

# Ban Mani Phruk 2009 Expedition Report

Posted August 23rd, 2009 by martin ellis

## Introduction

After a gap of three years the Shepton Mallet Caving Club organised a seventh major expedition to Thailand in February 2009. Previously the club had explored long, mainly horizontal, systems in Tak, western Thailand and Phetchabun, central Thailand. For this seventh expedition the club moved further north, to Nan province, and aimed to explore caves that were more Alpine and vertical in nature.

The expedition team comprised seven members of the Shepton Mallet Caving Club and one member of the Canberra Speleological Society, assisted by a three person Thai 'camp staff'. The expedition was based in the village of Ban Mani Phruk, amphoe Thung Chang in northern Nan province.

During the seven days spent in the field one cave was explored to -306m, a new depth record for Thailand, and two other very promising caves were found, but not entered.

## Location

The expedition was based in Ban Mani Phruk (19° 26'N, 101° 04'E), a Hmong village at an altitude of 1,400m in the north part of Nan province. This is in amphoe Thung Chang and is easily accessed by the H1291 road. This 40km long sealed road turns off the H1080 at Chiang Klang. The highest point in the area visited is the 1,657m Phu Pha Phueng. This is at the northern end of the mountain range that is protected by the Doi Phukha National Park, though the village and surrounding cultivated areas are excluded from the park. The plateau which was explored covers around 60 square kilometres.

The original forest cover has been cleared from the hillsides around the village and is now used for the cultivation of crops such as maize and cabbage. The bottom of the many large dolines is particularly prized for agricultural use due to its better soil, water supply and flatter ground. Due to this we found 4WD dirt tracks and paths leading into all the dolines investigated.

Accommodation was kindly provided, free of charge, by the Ban Mani Phruk Security Development Project which, despite its name, is more of an agri-tourism centre.

## [Map of the Ban Mani Phruk area](#)

## Previous Exploration

Various tourist guidebooks mention caves in the Doi Phuka National Park. Tham Pha Kong is described in the 8th edition of the Lonely Planet Thailand guide and in the 'Caves of Northern Thailand' guidebook, while Tham Lawng has a passing reference in the 10th edition of Lonely Planet. These caves are near Pua which is around 30km south of the expedition area.

Goodden's book gives a very detailed route for getting to Tham Pha Daeng and a whole page describing Tham Pha Phueng, both of which are near Ban Mani Phruk.

Although caves had been reported in the tourist literature the first known visit by cavers to Ban

Mani Phruk was in April 2005. A four man team of Canberra Speleological Society and Shepton Mallet Caving Club members, led by a karst consultant working for the Thai Royal Forest Department, followed the large blue tourist information signs for Tham Champhi, Tham Pha Phueng and Tham Ho Ying-Ho Chai from the H1080 road up into the hills along the H1291. A stop was made at the visitor centre of the Ban Mani Phruk Security Development Project where more information on the nearby caves was obtained. This was followed by a trip into Tham Pha Phueng as far as a 7m pitch. A return was made the next day when the short pitch was descended and the cave explored to the top of a large pitch where stones fell for 5 seconds to land with an awesome 'boom'. This very brief visit established the potential of the area.

In July 2008 a four person French expedition to Nan, led by Philippe Jarlan, surveyed Tham Pha Kao near Bo Kluea, about 25km south-east of Ban Mani Phruk. However, this expedition did not visit the Ban Mani Phruk area.

In September 2007 Andy Manners of the Shepton Mallet Caving Club contacted Martin Ellis asking for suggestions for a possible club trip to Thailand. Martin, who had been on the April 2005 trip to Tham Pha Phueng, suggested an expedition to descend the big pitch and explore the region. Three reconnaissance visits in preparation for the expedition were made to Ban Mani Phruk by Martin (in January 2008), Phil Collett (in March 2008) and by Martin, Ivan Hollis and Terry Bolger (December 2008).

