

Armenia expedition

Introduction

A team of four set out to Armenia to see what the country had to offer, this report details what was found in previously unexplored areas. Suffice there were several significant discoveries.

Why Armenia?

We were first attracted to Armenia when me and John were on holiday to Georgia (the country, not the American state) in 2017. There we met by chance a traveller who had recently come back from Armenia. He was showing us his holiday snaps and on those snaps we noticed large karst limestone massifs and this got us into the idea of looking at Armenia.

We began research and found there is definitely limestone and some known caves so more there is potential for more. So, if there is limestone, why has the country been visited by so few speleologists? There had been a few expeditions before us, such as the Italians but other than them the country had rarely been visited by foreign speleologists. We think the probable reason why the country has been overlooked is due to the attractiveness of its near neighbours, i.e. Azerbaijan and Georgia, which is where the Russians who tend to be the main explorers of these areas have concentrated their efforts.

Expedition objectives.

So as said above from geological maps and other sources it is obvious there should be caves in Armenia, but we were not sure to what extent. The only way was travel there to find out, and be prepared for anything so, drill, SRT gear, full caving kit were all carted out.

We eventually got in touch with Dr Samvel Shahinyan head of the Armenian Speleological Association, which helped us to narrow down and identify three areas of interest.

Hell's canyon. From Google images and Samvel's recommendation Hell's canyon looked like a very interesting place. Limestone walls full of holes were abundant in the 100m deep canyon that snakes its way for over 10km. The geological maps appeared to confirm this was surrounded by a large area of limestone.

Gnishik The name of a village near Armenia's southern border with Azerbaijan. Surrounded by limestone, most of which is on steep, sloping hillsides. The main area of exploration is about 500m lower than the village accessed, accessed by a half-hour off-road drive from the village.

Vorotan gorge A massive deep, steep-sided gorge, almost 1000m deep in places from what we could tell from Google this looked as if it was mainly if not all limestone, from the photographs. However, this was not as clear from the low resolution USGS (United States Geological Survey).

We were joined by a local caver named Tigran Armenian, who is the leader of the only caving club in Armenia known as the Armenia Speleological Team (AST). This is a new three man caving club formed within the last few years.

We hope what we found and surveyed in these areas is useful possible future expeditions.

Hell's Canyon

Hell's canyon is situated near the town of Tigranashen. During the Soviet era, Tigranashen was an enclave of the Azeri Soviet Socialist Republic (SSR) completely surrounded by the Armenian SSR. When the Soviet Union collapsed it became, by default, part of Azerbaijan but was soon invaded by Armenia. Most of the international community continues to recognise Tigranashen as part of Azerbaijan, but it is de facto part of Armenia. Currently, visitors to Tigranashen will encounter no Azeri (or Armenian) security presence and no security problems when visiting. To all intents and purposes it is fully part of Armenia. Having said that, the actual border with Azerbaijan (the Nakhchivan area) is not far away from Hell's canyon and we believe it is essential to take local advice on how close to the border it is advisable to go if you wish to wander that way.

On first glance this rather deep canyon looks fantastic; there are many obvious cave entrances situated at different levels, and lots of limestone. However, we noticed right away that the limestone here is heavily mixed with sandstone sections.

Our approach was to go down to the canyon floor looked as it appeared to have purer limestone, which looked more promising. However no caves of length were found at this level so we had to traipse up the hill to visit all the accessible entrances we could see higher up. As expected due to the rock nothing really came to anything. Our biggest find was a 25m cave which we called Snakes and Ladders, because it had a snake in the entrance and a 8m climb up leading to the another entrance, this appeared to be remnant of a much larger cave, that the river has removed at both ends. The entrance had impressive dimensions of about 10m high and 12m wide.

We spotted an interesting entrance extremely high up, where limestone may be of better quality which has the potential to be a significant cave, however other than that there does not appear to be lots more to go at, though there are entrances we could not access due to needing climbing gear.

Day 1

After a day's delay in Yerevan, we spent the first true day travelling to the area and setting up. Once we had lunch and were force-fed a bit of vodka, we were driven to a view-point overlooking the gorge. We then spent the last remaining few hours wandering the lower gorge.



Hell's Canyon by Alex Ritchie

Day 2

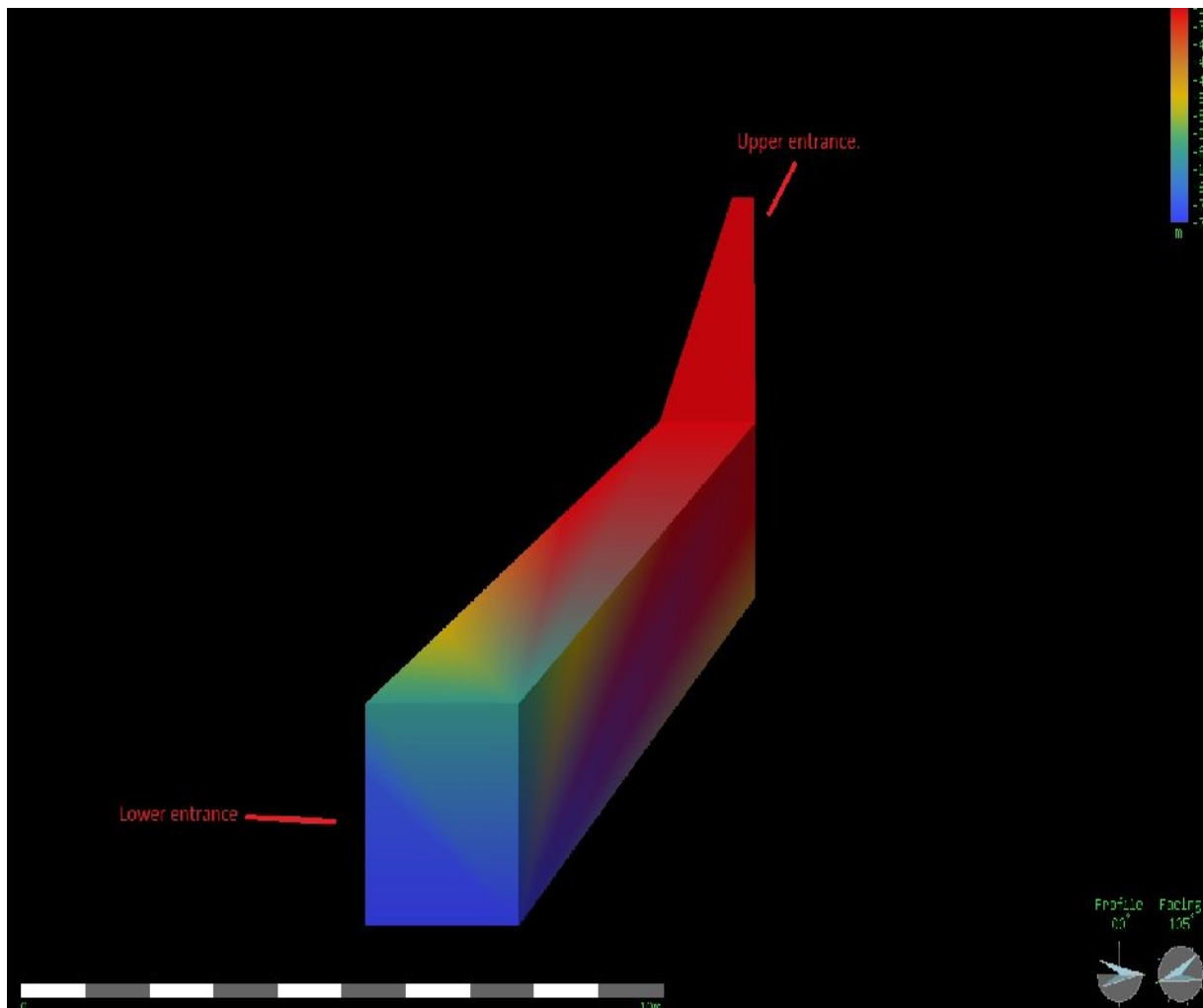
General notes

We focused our time exploring the many entrances we could see from a ranger path that accessed the canyon, visiting all we could. We then followed the stream-bed for several km.

