IUS CONGRESS FIELD TRIP
KARST, CAVES and CAVING in SLOVAKIA

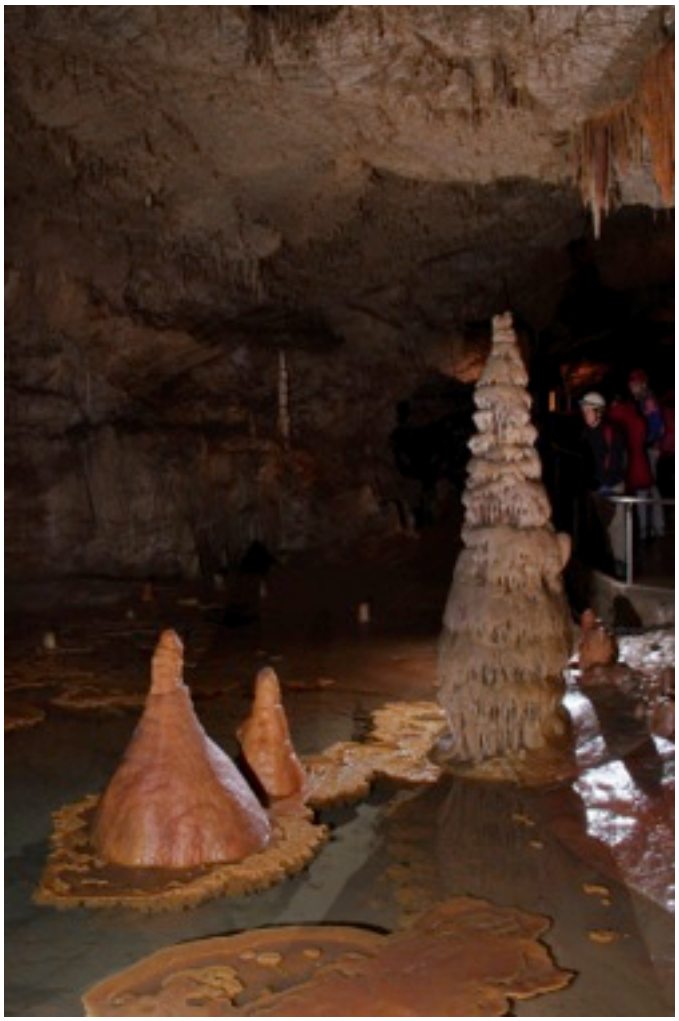
John Brush

This field trip took place in July 2013 after the end of the IUS Congress in Brno in the Czech Republic and was described as being organised for cavers who wanted to visit and recognise all types of karst in Central Europe. There were just seven participants - one American, two Germans and four Australians (all of whom are ACKMA members; Cathie Plowman, David Butler, Marjorie Coggan and John Brush) – who, with the local organisers (principally Lukas Vlcek and Pavel Herrich) spent a week tramping over and through examples of high mountain, plateau, valley and crypto karsts in central and southern Slovakia. We visited long and complex cave systems, vertical caves, river caves, highly decorated caves and a trans-boundary cave. There were wild caves and show caves and in them we saw permanent ice, sediments, aragonite speleothems, bats, evidence of Neolithic habitation, bones of extinct species of bears and bats, lampenflora, permanently installed caving ladders and some massive excavation projects. All this happened over just seven days. But first there was a train trip, or to be more precise, three train trips.

Our activities were to commence near Liptovsky Mikulas in the Low Tatra mountains about 300km east of Brno, but getting there on the trains booked by the IUS Congress organisers saw us initially travelling south, then north and finally, east. On these overnight travels we were accompanied by a larger group of Americans and Australians (including ACKMA members Nick and Sue White) who had signed up for a Show Caves of Slovakia field trip, also starting in Liptovsky Mikulas.

It was a hot afternoon when we left Brno and the first two trains were crowded and stuffy. The air conditioning on the first broke down and the windows did not open. On the second train, it was no better and it was a relief to get to Bratislava for a short break. On the third leg, our sleeper car had seen better days, but it did have natural air conditioning while the train was in motion. And there was a dining car, of sorts. The waiter flourished an extensive menu but the only meal available was “sheep’s cheese pies”. These turned out to be small pastry pillows filled with a bland cheesy paste. At least there was cold beer to wash them down with. After dinner, the train stopped at a siding and, we were told, we’d be able to sleep for 6 hours. In practice, the compartments were too hot and there were endless bangs and crashes as carriages was shunted around the yards to make up trains for different destinations. As caving trips go, this was certainly one for train enthusiasts.

