade 6, downgraded and with north moved by 180° everyone was happy.



Cave paintings at the entrance to Las Salinillas

A four day expedition to the Poti Malal valley in conjunction with INAE. INAE members were Ariel Benedetto, Rubén Cepeda, Héctor Sevillano, Matias and Lucas Oliva from Cordoba who we had met on the SRT training in San Luis. Provisions were bought and we set off in mini convoy only being delayed at the border post for a complete check of our papers. We set up camp and kitted up. Rubén took the others to explore San Agustin while Peat and Ariel went to see if they could push more in Miranda leaving Tim and myself to begin the survey. 4 hours of surveying got us to the first junction while Peat and Ariel had pushed on to the bitter end.

The next day we were woken at 6.45am by one of the locals looking for help with his car and Hector and Lucas offered to help so after a breakfast of porridge and biscuits we returned to the fray this time with Rubén exploring with Peat. Ariel didn't want to play as he, underkneepadded, had trashed his knees. Despite the discomfort of wallowing in liquid mud we managed to survey a further 120m of the cave to the aven, which is reached through an impressive keyhole passage, where we met up with the others. They had been exploring the streamway and despite sterling efforts to push it had not made much progress. By now after 6½ hours of surveying with failing lights, my sense of humour abandoned along with my knees, we decided to call it a day.



Keyhole passage Cueva Miranda (Photo Peat Bennett)

All our knees were feeling battered, so we decided to walk the next day. It was a typically scorching day and while Tim and Ariel were rummaging in gypsum Peat and I went off for a massive hike. I followed a stream and lo and behold a resurgence. Oh God not another Miranda was my first thought. It had a low entrance with the way on blocked by a boulder but forcing a way through on the right I managed to enter a small chamber with water entering through a hole in the

roof with no way on. Disappointment and relief in the same instant. Ariel and Tim caught up and duly entered for a look. We decided to call it Cueva Scorchio and then Peat arrived and took the GPs. We had a look to see if there was a fossil entrance but everything we found was choked.



Cueva Scorchio

The next day I decided to go with the others leaving Peat and Tim to survey Miranda to the final chamber. We went down to the *Kiosco* and Lucas and I followed a stream that went around the back of Poti Malal. Rubén, Hector and Matias would concentrate on the road and found a pot that would need some rope to continue. Meanwhile Lucas and I walked a very scenic valley but found nothing, so we climbed up to the top and found a couple of likely looking holes. Although you could get a body in, they choked almost immediately.

We had had enough for the time being and headed back to Malargüe. This is probably the best time of year to visit as it is their summer holiday and there was a festival to celebrate goats, not much fun for the goats mind you. There were regional dances and handicrafts of all types and we gorged ourselves at an "all you can eat" restaurant. Basically, barbecued goat, beef and chicken in abundance, with salad at a fixed price.

We had been told that Valle Hermoso (Beautiful Valley) was well worth a visit so Peat, Rubén Tim and I set off. It is reached via Las Leñas and the first half is on tarmac roads with the remainder on dirt roads through a mountain pass that is probably only open for 2 to 3 months of the year. The trusty Renault 12 made it without any problems and the valley certainly deserves its name. It defies description but I can only say that it would be a geologist's dream.



Valle Hermoso

We had been told that, yes, there are caves at Las Leñas, but they are only small and not really worth the effort. On the way to Valle Hermoso we spotted a few resurgences which were investigated but would have been long-term projects. We also spotted a cave entrance just outside Las Leñas, so we stopped to investigate. We asked permission at a local farm and went off to explore. It had once been a show cave and still had fixed iron ladders in it. It was only about 30m long. We found out that it was called Cueva de Los Tunduques (apparently some sort of toothless rodent).



Cueva de los Tunduques (Photo Peat Bennett)

We sent Rubén off to enquire if the farmer knew of any other caves in the vicinity and was told that if we followed the stream up valley, we would find some resurgences. On the way back to Malargüe we were stopped by the police at a control point. Security had been increased because of the festival. Unfortunately, Peat didn't have his passport with him and the policeman, despite my protestations, was convinced that he was an illegal immigrant. Holding Rubén and Tim as hostages he allowed Peat and myself to go and fetch it. The sight of Peat's passport soon secured the release of the hostages and we went home.

