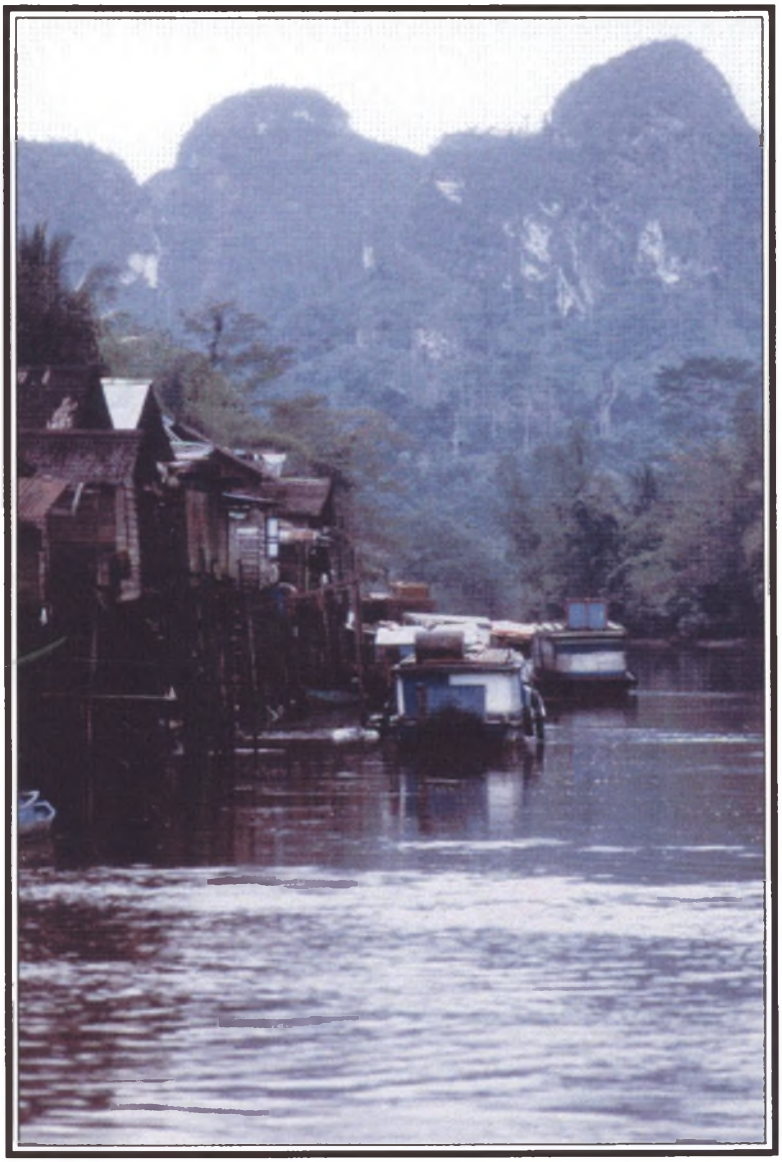
KALIMANTAN CAVES

1996

AN EXPEDITION TO THE ISLAND OF BORNEO



KALIMANTAN CAVES 1996

AN EXPEDITION TO THE ISLAND OF BORNEO

THE REPORT

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Cover Photograph: Pengadan from the Sungai Baai *by Georges Robert*

1. INTRODUCTION

Lonely Planet describes Kalimantan as "a vast, jungle-covered, undeveloped and unexplored wilderness that forms the southern two thirds of the island of Borneo". What an invitation to adventure; huge areas of untouched limestone, tropical forest, endless rain and the potential for massive caves. Where else could we go?

Ever since the discovery of the gigantic caves of Mulu in the Eighties in Sarawak, the whole island of Borneo has been under the close scrutiny of cavers, all hoping to find a second Mulu. It's there for sure and in time it will be found. The hope was that it would be by us and perhaps on this trip.