## Cave Descriptions

### Tham Pha Phueng

47Q 717415 2149716 Altitude 1,323m

Length: 1,350m Vertical range: -306m

Tham Pha Phueng is sign posted where the H1291 turns off the H1080, 40km away. The cave is at the bottom of the doline between Ban Mani Phruk (500m from the village) and the Security Development Project headquarters (1km away). Just where the road starts to climb up to the village some concrete steps lead down the slope towards the cliff that can be seen to the west. A good path leads to the cave entrance, only a minute's walk from the road.

Although it can't be seen until you are nearly there the entrance is impressive. At the base of a 50m cliff, it is 20m wide by 20m high. The concrete path descends the large boulder slope for a few metres before ending abruptly. From the entrance the cave drops steeply with a boulder floored passage which is up to 30m wide and 20m high. There isn't a fixed route up and down this boulder scramble, everyone seemed to take a different route each time. A small inlet on the right about 70m inside the entrance has not been explored. The passage stays big and impressive for about 300m until it levels out and narrows into a rift. After another 25m the top of a 7m pitch is reached at a depth of -97m. This pitch has been rigged with a ladder and lifeline on both expeditions. Descending the pitch drops you into a large streamway. The main route is to head north, down the slope of calcite cemented boulders back under the pitch. A large pool can be traversed around on the right hand side. This fine passage descends at 12° to 20°, trending westwards with a mainly smooth, clean washed limestone floor which is occasionally broken with short cascades and boulders. This passage gets larger and after 135m a canyon inlet on the left is the bottom of the Vadose Oxbow. The main passage continues to descend and after a

further 200m the stream flows over a couple of small plunge pools and then drops down a very large pitch which stopped exploration in 2005. The top of this pitch is at a depth of -165m. Back at the bottom of the 7m pitch a large passage heads south-west along a large ledge with some small gours and other formations. There is a 3m drop on the left hand side of the passage down to a stream way. The easiest way to reach the stream is to continue along the high level, down a 2m drop (where a handline is very useful) and then descend where the ledge ends. From this point the stream has been followed back upstream, below the ledge, to an inlet passage which has been explored, but not surveyed, for about 100m to the bottom of a 10m pitch that has not been ascended.

Heading downstream the large passage soon becomes a high and narrow vadose canyon. This passage, named Vadose Oxbow, has a 2m cascade and a couple of other drops which can be free-climbed, but a 3m drop requires a rope and SRT equipment unless you are a very competent climber. After another 2m cascade the canyon opens up as it joins the main passage.

At the big pitch, named Fitch Pitch in memory of former Shepton Mallet Caving Club member Terence Fitch, the ledge on the right hand side was rigged with a traverse line. This reached an alcove above the pitch from where another traverse was rigged along the wall to reach the large stal boss and inlet stream on the other side. This traverse was protected with three spits. On ascending the wet flowstone slope a very fine gour filled passage was found. After about 60m the passage became filled with breakdown, some of which is very loose and crumbly. About 90m from the pitch there is an inlet passage from the north, but as this is very muddy it was not explored. Just past the muddy inlet it is necessary to scramble down the breakdown boulders to reach the stream again. The passage narrows into a high canyon which appears to be keyhole shaped with a wider section at the top. A couple of 2m cascades can be climbed, but after 100m a 3m cascade was reached. Although this was ascended the descent proved to be a lot more awkward and the exploration stopped at this point. The air in the Vadose Inlet is very fresh and the passage is ascending steeply, heading east back towards the entrance passage.