Decoration along the river in Demanovska Cave of Liberty
Photo: John Brush



Crystal pools with ‘lily pads’ in the Demanovska Cave of Liberty
Photo: John Brush

"Please wash me." Clean spots under dripping stalactites show the extent of lint and dust build up in Demanovska Cave of Liberty
Photo: John Brush

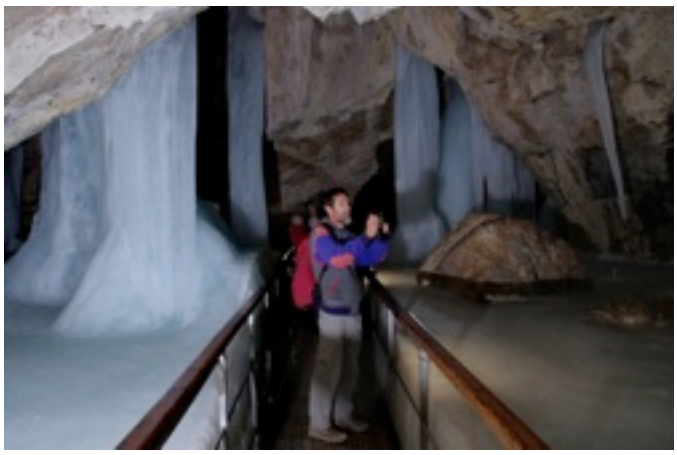
We arrived at dawn in Liptovsky Mikulas and it was a treat to be met by the smiling and enthusiastic faces of Lukas and Pavel.

Within a couple of hours of stepping off the train we were underground after having driven to the nearby village of Liptovsky Jan, checked in to our B&B, consumed a huge breakfast, absorbed a comprehensive briefing on the local karst and sampled the local spring waters.

Caves in Slovakia are owned by the Government and managed by the Slovak Caves Administration (Správa Slovenských Jaskýň - SSJ), which is based in Liptovsky Mikulas. SSJ operates 12 show caves across the country. In addition, it has licensed private operators to develop several caves for public access and permitted caving clubs to gate and control access to a number of wild caves. We were able to visit more than a dozen caves falling into all three of these categories as we meandered south from Liptovsky Jan to the Hungarian border.

Show Caves

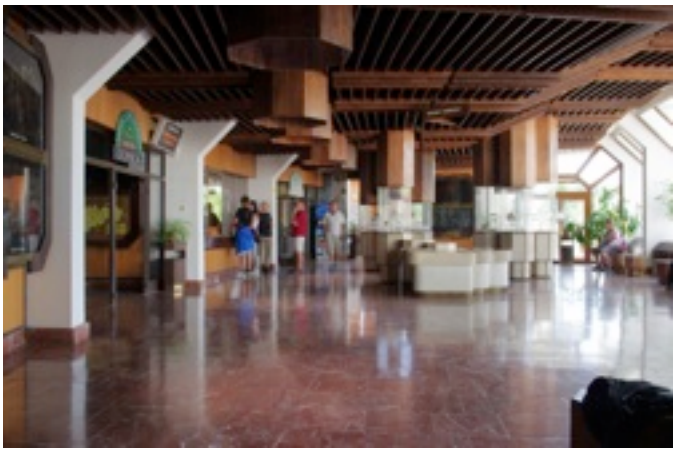
On our second day in the area, we visited sections of the Demanovska cave system, the most extensive in the country with a known passage length approaching 40km. Two sections (Demanovska Ice Cave and Demanovska Cave of Liberty) are open to the public and through the good graces of SSJ and its local managers, our party was able to wander at leisure around the pathways of each. By way of contrast, elsewhere in the country, the iron fist of local SSJ management constrained our ability to see a couple more show caves at their best.



David Butler in the Demanovska Ice Cave
Photo: John Brush

The Demanovska Ice Cave has impressive displays of ice draperies, columns and floor accumulations. The Cave of Liberty contains a large stream but it is best known for its crystal pools (which featured on the cover of the July 2010 issue of this Journal) and its spectacular speleothem displays. Both caves are heavily visited and it took some fancy footwork on our part to keep ahead of, skirt around, or step aside for, the large tour groups we encountered. Groups of 50-60 people seemed to be the norm in the Ice Cave, while in Liberty, we saw at least one group of around 100 shepherded by three guides. Most of the decoration is in good condition, but there were a few patches of lampenflora. Clean circular splash rings beneath dripping stalactites suggest there has been quite a build-up of dust and lint on flat and inclined surfaces.