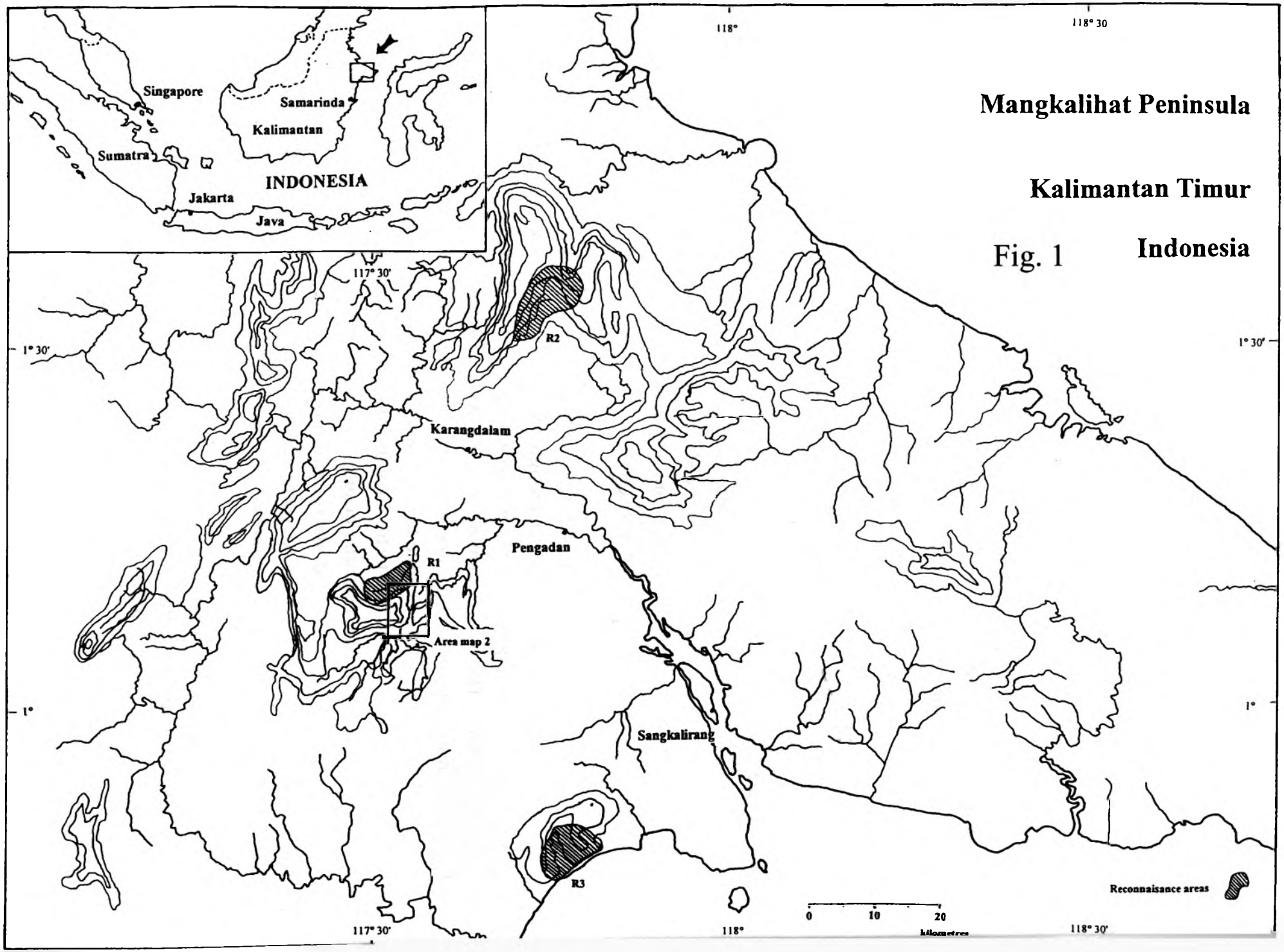
We were attracted to an area, briefly looked at by a number of French expeditions in the early Eighties, on the Mangkalihat peninsula on the east coast of Kalimantan.