As it isn't possible to get a dry free hang from the top of Fitch Pitch it took three trips to rig. The approach to the pitch head was protected with a long traverse, using 4 spits to a Y hang rigged from a stalagmite column and a spit. This allowed a descent of 10m to a rebelay, with a deviation rigged from a spit a few metres below the pitch head. From the spit rebelay another 6m descent lands on a ledge. This upper part of the pitch is damp so to get away from the water a traverse was rigged along the ledge for 5m, utilising 5 spits. At the end of the traverse 2 spits were put in for a Y hang down the free hanging, 109m deep, lower part of the pitch. The total depth of Fitch Pitch is 125m making it the biggest descended pitch in Thailand. The bottom of the pitch is at -288m. The rope hangs roughly in the middle of the chamber, just missing a pool of water. The chamber is roughly circular with a diameter of 30m. There is a gravel bank all around the edge of the chamber, and a small canyon at one point where the water flows and sinks down a couple of small holes. A short way further along the canyon was a larger (approx 3m diameter) hole in the floor with a very narrow rock bridge across it. This passage dropped down a couple more short climbs to a T junction with water flowing from right to left. Upstream (right) got quite small, with exploration stopping at a deep pool. Although a light connection couldn't be made with the chamber at the foot of Fitch Pitch it is assumed to be the water that sinks down the small holes. Downstream (left at the T-junction) the passage continues down small drops and across deep pools to an approximately 4m high gour climb down that needs a rope (there are no natural belays). Exploration of this passage stopped here.

Back in the canyon it continues, gradually getting deeper, and is dry, but obviously takes water at times as sections of the floor are very muddy. The canyon eventually becomes a passage which

we followed down a couple more small climbs. A spit was placed at the top of one of the climbs for a handline. Beyond the climb the passage continues to another climb which also needs a rope (a second spit was placed here). From the top of this climb the gour at the limit of exploration on the other route down. The top of these climbs is at a depth of -306m (an altitude of 1,017m) and the passage can be seen to continue heading north-west.

Tham Pha Phueng surveys: [Plan Projected section](#)

Goodden describes a smaller doline not far from Tham Pha Phueng and about 100m from Ban Mani Phruk. This was caused by the collapse of a cave roof and has dense and intertwined vegetation in it. While walking along the road and along the track around the top of the cliff a stream could be heard in this doline, but it was not investigated due to the dense vegetation. This is possibly the source of water at the small inlet 70m inside the entrance or the stream which enters Vadose Inlet.

Tham Nam Dan (Tham Nam Mudt)

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47Q 716933 2148107 Altitude 1,392m

Length: 100m Vertical range: -39m

From the Security Development Project take the road south into the doline. Before the bend to the left take a track on the right which contours round, past two small depressions and through an orchard to drop down onto the floor of the doline. Cross the doline and look for a large boulder at the edge of the field. An indistinct path goes up the slope to the right of the boulder for about 30m ascent to the entrance at the foot of the cliff.

Tham Nam Dan is a steeply descending (45°) boulder floored passage which is 15m to 20m wide. Unfortunately after 100m the passage becomes choked with boulders and earth. Although a draught was noticed between the boulders at the end of the cave all ways on were very small. However, further investigation by more determined explorers may reveal a way on. The cave ends at a depth of 39m which is the same altitude as the Huai Nam Dan Sink.

[Tham Nam Dan survey](#)

Huai Nam Dan Sink

47Q 716873 2148189 Altitude 1,352m

The Huai Nam Dan Stream sinks at the base of the cliff, about 100m to the north-west of Tham Nam Dan.

The stream sinks at the foot of a huge rock pile – perhaps 200m wide by 50m high and sloping up at 45° and covered in dense vegetation. Although a cold breeze could be felt coming out there wasn't a way in.

Shaft NA0070

47Q 716322 2147879 Altitude 1,328m

Length: 8m Vertical Range: -8m

This shaft is located on the southern side of the ridge between the Huai Nam Dan doline and the doline to the south. It is in the middle of some very rough bamboo forest terrain.

The shaft is 4m x 3m x 8m deep. There may be ways on at the bottom, but the shaft has not been descended.