Las Leñas - We returned to the farm at Las Leñas and set off up valley. Within 10 minutes we found our first resurgence. It was a low tunnel and the water was very cold. Las Leñas is a ski resort and so is quite high in the mountains at about 2,500m. We decided not to enter. As Peat was taking the GPS a group of pony trekkers was passing by and the guide told us of another cave further up. We carried on up valley and spotted a huge collapse feature with a stream issuing out of boulders. We had a look around for an entrance but the only possible one was high up a slippery cliff that would need specialist climbing gear to enter. Nearby Peat dug open a short draughting cave that might gain access with a bit of digging.

Carrying on upstream we spotted a resurgence high on the right hand side that was absolutely gushing water but before this we found a small cave beside the stream that we entered. It was a bedding plane but didn't feel very stable, so we didn't spend much time there. After lunch we climbed up to the resurgence and although beginning at stooping height it soon lowered to what would have been a flat out crawl in the stream. There was a lot of ochreous mud in this cave and it soon turned the stream orange, therefore Orange River Cave (Cueva del Rio Naranja). We declined the stream and climbed up above to discover a fossil entrance. Cueva Naranja. This had a large entrance chamber complete with a guano stalagmite.



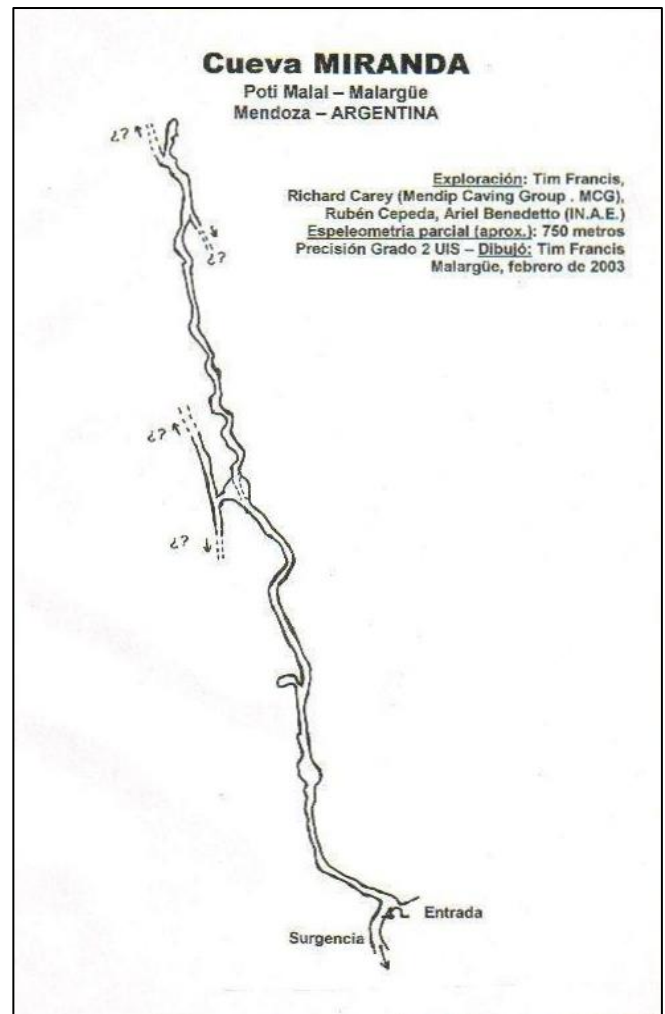
Guano Stalagmite - Cueva Naranja (Photo Peat Bennett)

Pushing through a constriction we gained a continuation of the cave complete with banded gypsum and some large crystals. There was ochre in abundance here too so Orange Cave. We decided to return over the top of Cerro Yesero (Gypsum Mountain) and Tim found that there were a lot of potholes, but all were choked. I returned to the car leaving the intrepid three to continue searching. On

their way back they encountered a couple more potential sites.