In 1991, a vast fire covering tens of thousands of square miles swept through this area of Kalimantan, caused by the endless devastation of the rain forest in an attempt to cater for the insatiable appetite for hard woods of greedy modern society. Smoke closed Changi airport in Singapore over 1,000 miles away and the flames were visible to the space shuttle Discovery orbiting the earth nearly 400 miles above.

Since the fire,virtually every last accessible tree has been cut and the area has been opened for transmigration and farming. For us, although desperately sad to see, the logging roads made travel possible and quick. We'd cover in a day what had taken the French a week, only 15 years before. The only remaining primary rain forest survives on the inaccessible and jagged limestone terrain, which we hoped to explore during our four-week trip. We were in fact very privileged to be able to live in and see the forest, before it ultimately finds its way through some modern technology (heli-logging perhaps), into window frames or tables. We visited areas of spectacular beauty, and living with the wonderful people and animals of the forest was a rare and marvellous opportunity that we will remember and cherish. Perhaps through adventure tourism, trekking and trips like ours, a chance exists for the survival of these last few magic areas of mother earth.

This report details our adventures and discoveries in these areas and we hope in some small way that it helps with the process of understanding and preservation of the last remaining forests of the Mangkalihat peninsula.

Steve Jones


Singapore
Samarinda
Kalimantan
Sumatra
INDONESIA
Jakarta
Java
Mangkalihat Peninsula
Kalimantan Timur
Indonesia
Fig. 1
118°
118° 30
117° 30'
1° 30'
R2
Karangdalam
Pengadan
R1
Area map 2
1°
Sangkalirang
R3
Reconnaisance areas
0
10
20
kilometres

2. OBJECTIVES

Kalimantan forms the southern and eastern two thirds of the island of Borneo. The northern parts, Sarawak and Sabah, belong to Malaysia and the independent Sultanate of Brunei, the world's richest country, is tucked in between Sabah and Sarawak, close to the famous caving area of Mulu. Kalimantan belongs to Indonesia and is a huge, remote and largely undeveloped wilderness. Most development and roads are aligned along the coast. The rivers act as highways, giving access deep into the interior and are now used primarily as a free transport system for logging.

In 1982, '83 and '86,the French visited the Mangkalihat peninsula, the obvious projection some 150 km long and 75 km wide on the north-east coast of Kalimantan. They made limited progress at this time, due to the dense rainforest and endemic cerebral malaria, of which one of their team sadly died, but their reports were full of question marks at the end of huge passages, and fantastic descriptions that made a return visit a must.

We planned to head to the limestone mass, 25 km south-west of the village of Pengadan on the western extremity of the peninsula (Fig 1, area map 2). Here, in '82 and '83, the French had surveyed an impressive sink and rising, Gua Keluar (sink cave) and Gua Masuk (resurgence cave) of the Sungai (river) Baai, but had been unable to fill in the inviting gap between. Our objectives were to explore, map and survey the caves of this area and to make a number of reconnaissances to assess the speleological potential of other areas in the region.

Steve Jones

3. PLANNING AND ORGANISATION

Deciding on a magical destination for our expedition and listing our objectives was easy in comparison to the hard work of selecting the team and starting the detailed planning and organisation of an adventure to the other side of the world.

Due to work pressures, many of the team were limited to four weeks in the field, which makes good preparation even more important. No moment can be wasted when so little time is available and we want to achieve so much. From previous experiences in South-East Asia, we knew that one or two-week delays in the field were almost the norm, rather than the exception, and we had to do everything possible in pre-planning to try and make sure that we did not meet these delays on this occasion.

The team selection was the first difficult obstacle. With over 20 experienced expeditionary cavers on a short list, being the leader was going to be the only sure way of confirming a guaranteed place so, with no other special skills, I quickly opted for the hardest job. The rest of the team was chosen with difficulty, but by the fairest means possible. Priority was given to those who had been on the first Kalimantan recce on the Kayan River trip of 1993, whose enthusiasm for the country started the whole ball rolling and to the two Indonesian speakers, whose skills would be essential in the field. Georges and Elizabeth were obvious choices having been on the early French trips to the area, but for the remaining places the decision was hard. Everyone on the list was fit, could survey or photograph, was a scientist or diplomat and I wish I could have taken them all.