Shaft NA0071

47Q 716759 2148010 Altitude 1,403m

Length: 40m Vertical Range: -40m

Another shaft located on the southern side of the ridge between the Huai Nam Dan doline and the doline to the south. It is in the middle of some very rough bamboo forest terrain.

This is a 40m deep shaft, 3m in diameter. There is a mud slope at the bottom, but the shaft has not been descended. This shaft is of interest as it is 150m to the south-west of the end of Tham Nam Dan. A depth of 40m would put the bottom of the shaft at an altitude similar to the end of Tham Nam Dan.

Tham Nam Tok Nam Poen

47Q 719079 2146355 Altitude 1,338m

From the Security Development Project headquarters take the sealed road south (not the road that goes back down to Chiang Klang). As this road turns north take a dirt road south. Drive past the National Park ranger station to a Y junction. Take the left hand fork, turning right at another Y junction, and drive down the rough track into the Nam Poen doline. Where the track levels out on an open, grassy ridge with a rough track dropping down to the right find a footpath which goes north. This path is overgrown and crosses a stream in a gully before arriving at a cabbage farm. At the cabbage farm the stream sink is a hundred metres to the north-east, but to find the cave it is probably easier to walk north for a few hundred metres to meet the Nam Poen (which flows from north to south) and then follow the stream south to the sink.

The Nam Poen stream drops over a 20m waterfall into a large collapse doline. The waterfall is above a large cave entrance (15m high and 10m wide) where the stream disappears underground. The stream passage descends steeply down dip towards the west, but has not been explored. From the waterfall a path leads around the western side of the doline and some steps and a wooden ladder give access to a ledge in the doline with a fine view of the cave entrance. With care it is possible to descend the vegetation covered slope to the entrance.

There is another cave at the top of the doline which appears to be the fossil upstream part of the cave. This cave ascends steeply to a boulder choke which must be close to the surface. This cave can be reached by going along the ledge from the bottom of the access ladder into the doline.

Tham Huai Poen

47Q 718925 2145912 Altitude 1,330m

This cave is in the same doline as Tham Nam Tok Nam Poen, but a different stream sink. From the Security Development Project headquarters take the sealed road south (not the road that goes

back down to Chiang Klang). As this road turns north that a dirt road south. Drive past the National Park ranger station to a Y junction. Take the left hand fork, turning right at another Y junction, and drive down the rough into the Nam Poen doline. From the end of the track a path continues downhill to a stream that was dry in February 2009. This stream flows from south to north and can be followed downstream to the cave. Alternatively from the orchard at the end of the track go north to the end of the orchard and look for a path on the right (east) which gives access to the stream bed a couple of hundred metres upstream of the sink. The stream sinks into an impressive, large rift entrance 5m wide and 60m deep (3 second drop) which has not been descended.

#### Cave NA0072

47Q 719553 2150132 Altitude 1,568m

Length: 10m+

From Ban Mani Phruk take the dirt track that heads south-east and then north-east. At the point where the track turns to the north a track heads south-east then south. As the gateposts have subsided it is not possible to drive along this track. The cave is in a small doline at the junction between a vehicle track and the track up to the Pha Phueng viewpoint. The doline has banana trees and the entrance is in a limestone outcrop.

The cave passage descends steeply (40°) in a westerly direction. The cave has only been explored for a few metres to the top of the steep descent.

#### Sink NA0073

47Q 719836 2149149 Altitude 1,485m

From Ban Mani Phruk take the dirt track that heads south-east and then north-east. At the point where the track turns to the north a track heads south-east then south. As the gateposts have subsided it is not possible to drive along this track. Continue south past the doline with Cave NA0072 and skirt along the western side of the next doline. A path then allows access into this doline from the south. The doline is partially cleared and is used for grazing cattle. There are three separate stream sinks in the doline and this is the most promising.

Sink NA0073 is at the foot of a large limestone outcrop cliff, but is protected by thick vegetation and steep slopes. It is the most promising of the three sinks.