On the way out of Liberty Cave we took an unlit but paved route that led to an excavated tunnel to the surface. In places the pathways were suspended on massive beams across the streamway and obscured what appeared to be some really nice passage. The muddy paths and rusty handrails suggested regular flooding and we were told this section had never been opened to the public and was an ugly relict of the communist era.



Visitor Centre for Domica Cave
Photo: John Brush

Our party also visited Domica Cave, another show cave operated by SSJ. The cave is about 5km long and is part of a 20km system that extends under the border into Hungary, where it is known as Baradla Cave. On our standard show cave tour we saw large gours, several shields, some attractive but dry-looking decoration and a section of river passage which we admired from the comfort of a boat. The cave has a rich and diverse fauna with more than 160 species recorded including 16 species of bat and 44 species of springtail. Archaeological excavations have yielded cave bear bones and evidence of Neolithic use of the cave.

Large rim pools in Domica Cave
Photo: John Brush

Ochtinska Aragonite Cave is a fine example of a cryptokarst cave, that is, one developed in karst rock (in this case marble) that has no surface expression. The cave is in a mining area and was discovered during exploratory tunnelling work in 1954. With more than 500m metres of passage up to 30 metres high and 20 metres wide, it is the largest of the phreatic cavities breached by the tunnelling activities. Nice, but it is the spectacular growths of aragonite anthodites, helictites, needle clusters and encrustations that make the cave special.

Aragonite clusters in Ochtinska Aragonite Cave
Photo: John Brush

There is restricted air movement in the cave which can result in CO_2 accumulation with its attendant health problems for visitors and speleothems alike. Accordingly, there is a limit on the number of visits per day and party size is limited to around 30. However, it was interesting to observe that our party was held back and tacked on to the back of a group of about 40.

For these latter two SSJ show caves, we were restricted to normal cave tours. This was unfortunate, but it did provide an opportunity to immerse ourselves in the local show cave experience. Despite the language barrier (tour commentaries were given in Slovakian and Hungarian), it was obvious that the lengthy and detailed technical dissertations delivered just inside the cave entrances were enough to lose the audience's attention within the first 10 minutes. The glazed eyeballs and shuffling of feet said it all. People just wanted to move on and see the cave. Either the guides did not pick up on this, or were just following their set routines. It was hard to escape the notion that the tours would be made more satisfying for guides and visitors alike if the spiels were broken into bite-size chunks and there was more flexibility to tailor content to audience response.

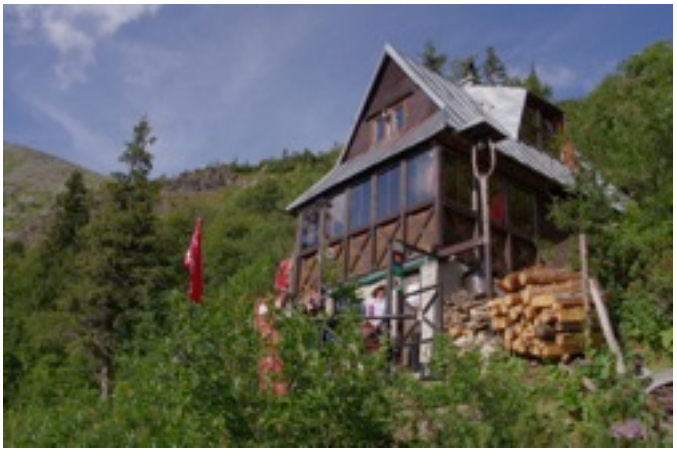
Like many show caves in Europe and perhaps elsewhere, the ones in Slovakia seemed to have thick layers of coins at the bottom of almost every pool that can be seen from an illuminated pathway. Unfortunately, the coins do not appear to be regularly cleaned out so many are corroding, with potentially harmful effects on the cave environment.

Privately-operated show caves

We were pleased to have the opportunity of visiting three privately managed show caves (Mala Stanisovska Cave, Dead Bats Cave and Krasnahorska Cave). At each, our party was independent of the normal tour groups and we saw passages beyond the tourist pathways. However, it was interesting to make some observations on the show cave operations.