Eventually a strong team was formed and I apologise to those who missed out this time.

The team:

Steve Jones	Leader
Dave Checkley	Deputy leader and leader of the Kayan River Expedition
Paul Seddon	Kayan River Expedition member
Colin Boothroyd	Kayan River Expedition member and Indonesian speaker
John Wyeth	Indonesian speaker
Howard Jones	Treasurer
Pam Fogg	Report editor
Tim Fogg	Rigging and rescue
Georges Robert	Leader of many French expeditions to Kalimantan
Elizabeth Bonnet	Nurse

Unfortunately, our numbers dropped before we finally left. Howard had to withdraw due to work pressures having just moved to a new job, but he remained our treasurer to the end. Dave Checkley's mother very sadly passed away only 18 hours before we were due to fly, resulting in him dropping out as well. Our sincere thanks go to both of them for all their hard work and enthusiasm before and after the trip.

Different members of the team were allocated different jobs; caving equipment, first-aid, photography gear, surveying gear, travel arrangements, grant applications etc and the whole expedition started to take shape. Life was more difficult for this expedition than any I'd known previously because meetings were impossible to hold with everyone in attendance. Tim and Pam were in Ireland, Georges and Elizabeth in France, Colin in Ecuador and John in Peru, so most of the planning was done on the phone, by email and fax. Less enjoyable, more work, but just as effective.

I'll say no more now about planning other than to remind you that it is the time and energy put in before the start of an expedition that determines its eventual success or failure. There is no country on earth where this is more applicable than Indonesia.

For further details or help with planning and organising a caving expedition, I recommend you to the excellent publication entitled "Caving Expeditions" edited by Dick Willis and published by The Expedition Advisory Centre.

Steve Jones

4. PERMISSION

4.1 PRE-DEPARTURE

The crux to successful expeditions in Indonesia is obtaining the necessary permission and paperwork. For us, the process started 18 months before we left and began by making early contact with Dr Robbie Ko, head of FINSPAC, The Federation of Indonesian Speleology. His letters of support and contacts in Jakarta have made our lives easier in the past. Further details of the permission and paper-gathering trail are described in the next section.

Over the 18 month period leading up to our departure, I wrote no less that eight letters/faxes to Dr Ko explaining our progress in planning and detailing every part of the trip, as well as asking endless questions. Dr Ko always responded, but slowly and hence the need for starting so early. The pace of life in Indonesia is much slower than here and Indonesian people do not appreciate what can be to them our aggressive, arrogant and impatient style, and great diplomacy must be used when communicating with them. Dr Ko gave us a contact name in the tourist office in Samarinda, the nearest big town to our destination in Kalimantan. Three separate letters were written to him in Indonesian. Again our plans and aims were explained in detail and dozens of questions asked. We never had a reply and we don't even know whether the letters arrived, but the help and support we got from the tourist department later suggested that they did and that the effort put in was very worthwhile.

Steve Jones

PERMISSION

4.2 IN THE FIELD

Organising permission to cave in Indonesia takes a lot of time and patience once there, no matter how much groundwork has been done at home in advance. Attempting to go caving without the correct documentation is not an option worth contemplating and is likely to lead to much unhappiness and frustration if tried.

Indonesia operates in a very bureaucratic way and permission is needed to do many things that would not be of interest to western authorities. Differing permission may be required in different provinces, from different departments, to satisfy high-ranking officials, local police, village chiefs etc. Travel on business, or with a scientific or other unusual reason, or to a politically sensitive area requires a 'surat jalan' - literally a travel letter - which is an official permit to visit a specified area. The rules about surat jalans change frequently so check with your contact in Indonesia on the current situation. However, two good general points to remember are:

1. If there is a group of you, it is easier to get one surat jalan to cover the whole group (but each member should carry a photocopy).
2. Make sure that all the places you intend to visit are listed on the surat jalan or you may find your objectives restricted.