Sink 2 (47Q 719813 2149035) is amongst thorny vegetation, but no limestone is seen where the stream is heading.

Sink 3 (47Q 719797 2149213) the stream flows into a small cave (about 1m high) heading in the direction of the Sink NA0073.

#### Known Caves Not Visited By SMCC

Five caves are known from the area to the north of Ban Mani Phruk. They have not been visited by the Shepton Mallet Caving Club, but approximate co-ordinates have been calculated from their positions on a topographic relief model at the Security Development Project headquarters. There is also a display of photographs from these caves at the headquarters.

#### Tham Phu Hua Lan

47Q 715971 2152036 Altitude: 1,400m

Located near the old Thai Army operational base on Phu Hua Lan which is a 3km walk to the north-north west of Ban Mani Phruk.

The photographs in the Security Development Project show a small entrance.

Tham Ho Ying

47Q 715281 2153313 Altitude: 1,100m

This cave is advertised with blue tourist information signs along the H1291 as far as Tham Pha Phueng. The cave is a 7km walk north-north-west from Ban Mani Phruk, along the ridge past Phu Hua Lan, then descending into the valley.

The photographs in the Security Development Project show a small entrance.

Tham Ho Chai

47Q 715175 2153405 Altitude: 1,000m

This cave is advertised with blue tourist information signs along the H1291 as far as Tham Pha Phueng. The cave is a 7km walk north-north-west from Ban Mani Phruk, along the ridge past Phu Hua Lan, then descending into the valley past Tham Ho Ying.

The photographs in the Security Development Project show a small entrance.

Tham Champi

47Q 614904 2153858 Altitude: 800m

This cave is advertised with blue tourist information signs along the H1291. The cave is an 8km walk north-north-west from Ban Mani Phruk, along the ridge past Phu Hua Lan, then descending into the valley past Tham Ho Ying and Tham Ho Chai. The cave is near the bottom of the valley.

The photographs in the Security Development Project appear to show a quite large cave with formations and possibly a streamway.

Tham Pha Daeng

47Q 716900 2154300 Altitude: 950m

From Ban Mani Phruk drive north from the main junction east of the village (Sam Yaek - where the route back to Ban Mani Phruk 2 heads south and the track to the viewpoint heads east) along the good dirt track for 4.3km to a three-way junction. From this junction heading straight on (left leads) to Tham Pha Daeng 4.4km away. From the dirt track, which follows the ridge, a path heads downhill towards the west. Goodden says you will need a guide to find the cave and that a forest

monk was living there on his last visit.

This cave was a refuge of the Communist Party of Thailand insurgents until 1982. Traces of their living quarters and equipment are evident, including some beds in working order, weapons hiding places, food trays and other utensils.

## Geology and Hydrology

A detailed geological description of the area has not been sourced and only a few very basic geological observations were made by the expedition.

The known caves are in limestone, which is possibly of Permian-Triassic age. What is noticeable is that the limestone dips at about 20° to the west. This can be seen at Tham Pha Phueng and Tham Nam Dan, in the Nam Poen doline and at the peak of Phu Pha Phueng. Thus it appears that the Ban Mani Phruk plateau is a large tilted block. The eastern edge of the plateau drops steeply into the Nam Hoem and Mae Nam Nan valleys and is probably a major fault. The western edge of the plateau is not as clearly defined, being formed from highly dissected non-carbonate rocks. There appears to be two limestone outcrops: one outcrop is on the west of the area and runs north to south through Tham Pha Phueng and Tham Nam Dam while the other outcrop is at the eastern edge of the area and runs north south forming a steep scarp through Phu Pha Phueng to the Nam Poen doline. Phu Hua Lan, "Bald Mountain", is also a bare limestone outcrop.