All three caves are operated by cave enthusiasts and were closely associated with a local caving club. Group sizes were relatively small (10-20 max, depending on the

Approaching the Stanisovska Cave Visitor Centre
Photo: John Brush



Ticket Office and reception centre for Dead Bats Cave
Photo: John Brush

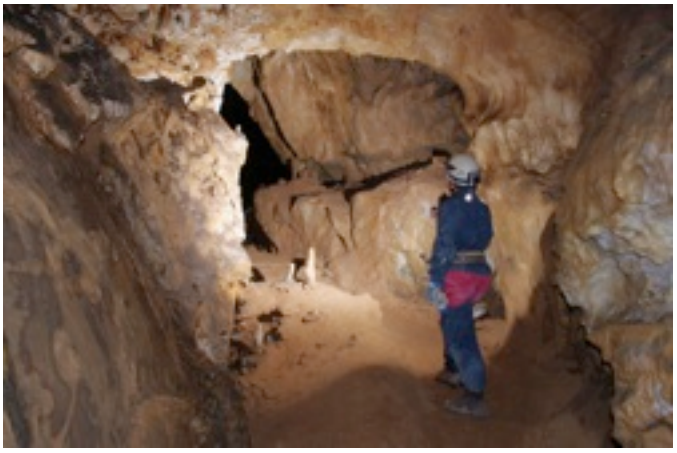
cave) and only one cave had any electric lighting, so helmets and lights were provided. In general, there was only moderate permanent physical alteration to the cave and the use of concrete, metal and wood was minimised.

It is an easy walk to Mala Stanisovska Cave, which is located one valley to the east of the busy Demanovska Valley. Housed in a wooden cabin, the ticket office has an interesting display of caving and other memorabilia. It also carries a broad range of souvenirs, especially given the apparent size of the operation. The horizontal cave has no lighting and most of the pathways are defined by materials from within the cave. It features areas of black decoration, a couple of displays of artefacts reflecting earlier human use of the cave (such as during periods of conflict) and a few Halloween-type objects to keep the kids amused.

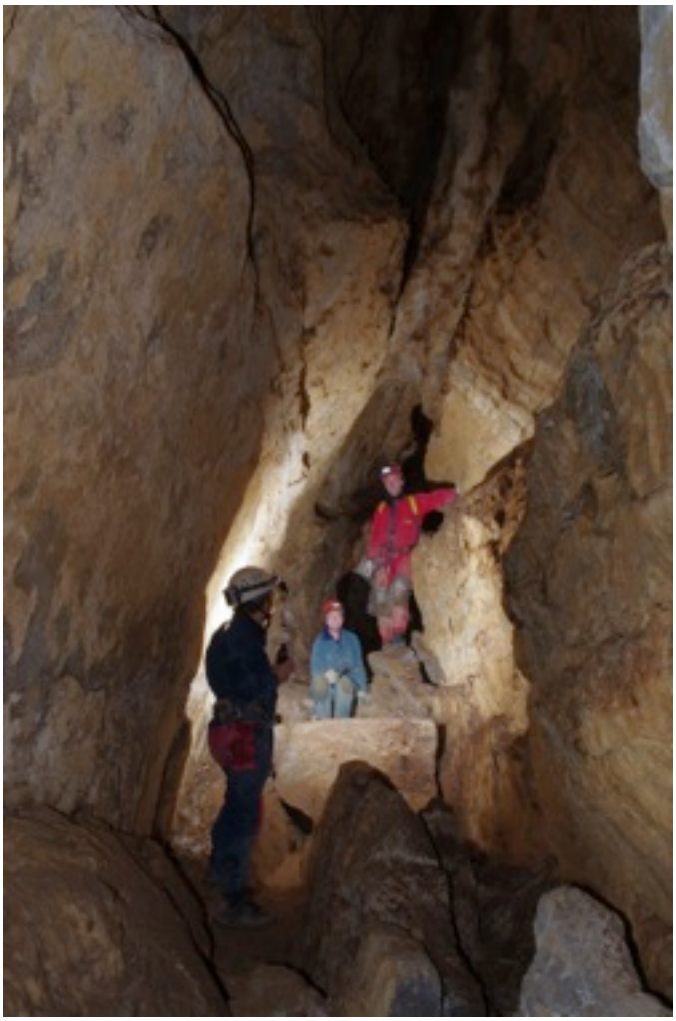
Pavel Herrich negotiating a tight stalagmite crawl in Stanisovska Cave
Photo: John Brush