For more detailed information on surat jalans, read the report from the High Trikora Expedition 1990 (to Irian Jaya).

A good plan of action is to send one or two people out at least one week, possibly two, before the main body of the expedition arrives, armed with members' CVs, copies of passports (4), passport photographs (4), and copies of all correspondence for the current expedition. Copies of any surat jalans or letters of recommendation from any previous expeditions are worth taking as they can be useful as credentials: it is unlikely that the officials seen last year will be the same this year.

There are two main routes to obtaining permission. The first is the scientific approach, made via the Indonesian Institute of Sciences, which has the Indonesian name Lembaga Ilmu Pengetahuan Indonesia (LIPI). This approach should be avoided unless the expedition is genuinely a scientific one, because up to two weeks is required in Jakarta, going from government department to government department, and back again numerous times, to get those oh-so-valuable rubber stamps on the paperwork.

If you choose to use LIPI, start by writing to them with details of the planned trip at least a year in advance. You will need an Indonesian sponsor, which would normally be an institute or body connected with your research. If you do not know such a body in Indonesia, LIPI will put you in touch with one, or failing that, act as your sponsor, if you request it.

For a scientific visit, your project must be approved by LIPI and you will need a visa. LIPI will help you to obtain this. (To visit Indonesia as a tourist, all that is needed, if you are a UK passport holder, is a tourist pass, which is a stamp in your passport given when you enter Indonesia). The following were the LIPI requirements in 1986, the last time we used them. It is not known if these requirements have eased since.

1. A formal letter of request;
2. Six copies of your research proposal in detail, stating your objectives, methodology, concepts, as well as duration, location, and date of commencement of your research;
3. Six copies of your curriculum vitae, including a list of your publications, if any;
4. Two letters of recommendation: one from your institute/university, and one from a leading professor in your field of research.
5. Letter of support from your sponsor in Indonesia, if your sponsor is not LIPI;
6. A letter guaranteeing that you will have sufficient funds for your research and living expenses in Indonesia;
7. Two recent photographs;
8. Passport number and nationality.

Before going to the field, it will be necessary for you to visit LIPI in Jakarta, for two or three days officially, but allow at least a week, in order to obtain the requisite travel documents from the Police Office, and research permit from LIPI, which can only be issued in Jakarta. In addition, you are required before going to the field to report to the Department of the Interior.

The second and recommended route to obtaining permission is to go as 'special interest tourists' through the Federation of Indonesian Speleological Activities (FINSPAC). The Indonesian name is Himpunan Keglatan Speleolgi Indonesia (HIKESPI). The federation's president is Dr Robby Ko. Dr Ko has always proved to be very helpful, indeed invaluable, in providing the initial letters of recommendation. This route is not without its frustrations and it is still time-consuming, but it is easier than the LIPI route and stands a much greater chance of success.

It is the latter route which is explained here in greater detail. The description is based on what we did on this trip in 1996. The route usually follows more or less the same course but, just to keep you on your toes, the rules, or interpretations of them, change from time to time, so be prepared for any kind of variation on our experiences.

The great paper-chase starts in Jakarta. Because of Indonesia's bureaucratic ways, the documentation issued at head office in Jakarta is not sufficient and has to be backed up at each stage: provincial capital, district capital, local village. There is a 'backwards compatibility' snag too: miss out one of the steps and you will probably have to go back and climb it, even if that means going back to 'go.'

The first port of call is Dr Ko at FINSPAC. This is best set up via fax and/or letter prior to leaving Britain, and confirmed by telephone on arrival in Jakarta. Dr Ko will charge for any telephone, fax, transport costs - which is understandable. Dr Ko lives in Cisarua, near Bogor, which is about 60 km to the south of Jakarta. He may offer to collect you from the airport in his luxury 'people mover' but probably the least expensive way is by taxi and bus, and costs around 30,000 rp per person for the round trip from the centre of Jakarta. To reach his house, take a taxi to the bus terminal at Kampung Rambutan in the south of Jakarta and then take a bus destined for Bandung. Dr Ko lives between Bogor and Bandung. His house, 'Buena Vista', is three km beyond the village of Cisarua on the Bogor to Bandung road. As he lives down one of the many side roads, it is probably advisable to arrange a rendezvous with him in Cisarua or Bogor before a first visit is made.