Caverna de las Brujas - Access to Caverna de las Brujas is a very sore point with INAE and although we had no real objectives in visiting it, we obtained permission to enter. So it was Carlos Benedetto, Peat, Tim, Rubén and myself who presented our permit to the Park Rangers only to be told that we couldn't enter between the hours of 9am and 5pm. Carlos went ballistic and after a few threats of denunciation to the authorities, press etc. the Ranger relented and allowed us access but he would come with us to ensure that we did not interfere with the tourists. Tim wanted to descend a pitch rumoured to only have been half descended by the Croats in 2002 so we dragged a couple of bags of kit with us. After a little faffing around with the route we were on target. Unfortunately, Carlos decided to stay high when he should have descended and fell 2m with a crash, whoomph, in plain sight of the Ranger. This did not bode well but fortunately apart from being winded and bruised only his pride was seriously injured. If INAE had had to be rescued I imagine access would become practically impossible. He decided not to continue, and Rubén assisted him to leave the cave. The Ranger was unfazed by all of this and in full video mode carried on with our exploration. The passageway we were following had some spectacular formations including a gour pool that looked like those rows of Chinese soldiers. We mistook our route and we could hear a tourist group below us. The survey obviously needs some revision. When the Ranger caught up with us, he warned the guides by radio that he would be descending into the Tourist Route. He agreed to take our tackle with him, and we returned the way we had come in, only stopping on route for Tim to examine the "pitch". He found several bolts and it was evident that it had been descended.

The next day we left Rubén to rest, with the festival he had been partying till 5 in the morning and then going caving with us at 9am and we were beginning to worry about his fits of narcolepsy. We returned to finish of the survey in the streamway passage of Miranda and Peat and Tim did the honours bringing the total to 560m. Not the longest gypsum cave in South America as bandied around by the press. To cover themselves they now say that it has 560m surveyed so far! I suppose the terminal choke could be dug but it is way beyond the two week time slots that we allow ourselves each year.



Back to Las Leñas - We returned to Las Leñas to carry on with the unpushed leads and while Peat and Rubén explored, Tim and I started the survey. A stooping entrance soon had us on our knees, but it widened out to over 5m. It was nice and straight giving us our first 15m leg. We soon arrived a bouldery area where the stream went to the right with an overflow passage on the left. We opted to survey the drier way first but soon returned to the streamway, which was very low. We still hadn't found Peat and Rubén, so it was beginning to look promising. From the streamway I was looking for a way not to be in the stream and spotted a window. I could hear Peat and Rubén. I left the survey station temporarily and looked through the window into the beckoning darkness. It was huge. The passage was over 5m wide, 5m high and about 60m long. Peat and Rubén had been looking for a way on in the inevitable collapse. We completed the survey to 190m. At the exit I spotted something moving in the stream. On closer inspection I saw that it was a crayfish. There is already a cave named crayfish (Cueva de Los Cangrejos) so we decided to call it Lobster Cave (Cueva Langosta).



Entrance crawl in Cueva Langosta

Next, we returned to survey Cueva Naranja while Peat and Rubén went to explore a collapse feature. The survey was duly bagged at 60m and potential dig sites were noted although the best potential is probably to push the resurgence 10m below (Orange River Cave). On exiting we found ourselves with an approaching thunderstorm, so we decide to get off the mountain as quick as possible. On our way back we ran in to Peat who was trying to keep well away from Rubén as he was carrying an iron crowbar. He didn't want to get struck by ever-approaching lightning. They had discovered a 30m cave completely coated with white gypsum crystals and had named it Snow Cave (Cueva de la Nieve).

Beaten by the weather we returned home via the café in Las Leñas.