Caves

| | |
|--------------------------------|--|
| Cave | Tunnel of love |
| Location | N 39°47'8.92 E44°.58'.2.40 |
| Length | 9m |
| Depth | 5m |
| Location description | Using the Ranger path to enter the canyon, go as far as the top of the last steep section, the cave is on the right about 15m from the path. |
| Underground description | A sizeable entrance about 3m by 2m leads up a steep slope to a small chamber. From here a short loose climb leads out onto the surface via a second tiny entrance. |

Survey





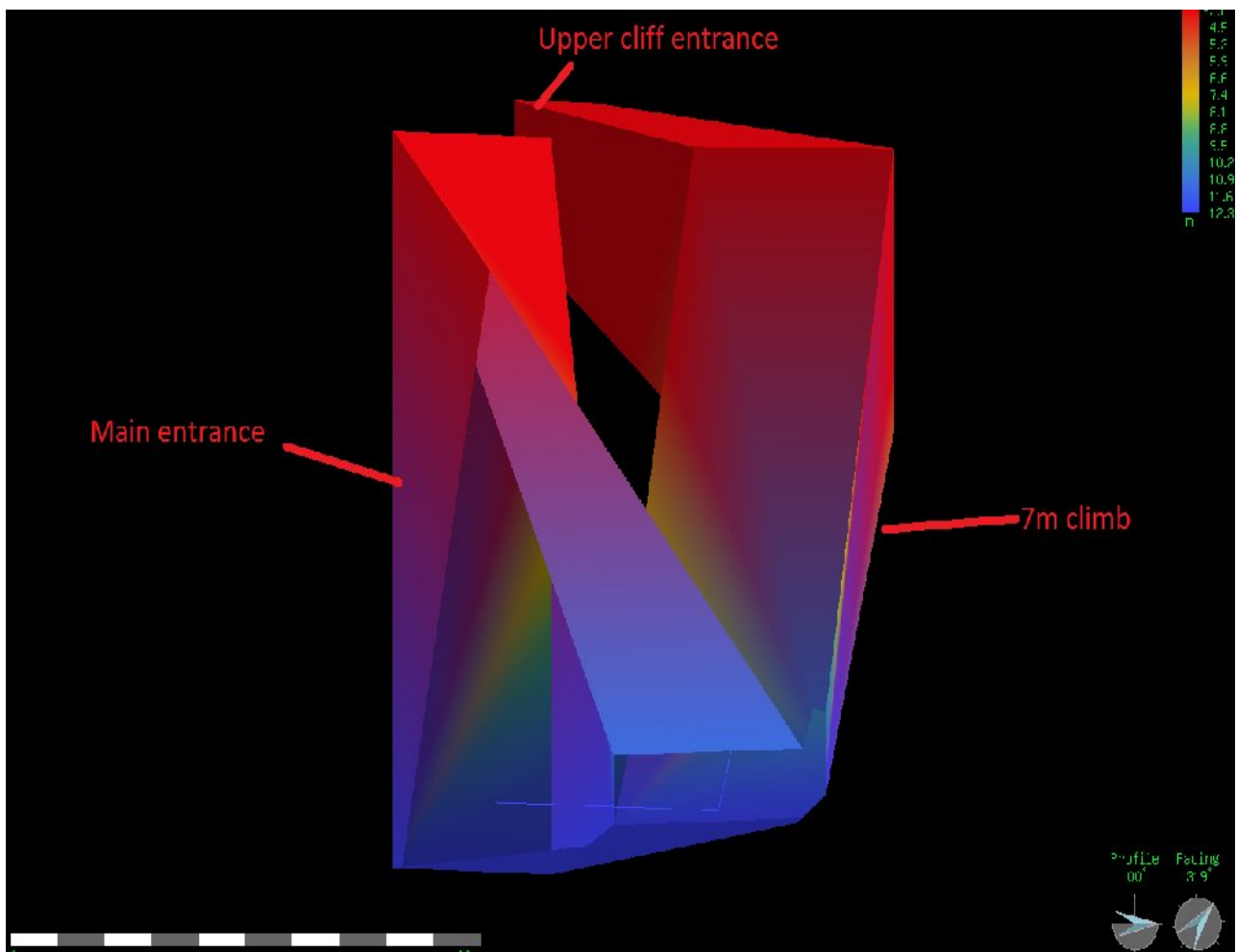
Alex standing in the lower entrance to the Tunnel of Love by Chris Scaife



Looking out of the upper entrance by Alex Ritchie

| | |
|-----------------------------|---|
| Cave | Snakes and Ladders |
| Location | N39°47' 8.2 E44° .58'.6.7 |
| Length | 25m |
| Depth | 9m |
| Location Description | On the opposite side of the valley from the ranger path, follow the river upstream for a short distance. Head up hill to the big obvious entrance about 50m higher up, above a wide grassy ledge. |
| Description | This cave is basically a very big rock shelter with a smaller cave inside leading back to the surface. There is man-made wall at the main entrance entrance, where snakes like to hide. The entrance is 10 x 12m high. After the large entrance chamber a 7m climb takes you up to into a smaller phreatic tunnel. A further short slope from here brings you out high above the valley floor. This cave was likely part of a much larger cave system that has been destroyed by the river. |

Survey





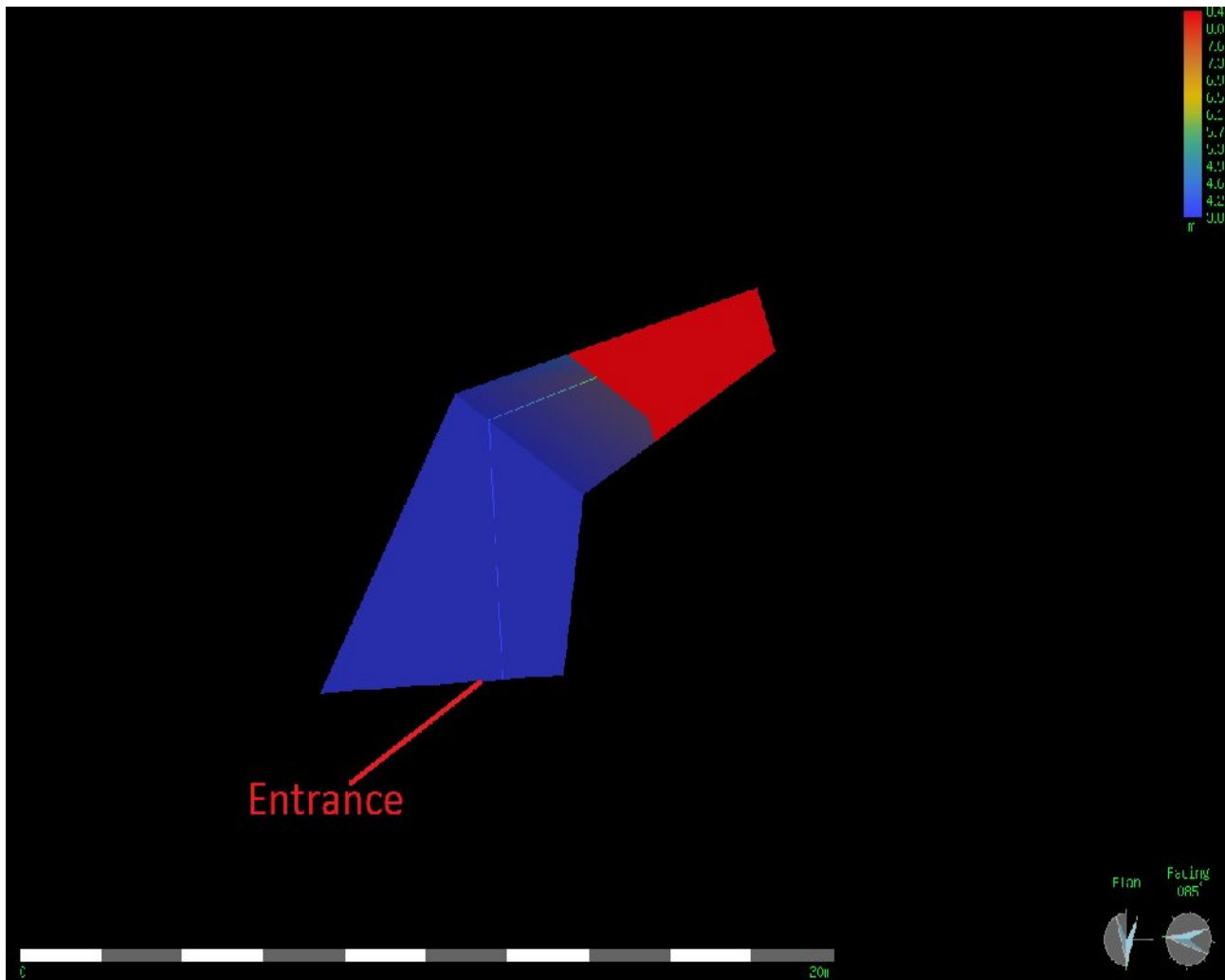
The exciting looking entrance to Snakes and Ladders by John Proctor