What is required from FINSPAC are letters of recommendation to:

a) the Department of Tourism (Dinas Pariwisata) in Jakarta,
b) the Dinas Pariwisata in the provincial capital of the area to which you are going.

Next, it is worthwhile asking Dr Ko if he can arrange a meeting at the Dinas Pariwisata in Jakarta, and for him to be there. From the Dinas Pariwisata in Jakarta get a letter of recommendation to the Dinas Pariwisata in the provincial capital of your chosen area. In Kalimantan Timur, this is Samarinda. We had acquired the name of a contact at the Dinas Pariwisata in Samarinda and had written to him, (in Indonesian), several weeks earlier, explaining our intentions. Whether this played any part or not, it is difficult to tell, but we were given a warm welcome, and the result was that a high official, Drs Anwar Rusihan, accompanied us for five days to smooth the way. This proved to be invaluable.

Sometimes it is necessary to get clearance from the Direktorat Sosial Politik (SOSPOL), a kind of police, or the Department of the Interior, particularly if you have a scientific bias to your expedition. If the trip is purely 'special interest tourism', clearance is usually not necessary, but don't count on it! In a worst-case (nightmare) scenario it has been known to have to go back as far as Jakarta from the field to get clearance. Play the 'special interest tourist' card for all it is worth to try to avoid this.

From the Dinas Pariwisata of the provincial capital, try to get letters of recommendation to officials at the district capital, which you may have to visit, or the next town where you need to spend any time (e.g. organising transport, buying food). The letters should be to:

a) the Camat - pronounced chamat - meaning district chief,
b) the local police, where you should register all the members of your team (take CVs, copies of passports etc., so you have all the details to assist this mammoth form-filling exercise);

c) other organisations whose resources you may want to use, e.g. the forestry department. If you plan to use such resources, try to get a letter of recommendation from the department chief to show to other department officials down the line.

At some point, it may be necessary to get your paperwork rubber-stamped by the army, but the Camat will advise and probably help you to achieve this. It is important that all the letters and other documents are rubber-stamped and signed at each of the offices you have to visit.

From the Camat, get a letter of recommendation to the Kepala Desa (village headman) of the large village in which your caving area lies. The Kepala Desa should be your first port of call on arrival in the village. Get him on your side and things should flow smoothly. If the village has a police station, go and check-in there too.

It is not necessary for the whole team to go to these offices, only two or three of you, preferably including the expedition leader, and, of course, someone who can speak Indonesian. Once you have satisfied the Kepala Desa, you are unlikely to be troubled with paperwork again, but as a matter of courtesy it is worth calling on the Kepala Desa of any village you pass through and, if it is a large village, you may be required to show the local police your paperwork.

Good luck!

Paul Seddon

5. TRAVEL

The advance team of four had to travel out via Jakarta, the capital of Indonesia, to collect various letters of permission from the Minister of Tourism. They then flew on directly to Balikpapan in Kalimantan. The remaining team followed one week later flying to Balikpapan via Singapore and Brunei. This was the easy part and all tickets were bought in the UK through Trailfinders in Manchester.

From Balikpapan, the capital of Kalimantan, we had to first travel north to Samarinda to meet our contacts at the tourist department and to buy provisions, as this was the last major town before the forest (or so we thought at the time). For those on a budget, it is possible to take a bus, but for us with a lot of equipment and a shortage of time it was much easier to pile into one of a stream of waiting taxis. We were confused for a while when the taxi stopped after one mile and we all got out and then into another taxi that had followed us from the airport. Apparently the airport taxis cannot leave the city limit and although we had no idea what was happening the drivers knew exactly what they were doing. The road between Balikpapan and Samarinda is good and fast.