A junction between the limestone to the east and overlying shales to the west can be seen in the stream bed of the Huai Poen a few hundred metres south of the entrance to Tham Huai Poen and in the bed of the Nam Poen. Between the Nam Poen doline and the Huai Nam Dan/Huai Pha Phueng dolines there is a ridge of non-carbonate rocks.

Several streams sink in dolines on the plateau, but the resurgence or resurgences are not known. Assuming the plateau is a simple tilted block and there isn't any unusual folding or faulting the water sinking on the plateau will resurge to the west or north. We had a vague verbal report of a stream resurging from part way up a cliff about 20km north of Ban Mani Phruk. However, as this resurgence was reached by a hike from Chaloem Phrakiat, which is on the northern side of the large Mae Nam Nan river, it is unlikely to be a resurgence for the Ban Mani Phruk water. As well as underground drainage the topographic maps show a surface stream flowing north from Ban Mani Phruk. This stream probably flows on the non-carbonate rocks between the western and eastern limestone outcrops.

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## Maps

This area is covered by Royal Thai Survey Department L7017 series 1:50,000 maps 5247 I Amphoe Thung Chang and 5247 IV Ban Sakat Num. However, both of these maps have restricted availability and can't be bought.

The NE47-8 Changwat Nan sheet of the Royal Thai Survey Department's 1:250,000 series is available from specialist map retailers.

The best touring map for the region is the 1:750,000 Northern Thailand map published in 2000 by Berndtson & Berndtson.

Google Maps is perhaps the best source of mapping for the area, with accurate roads and 100m interval contours. Be aware that many of the 'roads' on Google Maps are not much more than farm tracks. Unfortunately the Ban Mani Phruk area is not yet covered by the detailed satellite images.

## Appendices

### Expedition Members

Terry Bolger (Canberra Speleological Society), Vientiane, Laos  
Jo Campbell (Shepton Mallet Caving Club), West Sussex, UK  
Phil Collett (Shepton Mallet Caving Club), Oxfordshire, UK  
Claire Dummer (Shepton Mallet Caving Club), Somerset, UK  
Paul Dummer (Shepton Mallet Caving Club), Somerset, UK  
Martin Ellis (Shepton Mallet Caving Club), Phetchabun, Thailand  
Ivan Hollis (Shepton Mallet Caving Club), Chachoengsao, Thailand  
Supatra 'Nom' Hollis, Chachoengsao, Thailand  
Andy Manners (Shepton Mallet Caving Club), Somerset, UK  
Eng 'Ann' Prommaviang, Chiang Mai, Thailand  
Yuphin Sopha, Phetchabun, Thailand

### Expedition Diary

Fri 6 Feb

Five expedition members from the UK fly out.

Sat 7 Feb

Everyone meets up in Ayutthaya.

Sun 8 Feb

Drive to Lom Sak. Visit Tham Thep Badan and its monkeys on the way.

Mon 9 Feb

Cave 26, Nam Nao National Park. Terry arrives from Laos.

Tue 10 Feb

Tourist trip to Tham Yai Nam Nao.

Wed 11 Feb

Drive to Ban Mani Phruk

Thu 12 Feb

Tham Pha Phueng: transported long rope and rigging kit to top of Fitch Pitch, but spits left behind.

Tham Pha Phueng: survey Vadose Oxbow and exchange trip with thwarted pitch riggers. Look at inlet passage below 7m pitch as far as climb up.

Fri 13 Feb

Tham Pha Phueng: put in spits at top of Fitch Pitch and rig traverse into Gour Passage.

Tham Huai Poen: find cave, but don't descend 3 second entrance pitch.

Tham Nam Dan: find cave and explore most of it.

Sat 14 Feb

Tham Pha Phueng: descend Fitch Pitch to ledge and look at traverse.

Tham Pha Phueng: survey Gour Passage and Vadose Inlet to 3m climb.

Sun 15 Feb

Surface walk to south-west of expedition base: find Shaft NA0070 and NA0071.