Alex descending the 7m climb in Snakes and Ladders by Chris Scaife

| | |
|-----------------------------|---|
| Cave | Raven's cave |
| Location | N39°47' 6.8 E44° .58' .11.0 |
| Length | 15m |
| Depth | 5m |
| Location Description | Obvious large cave entrance seen from the bottom of Hell's Canyon. This lies to the south of Snakes and Ladders cave and is about 150m higher up, accessed by a very steep scramble up scree and grass. |
| Description | This cave has a large entrance 8m x 7m. From the entrance a steep slope leads past a tree, round a corner to where the cave then dead-ends in a blank wall. The rock of this cave is poor quality and appears to be a conglomerate of various rock types. |

Survey





The huge entrance to Raven's cave by Chris Scaife

Unsurveyed caves

| | |
|-----------------------------|---|
| Cave | Porcupine cave |
| Location | N39°47'.08.9 E44°58'.02.4 |
| Length | 7m length |
| Depth | 5m |
| Location Description | Medium sized scooped out entrance by the path close to a camera trap set up to capture pictures of wild animals, on the ranger path dropping into the gorge. |
| Description | So called because of porcupine quills found on the ground. This cave was shown to us by a ranger and was reported to have been a home to a bat or two. A stooping height entrance scoop leads to a flat-out crawl at the back. A slither past a boulder (still flat out) soon leads to the end in a solid wall. |

| | |
|-----------------------------|--|
| Cave | Hole in the wall cave |
| Location | N39°47' 6.8 E44° .58'.11.0 |
| Length | 11m |
| Depth | - |
| Location Description | Found to the right of Raven's cave, up another short scramble. |
| Description | A high rift cave that ends after about 11m. Entrance is 8m x 1m. |

General notes

At **N39°.47' 1.6 E44°.58.7.8.** we found a small resurgence, far too small to enter. This appears to be the source of all the water, as the gorge was dry upstream of here.

Day 3

We started by going to the head of the gorge near the road. We then looked at entrances we could see here before working our way down to where we exited the gorge on the previous day.

Surveyed caves

No caves of significant length were found, so nothing was surveyed but we did take general measurements of the few we did find.

Unsurveyed caves

| | |
|-----------------------------|--|
| Cave | Maths cave |
| Location | N39°.48'.5.9 E44°.59'.47.2 |
| Length | 3.5m |
| Depth | - |
| Location Description | About 2km from the top of the canyon, visible from path half way up the right-hand wall. The cave is accessed traversing around left from the path, crossing over a shallow valley. |
| Description | A short cave with an entrance of 1.6m wide and 2m high, soon lowers to a flat-out crawl that ends at a rabbit sized hole continuation. A note book with what looks like maths homework was found inside. |



Tigran exploring the back of the cave by Chris Scaife

| | |
|-----------------------------|---|
| Cave | Further Maths cave |
| Location | N39°.48'.5.9 E44°.59'.47.2 |
| Length | 8m |
| Depth | - |
| Location Description | Scramble up directly from Maths cave by about 15m. Entrance is obvious standing height passage. |
| Description | 1.6m wide and 2m high entrance maintains dimensions for 6m before dropping down to stooping passage and ending at a blank wall. |



Looking out from the back of Further Maths cave by Alex Ritchie

General notes

At the start of the canyon, there were several interesting black spaces. However, the ones we could get to were either small rock shelters, or very small one or two meter long caves. The largest black space turned out to be a mere rock arch at **N39°48'.31.9 E45°'.1'.36.3**

Exploration of the top of the gorge was hampered by the terrain and Short-eared Eagles that nested in this area. Our presence seemed to anger the birds and they could possibly become aggressive. Once we explored what we could, we then the headed down the canyon. At first there was no karst but after about 2km we found a few caves that were noteworthy, see above. Also of note was a promising large entrance entrance high up the hill over 1km away we could see from the path at **N39°48'.19.2 E45°0'.21.8** We had not enough time or water supply to reach it, it was also a bit too close to the border for comfort.

Areni and Apri

Day 4

No exploration was done here as this area had been looked at quite extensively in the past. However, we wanted to prove to our selves that Armenia did have long caves and we wanted to see how they were formed in what appears so far to be poor rock.

We arranged to be taken down Mageli Cave (also known as Magellan Cave) by a person who originally discovered it 40 years ago. This cave contains a stream, that we were not shown but could hear and was 1.7km long. It apparently has sections that are yet to be explored. The cave is formed mainly in conglomerate.

In the evening we visited Areni-1 (also known as Trchuneri Cave -Cave of the Birds), which was a show cave with layers upon layers of archaeology. A very interesting place.



Mageli Cave by Chris Scaife

Gnishik

The focus for this area was a canyon, below the village of Gnishik. The village itself is situated high in steep mountainous terrain at about 2000m altitude, very near the border. The rock seemed to be similar to Hell's Canyon, but had much more depth potential. Large entrances again appeared to be evident. The canyon itself was at about 1500m

There appears to be some very promising limestone massifs higher above Gnishik in the nearby mountains. However, unfortunately those mountains are on the Azerbaijan border and therefore come with a high risk of being shot. Even without this risk the mountains would be a very remote place to run an expedition from.