Gypsum Crystals Cueva de la Nieve

No sooner had the Goat Festival ended was Malargüe Rock, a festival of local and not so local pop groups organised by Ariel Benedetto. A few good covers of Oasis and a stomp with some traditional Argentine Rock went down very well although the piece de resistance was an extremely professional couple from Buenos Aires.

An extremely active and rewarding expedition. Poti Malal completed. Miranda Cave surveyed. (560m). It was shame that we didn't beat the record but at least it was our find. However, the real crown in the jewel was the exploration of Las Leñas which we have really only just begun to explore. So far, we have found 12 caves, entered five and surveyed two. We have spotted potential sites already for our next visit and hope to return next year. Not worth bothering with? How wrong they were!

MCG in Argentina 2006 – Tim Francis

Las Leñas

Not a lot has been written about the cave potential of the gypsum at Monte Leñas except for the exploration and survey (1997) of a very small cave, Cueva de Los Tunduques. This can be seen clearly from the road although you do need to get your feet wet to get to the entrance. It was considered that there was not much else to be had. I looked back at our original field notes from 2001:

"Due to the atrocious weather we virtually did not leave the car but did note one cave by the roadside [Actually just an undercut where water resurges]. The road was poor, so we did not drive much beyond the

resort. With hindsight I think this area would be worth further investigation."

But in 2004 it was readily apparent that there was huge potential. The depth of the gypsum is significantly greater than that at Poti Malal, and with the mountains soaring to over 4000m it really was worth a proper look. We only had a few days at Las Leñas as our focus was to complete the survey of Cueva Miranda over at Poti Malal. But we noted resurgences at almost 3000m and 16 sites of speleological potential, not bad for an area considered to have no caves. The main discoveries were a big

resurgence below Monte Leñas, Cueva Naranja and Rio Naranja, Cueva Langosta and Dead Colibri Cave. None of which are particularly long but there is hell of a lot of water coming out of the mountains. The problem we've found with Gypsum is that you just can't seem to follow the water very far before the cave closes down or collapses.

So, in 2006 we were absolutely determined to focus on Las Leñas. Indeed, we had muttered that we probably would not have time to visit Poti Malal which is almost sacrilege in these parts. Ariel lined us up some extremely cheap off-season accommodation at the ski resort; beds, a shower, an electric hob, a shop. This was true luxury compared to the usual cold and dusty camping. Indeed, from our room's window we had a fantastic view of the gypsum mountains, "Cerro Yeseras", in the distance. Peat had a good pair of binoculars, so we were even able to indulge in some armchair cave spotting.

The Resurgences of Las Leñas - The appeal of cave exploration in the valley is that you can do day trips from the end of the tarmac road. Indeed, the furthest reaches of the Gypsum are only 3-4 hours walk away so there was no need for camping. Mind you, day after day of high altitude walking can get rather tiring to say the least. The caves are 500-1000m higher than at Poti Malal so they can be very cold. Mendip kit is definitely advisable for anything other than a quick recce.

Cueva del Colibri - On the first day we thought we'd go for an evening's stroll to look at the main resurgence. Just follow the main river from the farmhouse at the end of the valley and you can't miss it. The others went up to Tunduques instead for a spot of tourist caving. Things had changed since 2004. The cliff face above the entrance had collapsed and there is now a nasty overhang. Not ideal.

So instead I had a rummage in a scree slope on the left of the resurgence. Unbelievably I opened up a drafting hole within a matter of minutes. Another hour's digging on the following day and we were in. A couple of rubbly squeezes dropped us back down to stream level — the entrance collapse had been bypassed. The cave is low and wet and small. Despite our best efforts we couldn't keep out of the water which is essentially just snowmelt. It opens into a small section of walking-sized streamway before closing down at a grizzly looking bedding plane and boulder choke.



Cueva del Colibri (Photo Richard Carey)

We tried to dig around the choke on the left, but this looked long term. On the surveying trip Peat spotted that the main streamway was actually coming out of a low scoop on the right hand side. We duly surveyed into this but the streamway got lower and lower. Peat commented "this turned out to be a surveyor's hell involving crawling in freezing cold water. Enough was enough when I could hardly move my limbs due to the cold."