Over on the other (southern) side of the Low Tatras, the Dead Bats Cave operation attracts a tougher breed of clientele. For a start, it is a 90 minute, 3km walk with an elevation gain of 400m to the ticket office/visitor reception centre. This sits over the main entrance to the cave and is where visitors (who have to pre-book) are kitted out for the visit. The cave has more than 20 km of known passage in a three dimensional maze spanning a depth range of 320 metres in a belt of limestone 2km long and 300 metres wide. The locals have recognised 14 passage levels, but it takes a trained eye to see them all. The show cave route is developed on the 8th level, which is the most extensive. Only a few modifications have been made to the cave to facilitate visitor access. There are some concrete steps, a couple of steel walkways across deep pits and safety lines to clip onto along narrow ledges. The cave has some electric lighting powered by a mini hydro setup in a nearby stream sink.

Dead Bats Cave does not appear to have much decoration, but it does have some beautiful geological features including strike controlled passages, chambers formed in tight anticlinal structures and basaltic dykes. There are also lots of bat bones (hence the cave name), which have been dated at 4000-6000 years old. From the tour route it is possible to climb down to the bottom levels and to push up into the higher levels. Our party did a bit of both and emerged from a small slot some 90m above the main entrance after some climbs up fixed caving-type ladders, over boulders and across a slippery traverse on which we were thankful for our cows' tails.



Marjorie Coggan on the show cave route in Dead Bats Cave
Photo: John Brush



Marjorie Coggan, Cathie Plowman and Lukas Vlcek in the upper levels of Dead Bats Cave
Photo: John Brush

Marjorie Coggan venturing along the wooden walkways in Krasnahorska Cave
Photo: John Brush

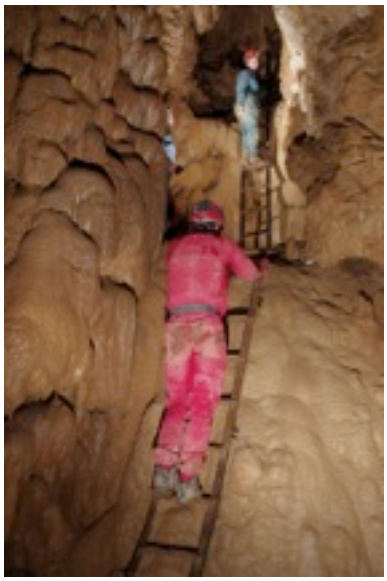
Krasnahorska Cave operates from a guest house in a small village about 1km from the entrance. It is an outflow cave and beyond the entrance sump, which is bypassed by an 80 metre tunnel, the tour route closely follows the stream. The cave is not lit and, apart from the tunnel, it has not been substantially or irreversibly modified for visitors. The most noticeable additions are some wooden plank walkways suspended above the stream, a couple of steel ladders and an intimidating 2 wire traverse above a narrow, deep section of stream. The cave's website warns potential visitors about the cables, but notes it is not too difficult and in any case, if you happen to fall in, it could even be an interesting experience. To date, only one visitor has had this interesting experience.

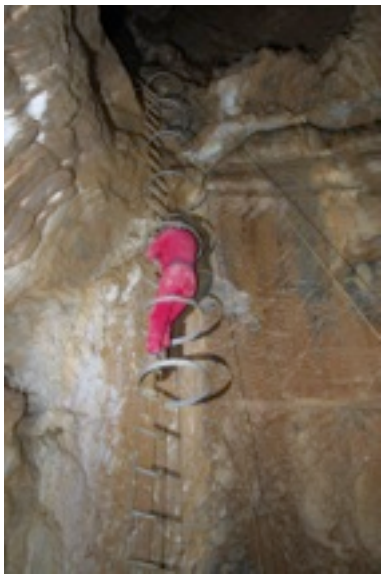
Krasnahorska is also noteworthy from a geological and geomorphic perspective. It is developed in dolomite, which is unusual in Slovakia. It has helictites and other calcite speleothems derived from overlying limestones and contains what was once regarded as the world's largest column at some 34m high and several metres in diameter. It also has rare cauliflower-like speleothems containing manganese and magnesium rich Todorokite.