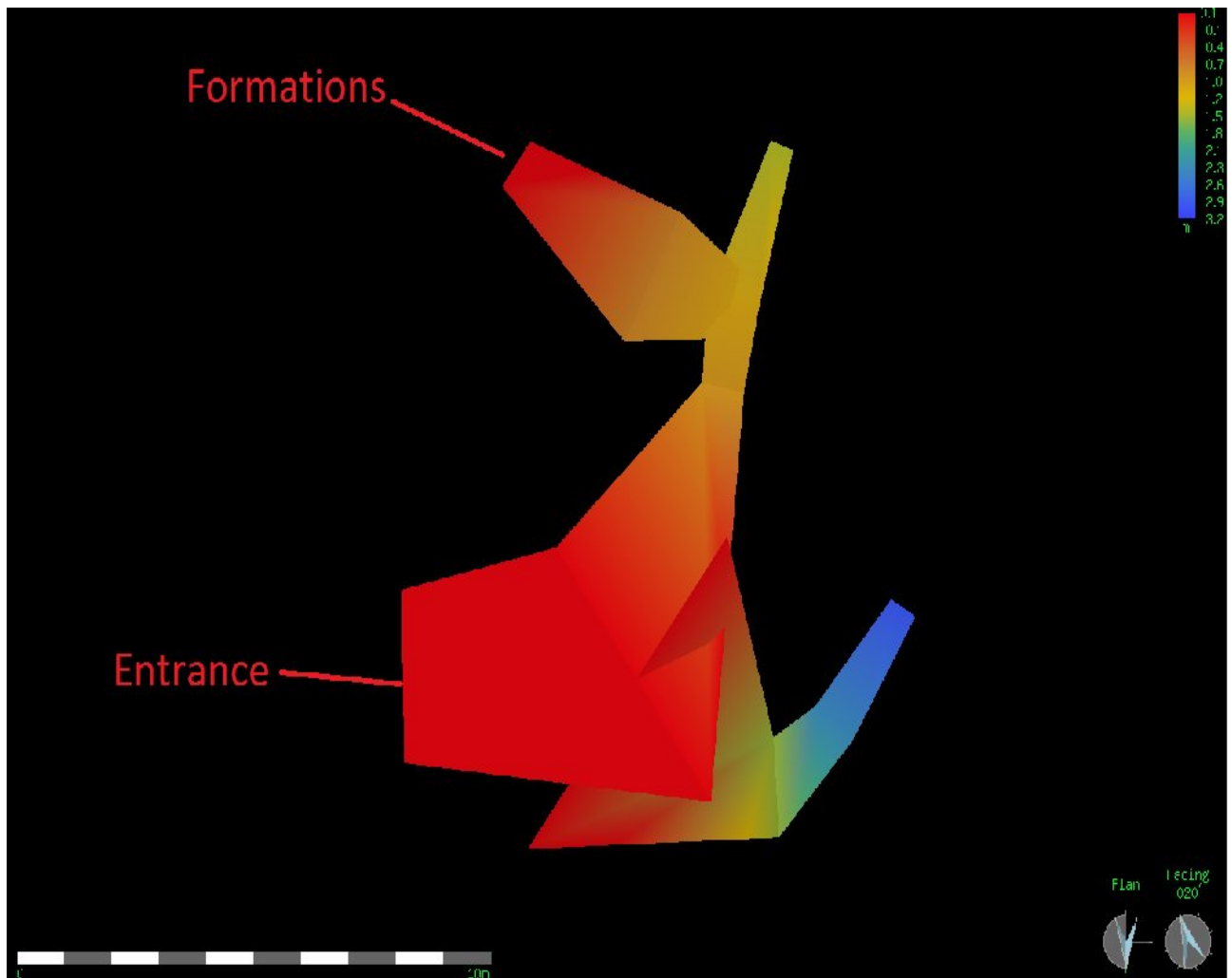
Day 5

After arrival and the usual feast we were taken down to the start of the canyon. There was a known, but unexplored cave called Bezoar cave conveniently not far from the 4x4 track. Accompanying us were a couple of archaeologists who were quite happy to dig about in the dust in the entrance chamber. We surveyed this cave to be 30m long, making it the longest so far. This cave contained a few bone fragments. In the evening we walked into the canyon to work out where to explore the next day.

Caves surveyed

| | |
|-----------------------------|---|
| Cave | Bezoar Cave |
| Location | N39°.40'.11.01 E45°.16'.28.10 |
| Length | 30m |
| Depth | 3m |
| Location Description | Drive down a land-rover track from Gnishik, heading due east. The cave entrance is about 150m before a river crossing on the left up a small hill. Visible from the track. |
| Description | The entrance is 2.5 x 3m high. This immediately opens out into a moderately sized chamber 7 x 7 x 2m. The floor of the chamber is covered in dust and sand. It appears Bezoar goats often take up residence here, hence the name of the cave. Opposite the entrance there is a flat-out sloping passage that soon gets too low. On the left-hand side when facing into the cave is a short crawl. This leads into a small flat out chamber with two ways on. To the right there is a tight squeeze that was dug out to reveal a short amount of passage ending in a too tight rift after a tiny chamber. To the left is an easier passage leading into a stooping height chamber with some formations at the end but no way on. |

Survey (plan view)





Entrance to Bezoar cave by Chris Scaife



Carol, looking out the entrance to Bezoar cave by Chris Scaife.



Chris investigating the flat out crawl in Bezoar cave by Carol Smith de la fuente

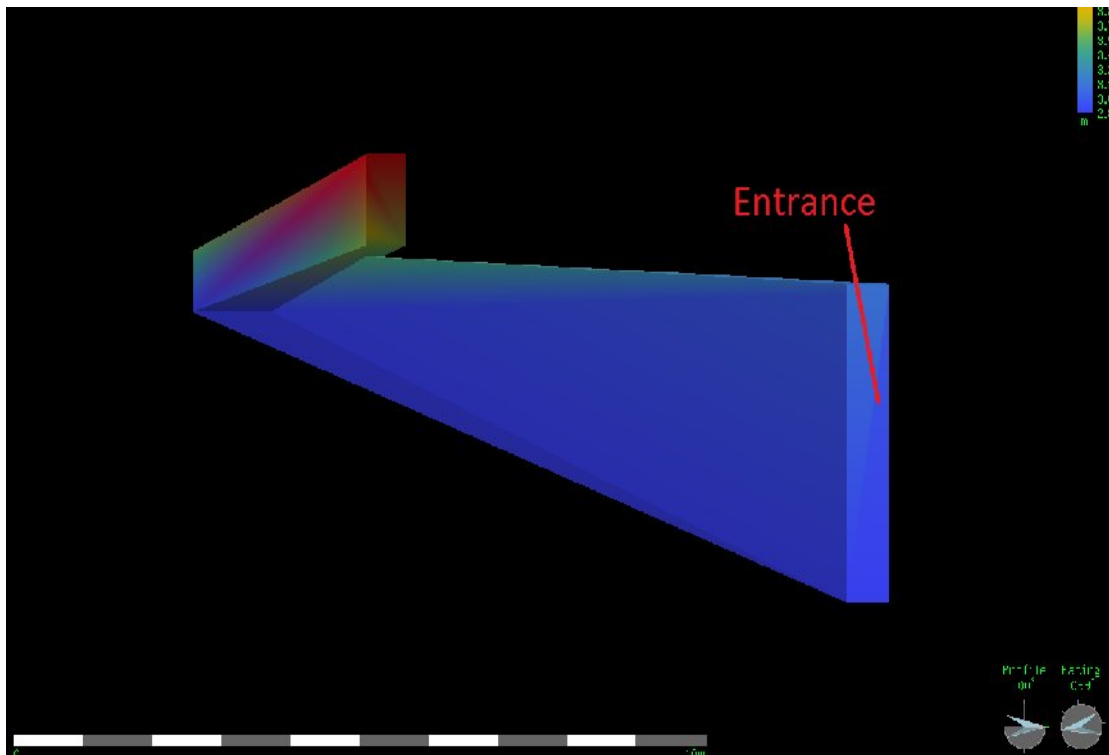
Day 6

With the exception of Bezoar cave the previous day it was again the case of finding lots of small caves. However there was one notable exception, a gargantuan entrance estimated to be some 30-40m high! *see photo on page 26*. Unfortunately we could not access it. To try from below would require some difficult rock climbing and from above requires too much rope. We only took the 35m rope that day while spot-holing, I think a 80 - 100m rope would be needed for this. Given the dimensions the entrance is very impressive, but if its like any of the other entrances in the area it may not go that far. It appeared to close down from what we could see but we could not tell for certain.