Terminal in Cueva del Colibri (Photo Peat Bennett)

We left it at a flat-out hypothermic bedding plane that twisted out of sight. On the final day, Peat and Rubén did a mad dash to the end in full Mendip kit to see if they could push it. Again, they were beaten back by the cold. It looks very unpromising but possibly in a thick wetsuit further progress might be possible. The current length stands at 125m.

Cueva Naranja - The object of the visit to this site was to see if we could dig out the large resurgence below the fossil cave entrance. We enthusiastically dug out the mud and rocks in the floor to try and lower the water level. This worked a treat but rather than the duck we'd hoped for it was revealed that the water flows out of a tiny bedding plane. Defeated again. The

mud here has a high iron content so both the shivering team of diggers and the river in the valley were now bright orange. Intriguingly the resurgence at Colibri Muerto was flowing orange suggesting a connection somewhere to one of the meanders of the surface river.

Colibri Muerto - This was a small site we'd found in 2004 and so-named because of dead bird at the entrance. It's an unpromising gravel in the scree of gypsum on the left hand side of the huge resurgence on the other side of the valley from Colibri Cave. Towards the end of the trip Peat and I nosed around in every hole looking for a way passed the huge tumble of boulders that block the main resurgence. There really is nothing here but the nature of the gypsum means that it is worth checking every few years just in case. Just for the hell of it we looked at Colibri Muerto. This time there was a stream running down the cave whereas it had been bone-dry in 2004.

Cueva de la Nieve - We had decided to traverse the whole of the valley side on the left and up into the upper valley. This took us past the small valley that Peat and Rubén had looked at briefly in 2004. They'd found Cueva de la Nieve and spotted a couple of other possible locations before thunderstorms had cut short the day. Nieve is a delightful little cave with the roof festooned with gypsum crystals. It's also rather wet and loose. The entrance looks like it is going to collapse sooner rather than later so we didn't tarry too long.

Anything above 2500m in this area seemed to be snow-plugged. We did come across a tiny resurgence and sink in a doline but not much else. The highlight of this tour of the hills was a natural rock arch carved out of glacial debris by a meltwater stream. This lay right at the foot of a tongue of ice and afterwards we realised that we could actually see it through the binoculars all the way from the ski resort.

Cueva de Las Cascadas - This was found on day two of the trip and I think it's the best cave in the province of Malargüe. And it really is a classic. After the end of our tour of the hills around Cueva de la Nieve we stomped all the way up the head of the side valley and peered over the lip to the continuation of the main valley. On the far side just before the end of the gypsum we could see a large resurgence that chucked out a large proportion of the river.



Cueva de Las Cascadas (Photo Richard Carey)

Clearly this was going to be a primary target of the trip and we returned the following day. It takes on average about three hours to reach the entrance, so days spent up at Cascadas were long ones.



Entrance to Las Cascadas (Photo Richard Carey)

Indeed, on the last surveying trip Peat and I were almost benighted despite clocking up record breaking walk-in and walk-out times. The cave is so-named because of a fine crashing cascade at the end of the cave. This is the only large streamway and waterfall that we've come across in Argentina. The cave's length is around 400m.

The cave starts as a very low crawl in ice-cold meltwater. Thank God we'd brought Mendip kit. Our friends from INAE really felt the pain in this section. Luckily it soon popped out into large stomping passage. To the right closes down but to the left is a fine stream passage, something that it is highly unusual in the gypsums of Argentina. We got some excellent shots in this section.