Marjorie Coggan inching along the cable walkway in Krasnahorska Cave
Photo: John Brush

Wild Caves

Our itinerary also included wild caves and we found time to visit five of them. Some of these caves had been substantially modified by cavers to facilitate access and to progress exploration initiatives. The modifications included huge digs, passage widening and the installation of fixed ladders. It is not unusual to see such modifications and infrastructure in Slovakia, Czech and elsewhere in Europe, but are relatively uncommon in wild caves in Australia.





L. David Butler, Marjorie Coggan and Cathie Plowman on the ladder climbs out of Michnova Cave
R. David Butler on a long flexible ladder in Old Castle Cave. The metal hoops provide a (small) degree of protection. The rope is only for pack hauling.
Photos: John Brush

In the Tisovec area we visited Michnova Cave, a vertical pit about 90m deep that has a complex system of ladders that go all the way to the bottom to enable quick access to digging sites. The entrance to the cave is on the side a substantial doline and for some years, cavers have been attempting to link it to an active stream sink at the bottom of the doline just 50 metres away.

Impressive though they were, the Michnova ladders almost paled into insignificance compared to those in Stary Hrad (Old Castle) Cave. At 424 metres, Old Castle is the deepest cave in Slovakia and it is possible to go all the way to the bottom of this largely vertical system on a series of 'fixed' ladders. Some of the shorter ladders were wooden - beautifully varnished to slow the rate of wood decay - and were propped or wedged into place. On big pitches, the ladders were thick steel cables with aluminium rungs. Although they were securely tethered top and bottom, they tended to wobble and twist. The longest ladders were climbed inside large metal hoops attached to every second or third rung and provided an illusion of safety. As such, no belay rope was necessary – or so we were advised. The longest of these ladders was 44m and several members of the party bravely descended to a depth of 300 metres.

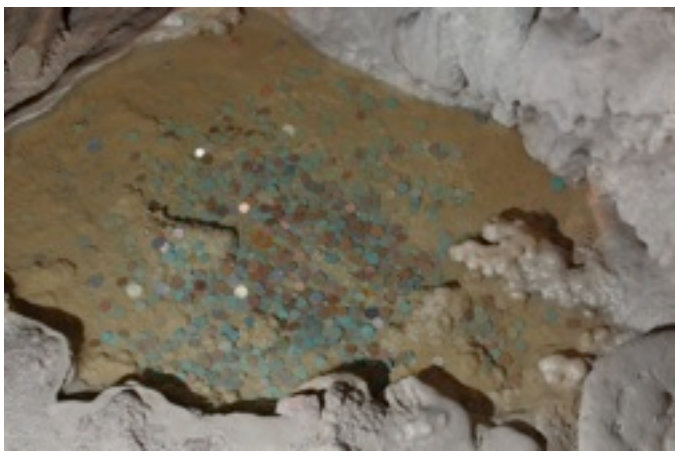
In Stary Hrad, a successful digging project in a steeply inclined tube that had been completely filled with clay gave a major exploration breakthrough and also yielded valuable material for detailed palaeo-magnetic dating work.

Digging was also productive in Medvedia (Bear) Cave. Removal of many tonnes of boulders and fine sediments deposited during the last glacial revealed about a kilometre of passage and the discovery of many bones of the extinct cave bear (*Ursus spelaeus*), some of which are still in the cave. We also saw large chunks of fallen decoration that were thought to have been prised off by ice wedging.

Track marking does not appear to be a common practice in Slovakia (or in Czech, for that matter), but in Medvedia and Stanisovska Caves, lines have been used to keep visitors off a number of delicate areas. There appears to be scope to do much more of this. For example, in an upper level section of Stanisovska Cave there is a passage that is practically choked with arm-sized stalagmites and columns. Early explorers pushed a crawlway through the decoration and even though the route is now well established and muddied, it seemed unnecessary to all Australian members of the party to continue doing through trips. It occurred to us that as the cave has restricted access, it would be worth doing some cleaning in conjunction with installing a couple of wire barriers and explanatory signs at either end of the passage.

Conclusions

All too soon our week in Slovakia was over. Our local hosts, Lukas and Pavel, did a marvellous job in organising a solid program of diverse cave and karst experiences, complemented by meals and drinks featuring a range of local specialties which incidentally, did not include sheep's cheese pies. It was wonderfully enriching experience.



Nice pool, shame about the money. Why must Europeans throw money into every pool they see?
Photos: John Brush