Caves surveyed

| | |
|-----------------------------|--|
| Name | Gnishik Cave 2 |
| Location | N39°.39'.36.4 E45°.16'.16.0 |
| Length | 13m |
| Depth | 4.5m |
| Location Description | Where the track crosses the stream, follow the track for another 1km along until you see a huge entrance on the left. Head towards this, but once you reach about half way up, go to the right. The caves are at the top of a steep grassy section, behind some bushes, below a cleft. |
| Description | Main entrance is oval-shaped (2m across by 4m high) and is accessed via a short climb, there is another cave right next to it which is accessed by an easy traverse round to the right from this entrance. The main passage continues at a similar size to the entrance before dropping to a crawl at the back sloping upwards. The crawl then leads into a small chamber, where short step up enters another chamber where the cave finishes definitively. The second cave is a 7m long rock shelter, which does not connect. |

Survey

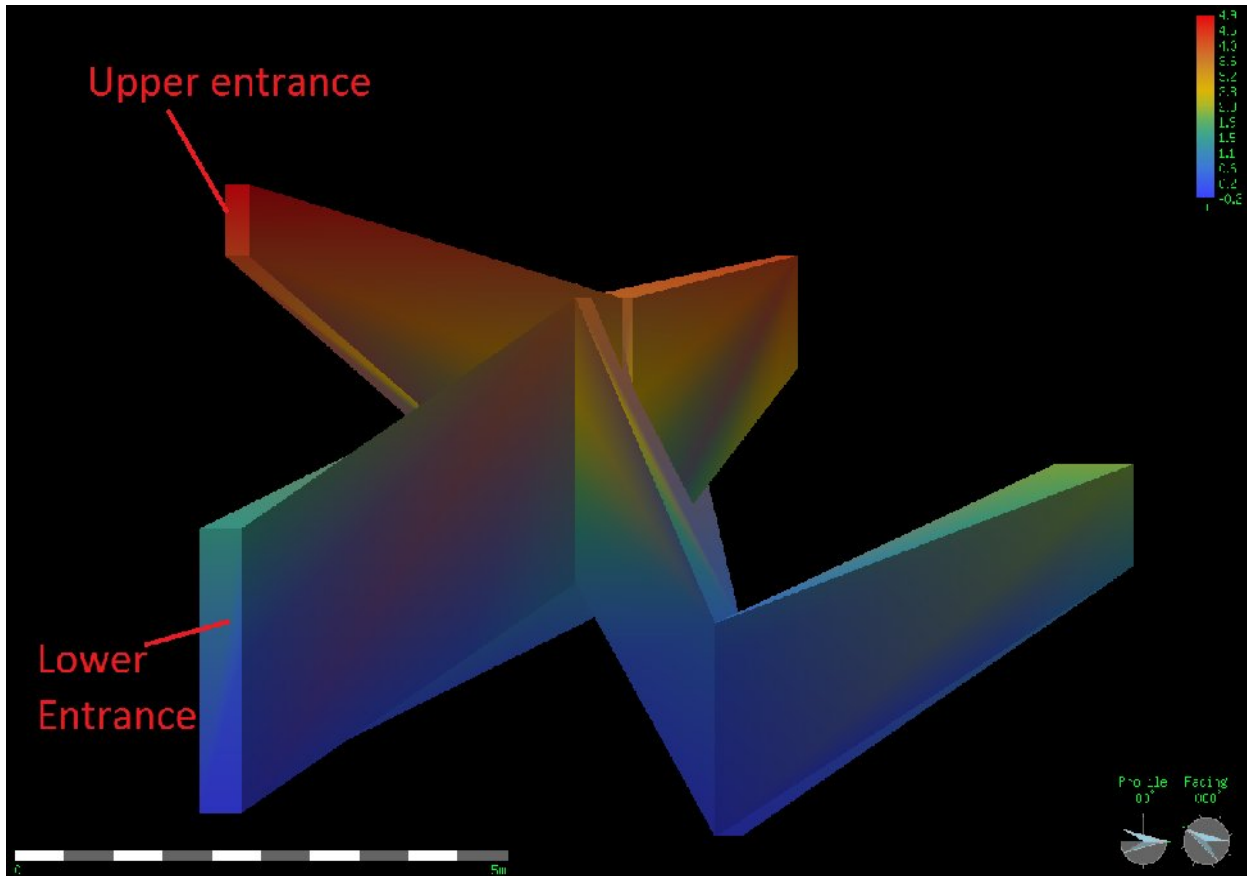




*This picture shows two entrances, the left one is Gnishik 2, right is the rock shelter mentioned.
Photo by Chris Scaife*

| | |
|-----------------------------|--|
| Name | Fissure cave |
| Location | No GPS was taken as the party had split at this point, see location description. |
| Length | 20m |
| Depth | 5m |
| Location Description | From Gnishik 2 cave follow the steep hill to the left of the cleft heading directly towards the inaccessible big cave entrance mentioned above. Just before the bottom of the cliff leading up to it, there is a narrow gorge on the right. This soon acquires a roof that makes up this cave. |
| Description | A high rift leads through into a widening with three ways on. The first way on up on the left leads to a 4m climb that emerges on the surface via another entrance (<i>this also allows one to continue to climb up to access the ridge above</i>). The second way on straight-ahead immediately closes down in a choke. The third way down to the right drops down a short 1.5m climb leading into a continuation of the rift but it is blocked by boulders not far on. |

Survey





Alex emerging from the upper entrance of Fissure cave by Chris Scaife

Un-surveyed caves

In addition to the above a number of small caves were discovered at N39°.39'.36.5 E45°.16'.20.1 at the back of a large rock shelter.

The left most cave is an alcove 2m length, 2m wide and 0.5 tall.

The Middle cave is a short cave up a steep scramble which ascends sharply for 8m to end in boulders.

The right-hand cave, is an 8m long tight rift that bends left around the corner, and becomes too tight.

The far right-hand cave is a 4m long tight tube which again gets too tight.

Un-entered large cave

| | |
|------------------------------|---|
| Name | - <i>Large entrance</i> |
| Location (from above) | N39°.39'.37.7 E45°.16'.19.5 |
| Length | ?m |
| Depth | ?m |
| Location Description | High up about 400m above the path, on the left-hand side of the gorge, is gargantuan entrance. As mentioned before this approx 1km after crossing the stream. A steep grassy scramble stops at 100m below, where a sheer rock-face blocks further progress without climbing gear. The entrance is best accessed from above via bolting, but as noted earlier a lot of rope would be needed. |
| Description | We could not enter the cave due to it requiring more rope than we had brought with us on this day. We estimate the entrance is 30-40m high and about the same across, though it does appear to shrink down quite quickly once inside. |



Alex Ritchie (top left) descending towards the entrance near the end of his rope. Photo by John Proctor.

General notes

We had unfortunately only allocated two days to this area and already arranged transport and accommodation for the next area so this is something we will have to tick off should we return. We had set our eyes on the most promising area, the Vorotan gorge.

Vorotan gorge

This was the area we were most excited about and where we allotted the most time (five full days). There is no vehicular access to the bottom of the gorge so we used horses to transport our gear from the nearest village, Harzhis. On walking in we could see that this was a spectacular place, jungle like forests fan their way up the steep sided gorge whose walls tower up to almost 1000 m.

Our accommodation was basically a tin hut, though it did have a shower. The shower was a rather ingenious solution as it was heated up by a wood-burning stove with a heat exchanger. Our hotelier would stoke up the fire each evening, then everyone had to shower before the fire died down. The hut only had bed space for four people, and an unreliable electricity supply. This could be a problem for larger expeditions, though there is room to camp.