The Stream Passage (Photo Peat Bennett)

Another junction was met. Straight ahead runs for 50m or so until it closes down at a dry choke. The passage smelled heavily of sulphur, hence the name. It does draught though and we know from the survey that it lies close to the cascades at the end of the cave. The main streamway twists off to the left into a Yorkshire-style series of meanders. The gypsum is extremely hard here, so the water has scoured a delightful series of twists and turns. This section of meanders emerges, via a chossy choke into a very large boulder slope with a streamway crashing down from above. This was really exciting stuff. At the top of the slope it all closes down in the inevitable boulder choke. I pushed this along the solid left wall as far as I felt was prudent, but it does continue. That's one for someone of a less nervous disposition I can tell you. Above the meanders is a second, but smaller, series of passages we named The Tubes. These phreatic wriggles meet up with the meanders at the choke at the base of the cascade which makes for a pleasant, if cold, round trip. They are also unusual in that there is a small grotto of straws. You don't tend to see much active stal at this altitude.

Side valley rambles - As well as looking at the main valley we wanted to look around the back of the gypsum ridge to see if there were caves on the side and round the back. There is a tributary valley that starts a little bit closer to Las Leñas with a broad flat floor at its mouth. We had looked at the lower levels of this valley briefly in 2004 and found Cueva Langosta and another flood prone looking crack. We knew that there wouldn't be much gypsum to traverse as in flood the river runs orange rather than grey. So, we walked up the valley one day, hugging the gypsum on our left and checking out every nook and cranny. For a laugh we climbed up over 3000m to peer over into the main valley and onwards to Cascadas in the distance. It was no surprise that all the depressions at this height were filled with snow. Peat and Rubén, our mountain goat duo, climbed up even higher for some fantastic views of the Andes all around.

Cueva de Las Flores - One reasonably-sized resurgence was spotted but the water runs out of a too-tight crack. Elsewhere all the depressions in the gypsum are blind apart from one small, and very pretty, cave. It is only 25m in length, but very pretty at the back. There does seem to be very little potential on this side of the mountain. A longer-term plan would be to walk / ride into the mountains to get to the gypsum right around the back. This would be quite an epic in this terrain and definitely involve camping.

Back to Cueva Miranda, Poti Malal - Yes, despite our good intentions we did end up back at Miranda after all. However, there was a good reason for this. There had been some pretty serious floods a few months before and Carlos was keen to check out the effects. San Agustin had really taken a battering with several large boulders crashing down the entrance slope. There is now a large trench in the scree slope.

Top sink, Cueva Miranda - Of more interest was what has happened to the streamway in the side valley above Miranda. In the many years we have been visiting this has changed the position at which it sinks. This year we were astounded to see that a completely new sink had opened up on the right hand side of the valley. Even more astounding was that we were able to dig our way into the cave. It only went for a few metres but is definitely diggable. I've said this many times but if someone puts in the effort here you could have a cracking through-trip and create the longest gypsum cave in Argentina.

Malargüe Hills and Valenciana - Round the back of Malargüe are some low scrubby gypsum hills, Bardas Blanca. We spent a frustrating and extremely hot afternoon looking for caves here. But there is nothing. Also, in the foothills off the main road at El Chacay we had heard about an abandoned gypsum quarry. We were stopped by some farmers at a gate who said that we would need to speak to the landowner. So, something to set up for the future perhaps? Finally, we had an idea about trying to get onto the gypsum on the horizon beyond Valenciana. We'd seen and photographed this many years ago but never visited the area. It is of interest because it forms the northerly end of the limestone / gypsum ridge that you see at Brujas further to the south. Unfortunately, they've re-opened the gypsum quarries in the area, so everything was fenced off and strictly off limits to itinerant cavers. That's one for the future.

Outstanding projects - After six trips to Malargüe we have now exhausted all the obvious caving areas in the area. There are of course pockets of gypsum scattered about in the Andean foothills between Brujas and Las Leñas. But without any tarmac roads or public access these will be extremely tricky to explore. On several occasions we have come across verbal references, spoken to local farmers, hearsay and

notes on maps that indicate the potential for cave.

But these will require considerable effort to follow up without any guarantee of new cave and would be best reced first by our friends in INAE. Our remaining medium term leads, without resorting to bang, are as follows:

Las Leñas - Cueva de las Cascadas - pushing the boulder choke upstream of the cascades and digging through the drafting choke at the end of Sulphur Passage with a potential connection to the cascades.