Surface walk to east of Ban Mani Phruk : find Cave NA0072 and Sink NA0073.

Surface walk to west of Ban Mani Phruk: follow dry stream bed, but no resurgences found.

Mon 16 Feb

Tham Pha Phueng: rig traverse and Y hang on Fitch Pitch.

Tham Pha Phueng: photographic trip to top of Fitch Pitch.

Tham Nam Dan: survey cave.

Huai Nam Dan Sink: unable to find way through boulders into cave.

Tue 17 Feb

Tham Pha Phueng: descended Fitch Pitch and explored to -306m. Stopped at top of 3m gour, passage seen to continue.

Tham Nam Tok Nam Poen: find cave and descend to entrance.

Wed 18 Feb

Tham Pha Phueng: derig cave.

Thu 19 Feb

Drive to Lom Sak and Nan.

Fri 20 Feb

Meet up in Lom Sak.

Sat 21 Feb

Rest day. Terry by bus back to Laos. Four members drive to Bangkok.

Sun 22 Feb

Four expedition members return to UK.

## Equipment

Over the past eight years the club has accumulated a large stock of tackle in Thailand. For this expedition the extra tackle brought out to Thailand was a 180m rope (bought by the SMCC) and two 30m ropes (one personal rope and one club rope) plus a few personal rigging items such as tapes and karabiners.

The following equipment was taken to Ban Mani Phruk:

416m SRT rope (Lengths: 12, 14, 16, 30, 30, 45, 89, 180)

9m ladder

3m wire belay

1x spreader

47 x spits

2 x spit drivers and hammers

35 x hangers and maillons

10 x karabiners

15 x tape slings

5 x tackle sacks

2 x 30m surveying tapes

1 x 100m surveying tape

1 x Leica laser measurer

2 x sets of surveying compass and clinometer

1 x rope washer

1 x carbon dioxide meter

3 x PMR445 radios (found to be very useful on Fitch Pitch)

### Accommodation and Catering

The expedition stayed in the guest lodge of the Ban Mani Phruk Security Development Project. This basic wooden building can sleep 6 on wooden beds and we brought an extra four camp beds. Two people camped. The Project supplied thin mattress, blankets and pillows, but we found the nights to be very cool and extra duvets or sleeping bags are advised. The guest lodge has a clean, but basic bath room with cold water shower and Thai toilets. There was an interruption to the water supply one day as it had been diverted to irrigate a cabbage field. There is electricity at the Lodge and in the kitchen.

As the village is remote and poor we brought all our own supplies with us. This included essentials such as 8 boxes of Beer Chang and 2 boxes of Beer Singha as well as ice, drinking and cooking water, fresh meat and vegetables, rice, etc. During the week one shopping expedition was made to a large superstore in Nan town (2 hours drive away) and two trips were made to Chiang Klang at the bottom of the mountain for more ice, beer and other essentials (1 hour drive away). In the small shops in Ban Mani Phruk it was possible to buy a few basic snacks, eggs and the ever present Hmong cabbage. The caretaker at the Project distilled a fine moonshine whisky from sticky rice.

We were unsure what facilities would be available so we supplied our own stove, rice cooker, cooking utensils, cutlery, crockery, etc. Fortunately we were able to use the kitchen and dining facilities at the Project. All the cooking and domestic chores were done by the three Thai members of the expedition, which allowed the foreign cavers to concentrate on the caving. We didn't find an area with mobile phone reception, but we were told there are places where a mobile will work. There is also a public pay phone at one of the offices in the village.

### Acknowledgements and Thanks

Mr Phinit for allowing us to stay in the guest lodge at the Ban Mani Phruk Security Development Project headquarters free of charge.

Yook for use of her cooking and dining facilities.

The Shepton Mallet Caving Club for purchase of the 200m rope and carbon dioxide meter.

Eng, Yuphin and Nom for doing all the cooking and shopping.

This report has been compiled by Martin Ellis.