We were told through Tigran that our hotelier and local farmer / hunter, Konstantin, knew of some caves nearby. So we were led to these up a steep mountain side with a gun for protection from bears and wolfs, apparently. The main cave we found was named Dghdghnatsak, but we thought he said Duck duck nut sack. Other than him and medieval man this cave was unknown. This was the biggest find of the expedition and a significant find. A couple of other caves were also found all detailed below.

From far away it looks like the whole 1,000m was karst/limestone but we also found that the majority of the rock was volcanic or granite very disappointing. Instead, it seems there are only some sections of karst. The gorge runs for many miles in both directions so it was not possible to explore all of it and there is still potential.

Day 7

This day was mainly spent driving and then transporting gear down into the Gorge on horse-back.



Loading up the the horse by Alex Ritchie

Day 8 & 9

This was the big discovery day and a day I (Alex) almost missed it due to illness, thankfully we had the right medication and despite not being 100% I was keen to see the cave Konstantin was telling us about. A delayed start, saw us at the cave at about 11am. Immediately at the entrance we knew this was not going to be like all the other caves we had found so far. For a start there was a draft and even mist flowing out of the entrance.

Caves surveyed

| | |
|-----------------------------|---|
| Name | Dghdghnatsak |
| Location | N39°.24'.58.2 E46°.13'.22.6 |
| Length | 578m |
| Depth | 43m |
| Location Description | About 500m downstream from Konstantin's farm, just beyond the lake. Cross via stepping stones onto the other side of the gorge. Follow path to the right and then turn left at the next fork to follow the path up the hill. After about 200m when the path flattens out just after a short down-hill section, look for rocky scree slope on the right. Follow the scree into a gully for about 500m until reach some very large boulders blocking the way, you should pass a |

| | |
|---------------------------|--|
| | <p>boulder cave on the left about 50m prior to where you need to turn off. At the big boulders scramble up a steep slope on your right and you should arrive on a flat ledge in-front of a large cave entrance (8m wide by 4m high).</p> |
| <p>Description</p> | <p>The cave was incredible, and completely different to anything we had found so far. An entrance chamber 25m wide, hundreds of bats, big passages, many formations and a pitch which made dragging the drill and rigging gear up worthwhile.</p> <p>Wide walking height passage leads down a solid boulder slope into a huge chamber which we measured to be 25m across as mentioned above, this chamber had many passages branching off described below from right to left. (Chamber of dreams)</p> <p>A wide and high steeply sloping passage, leads into a continental style big passage which continues in very large scale for a good 30 meters. This passage is quite amazing considering what we had found up to this point in the expedition. The floor of this passage is mainly made from Guano due to the hundreds of bats that call this part of the cave home. To the right down a guano slope is a short crawl into stooping height passage. This quickly ends at a 9m pitch, with a small amount of day light streaming in from the right at the top. This pitch was bolted on the second day. At the bottom there are two ways on, but both quickly close down in either boulders or a too tight rift, though the latter has a good draft.</p> <p>Back in the Bat passage, the passage shrinks down to a narrow but high rift. Looking up and right at this point day light can again be seen, which is coming from a higher passage and entrance. Ahead, an awkward downwards squeeze past poised boulders leads into larger rift passage. A passage in the floor, soon closes down, but following a boulder slope up leads after about 20m into daylight at yet another entrance. Immediately on the right at the entrance is a short rift that closes down after 10m. Back in the rift a climb up and over the way you came in leads into higher passage seen from Bat passage. This then leads to the third entrance which overlooks the valley below. 5 meters from the entrance is a rift with no floor, that has not been pushed but looks to get too tight.</p> <p>Back in the main chamber directly opposite the entrance passage is a scramble down boulders into a large hole with two ways on the bottom.</p> <p>To the right leads down a slope, and then to a 2m squeeze climb up between boulders under the main chamber. This opens out into a maze of larger passages comprised of boulders, all of which close down. Several bones and a possibly what we think is a wolf skull were found here. (Bone-idle choke)</p> <p>The other way on leads further down again through more boulders to a small choked rift which is the lowest point in the cave.</p> <p>At the top of the hole in the main chamber a large rift leads off to the left. This is decorated with a few crystals on the sides. Unfortunately after about 15m</p> |

this closes down in a too tight rabbit hole that even Tigran could not fit through. (Granville rift)

Back on the main chamber in the near left-hand corner when facing in from the entrance is an innocuous sloping climb up, where at the top it appears to close down. (Dr Nothole passage) However, there is a hidden hole at the back on the right. This hole is a 4m climb. A short crawl from here leads into surprisingly much larger passage. More bones were found in here. The passage here is very decorated quite nicely in places.

Continuing along the main passage there is a small and highly decorated alcove/aven on the right containing a large stal column. To the left up the slope the main passage continues around a corner and back down a slope on the other-side. However, before going down the slope, on the left is a short sandy crawl leading into a series of well decorated chambers and avens, which are well worth a vist. Further to the left is another passage branching off going up a calcite slope, this closes down after about 10m

Following the main passage down the slope the way splits again, however all routes rejoin the main passage. Unfortunately the cave unexpectedly closes down here. There are various small ways on but nothing actually goes. A short passage up a slope at the end has some lovely free-radical formations in it. (Four radicals chamber).

This is now the third largest cave in Armenia. The cave also included some interesting archaeological finds some of which may date to before Christ.