Cueva del Colibri - confirming that the stream crawl doesn't go. A thick wetsuit and low water will be required for this. Digging the upstream choke on the left.

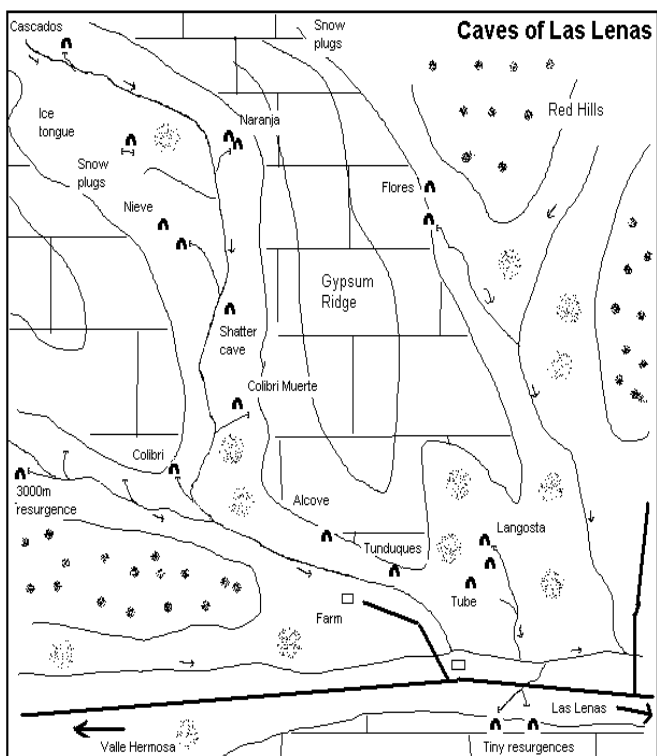
Colibri Muerto - climbing up the tufa wall above the resurgence.

Cueva Langosta - digs at the far end of the main chamber and right hand passage.

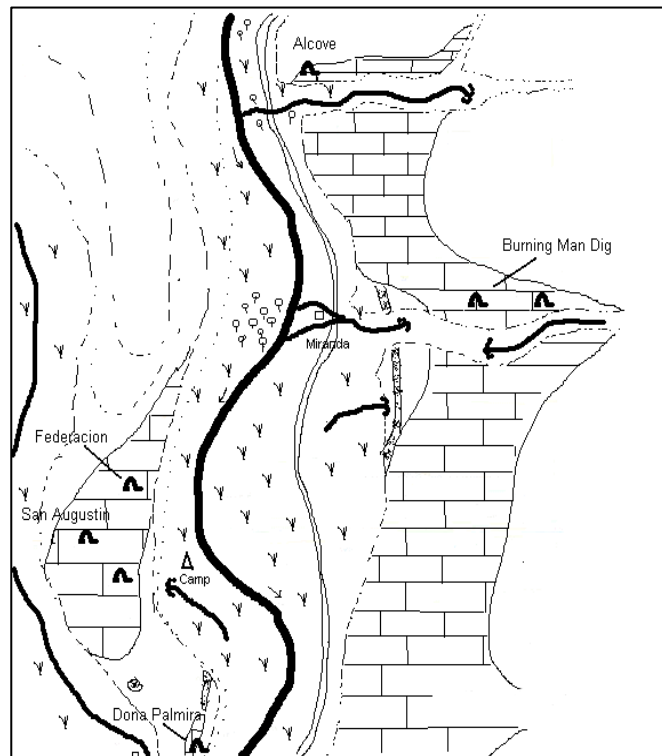
Poti Malal - Cueva Miranda - dig top sink to connect to the main cave.

If we return again, we will be looking to explore a completely new region, but we have no firm plans yet.

Team - Peat Bennett, Ariel Benedetto, Carlos Benedetto, Richard Carey, Rubén Cepeda, Ricardo Fernández, Gaston, Tim Francis.



Sketch map of Las Leñas drawn by Tim Francis



Sketch map of Poti Malal drawn by Tim Francis