Drawn survey

Dghdghnatsak
Armenia

GPS: N39°.24'58.2 E46°.13'22.6

Survey grade: 5C

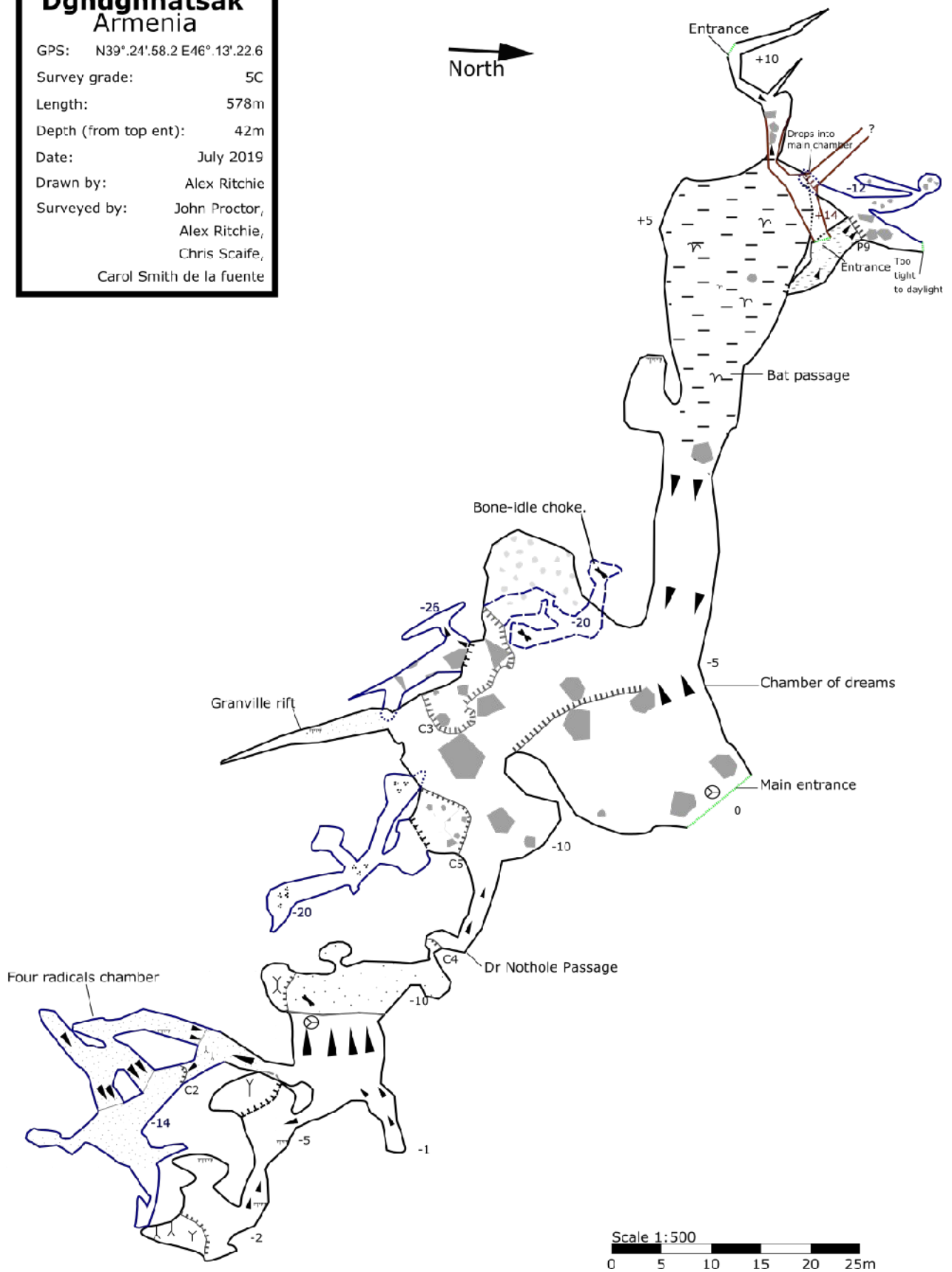
Length: 578m

Depth (from top ent): 42m

Date: July 2019

Drawn by: Alex Ritchie

Surveyed by: John Proctor,
 Alex Ritchie,
 Chris Scaife,
 Carol Smith de la fuente





All set and ready to go underground at the entrance to Dghdghnatsak by Konstantine.



Inside the main chamber by Chris Scaife



Many bats, in Bat passage by Chris Scaife



The climb up at Doctor Nothole passage by Alex Ritchie.



Alex surveying amongst pretties by Chris Scaife



Carol surveying the pitch by Chris Scaife

Day 10

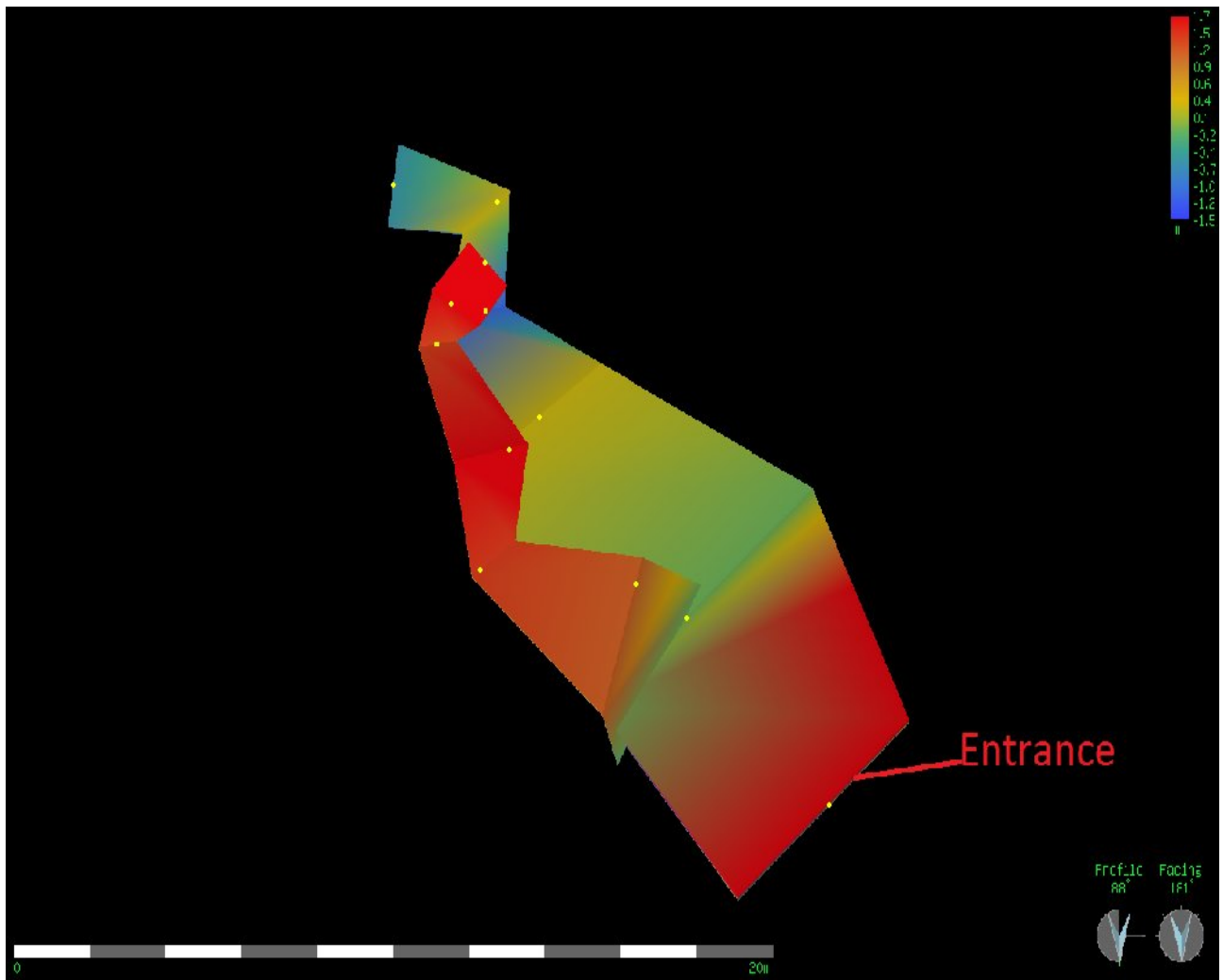
Konstantin knew of two more caves nearby, but higher up than where we found the previous one. One of them was meant to have a large drop inside it where he said “he could not see the bottom”. The other cave, he had not ventured beyond the boundaries of daylight. So this meant we brought pretty much all our rope and bolting gear up a very difficult slope to rig the drops.

Caves surveyed

| | |
|-----------------------------|---|
| Name | Durgdurgh (<i>Triangle cave</i>) |
| Location | N39°.24.59.9 E46°.13.19.0 |
| Length | 35m |
| Depth | 3m |
| Location Description | The location is difficult to describe so the GPS location will have to suffice. Basically to find it head up to the right and above Dghdghnatsak cave, though due to cliffs you would have to approach from a different location further around. |
| Description | This is a strongly drafting cave with the entrance in the shape of a large triangle about 3m high by 7m wide. After 8m from the entrance the passage splits and shrinks. To the right, a flat out crawl leads into a sloping small chamber and then a further flat out crawl which leads into a smaller chamber ending in a boulder choke. Straight on in the main passage the height drops to stooping height and passes a short scramble over boulders. This then shrinks |

down further to a separate crawl which leads through boulders into a series of small chambers before this too closes down in boulders.

Survey (plan view)





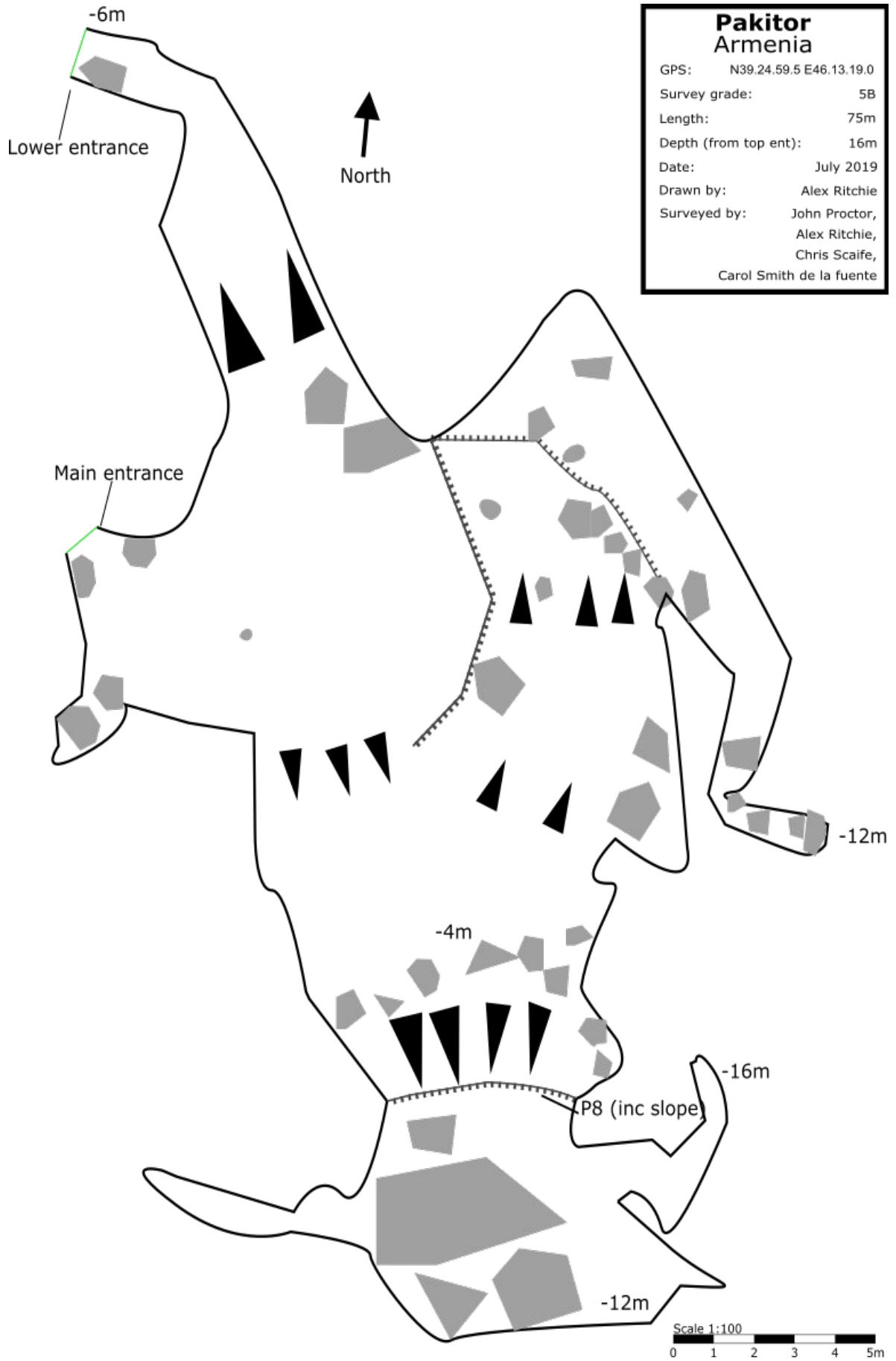
Entrance to Durgdurgh by Chris Scaife



Alex surveying the flat out crawls in Durgdurgh by Chris Scaife.

| | |
|-----------------------------|---|
| Name | Pakitor (<i>Noon cave</i>) |
| Location | N39°.24.59.5 E46°.13.19.0 |
| Length | 78m |
| Depth | 16m |
| Location Description | From Durgdurgh cave entrance. Facing the entrance traverse to the right and following narrow ledges, scramble up onto a grassy slope. Follow this up for about 20m and then cut accross to the left. There is a small square hole under loose boulders which is the top entrance to this cave. |
| Description | <p>Immediately after the entrance crawl of the upper entrance, the cave opens up into a large chamber, that steeply slopes down in all directions.</p> <p>On thefar left, a route down through boulders leads round a left-hand corner and through an easy squeeze to emerge at a lower entrance, perched on the cliff face, though it's possible to carefully traverse upwards outside back to the upper entrance.</p> <p>Following the boulder piles straight down from the entrance you reach a pitch with an obvious route leading off to the left near the top. The passage at the top quickly l swings back right and you enter an un-stable boulder choke, underneath where you were stood. It looks like there has been recent movement here and all ways on are either too unstable or are completely blocked. We don't think this is too far from Durgdurgh cave.</p> <p>The bottomless "pitch" in the main chamber turned out to an 8m sloping, pitch with the last 4m being vertical and almost climbable. The drill was not needed as we simply rigged from one of the large boulders. At the bottom all ways quickly close down in more boulders.</p> |

Drawn survey





Carol not looking forward to entering Pakitor? By Chris Scaife



Chris getting ready to descend the "big" pitch in Pakitor by Alex Ritchie

Day 11

Today's plan was to discover the fate of the Vorotan river which clearly sinks about 1km downstream of us at **N39°.25'.13.6 E46°.13'.27.1**. And re-emerges another 1.4km further away at **N39°.25'.2.2 E46°.14'.31.2**. We were very excited by the prospects.

However, it seems the stream merely gradually sinks in gravel and there was no caves to find, no matter how much we dug about in the cobbles. At the resurgence the stream emerges in a similar gradual fashion. We are not quite clear as to where the river goes, but it looks like it's just sinking into the shingles.



The river sinking into shingles by Chris Scaife.

We continued downstream, but the gorge had opened out and the sheer sides had given way to rolling hills for the most part. We found no caves.

Day 12

With no other clues to go at, we headed up a valley we could see opposite the camp-site, this is about 1km up stream of where we found all the caves previously.

Unfortunately, not only did we not find any other caves but we also found that the majority of the rock was volcanic or granite. This was very disappointing as it appears, from the canyon floor that the rock is pure limestone. Instead, however, it seems there are only some sections of karst. The gorge runs for many miles in both directions it so it was not possible to explore all of it and there is still potential. It would still be worth more investigation considering the size of caves we had found already.



The above shows the sort of rock we were seeing which is clearly not limestone! By John Proctor.

The next day we left the gorge on horseback before heading back to Yerevan, to conclude a rather successful expedition, all being considered.

Some conclusions and general comments

In summary Armenia is a wonderful place, and there is a definite potential for more caves, but as for huge systems well the jury is out on that one. One cave of 500m + could mean there are more, but it all depends on how much there actually is in Vorotan and or if access to other potential caving areas which currently lie in territory disputed between Armenia and Azerbaijan becomes feasible. Still I hope this will help any future expeditions planning to go there. One final comment – when we visited in late July the temperature was often well above 30°C. the intense heat was pretty draining and somewhat hampered our spot-holing efforts. Expeditions may wish to consider visiting at a cooler time of year. Armenia does have snowfall during the winter (higher hills still had snow when we visited in July) so a visit to higher altitude areas in spring could encounter cave entrances still blocked by snow. September might be a better bet.

In all discovered a total of **821m** surveyed passage and about 200m more un-surveyed.

Thanks to Ghar Parau for the funding.

Thanks to Petzl for supplying harnesses and brilliant carry bags.

Thanks to Raumer for bolts and hangers without which Dghdghnatsak would probably not be the 3rd biggest cave in Armenia.

Thanks to Jude and Jonny Latimer for the loan of mallions and a backup Disto.