In Samarinda, we met up with half of the advance team who had booked a Kijang for the next stage of our journey on to Sangkulirang on the south-western edge of the peninsula. A Kijang is an Indonesian four wheel drive car which is as uncomfortable as a very old Land Rover. We had definitely drawn the short straw here. We were travelling on a Sunday which meant there were no boats making the 200 km journey between Samarinda and Sangkulirang. During the week the boats travel through the night so you arrive reasonably fresh the following morning. For us it was 200 kilometres of a dirt track, mud and feeling sick. Not even the scenery was interesting. We passed through kilometre after kilometre of depressingly devastated forest as far as the eye could see on both sides of the road. It seems that instantly a transport system exists the forest is finished, or is it that the road only exists in the first place to give the loggers access to cut the forest? We were lucky to get through on the road; only a little extra rain would have closed it.

Sangkulirang lies on an island in the mouth of the Sungai Karangan river. The road finishes at Ronggang and from there a ferry takes you on the half hour boat ride to Sangkulirang. This was a wonderful change to the Kijang and the journey was enhanced by the sight of dolphins leaping in the water in the warm evening light. Sangkulirang is a beautiful small town. It is a trading post for all villages upstream and one can buy anything from a TV with a satellite dish to a motorbike. All produce of the forest comes out through the port, so there is an abundance of fresh fruit and vegetables as well as exotic tropical fish in the market. Part of the town is built on stilts above the river which acts as a handy waste-disposal system, as everything pours straight through the floor of the kitchens and bathrooms into it; however there is no smell and everywhere is spotlessly clean.

The paths and streets that wind between the small shops and businesses are made from tropical hard woods, polished to perfection by thousands of bare feet over the years. In Sangkulirang we stayed in the Losman Delta, a clean and very cheap hotel on the quay. We ate barbecued fish in a small local restaurant, drank very expensive beer and felt privileged to be in such a wonderful place, watching the sun go down on the first proper day of our expedition.

The following morning we rose early to take the river bus up to our base camp, in the village of Pengadan. The journey was surprisingly pleasant, taking about six hours. The boats are basic. You have to take all your own food and water and the toilet involves a precarious balancing act over the stern. At the start, the river banks were lined with mangrove swamp, that soon gave way further upstream to palms. As the river narrowed

and we came into what would have been tropical forest, the evidence became very clear again of the mass deforestation. What a devastating sight, motoring past huge pontoons of floating forest giants. A few surviving animals crossed our bows; a very long snake and a two and a half metre monitor lizard. On all our journeys up and down this river, despite constant surveillance, only two crocodiles were spotted and both of these by the same person. However as we passed through a small rocky canyon where the forest had survived the loggers' chainsaws, we saw a troop of proboscis monkeys playing and parading for us.

As we rounded a bend in the river, during a torrential afternoon tropical rain storm, we had our first glimpse of Pengadan, with limestone cliffs towering behind it. My dream of a small untouched, unspoilt rain forest village was somewhat diminished as we passed the first hut with a satellite dish. These villagers, with no running water, no telephones, sit and happily watch Australian soap operas and CNN news! Despite this, Pengadan was a very pleasant village and a great place from which to start our expedition. Virtually all supplies could be bought in the village although the choice was somewhat limited. One small store on the main road even sold beer, a real luxury this far from home.

We organised accommodation through the local Kepala Desa who gave us a house which once belonged to an English logging company, the PT Sangkulirang. While we were there only a skeleton staff were working. The company was trying to get further rights to extend its logging area; where to is any body's guess since there seemed to be very little accessible wood left to cut. The English base camp would once have been luxurious, with swimming pools, tennis courts, toilets, baths and fridge-freezers, sadly all now dysfunctional. Still, the beds and a cold shower were far more luxury than we had anticipated.

Two full days were spent in town organising porters, examining aerial photographs and maps in the forestry office, continuing the paper permission trail and generally getting to know the local people. All was, in fact, very friendly and we did our best to put money into the pockets of local people, buying food in the village, hiring two cooks and a team of ten porters to carry for us.

On the third day all nine of us, ten porters, two cooks/guides and 21 rather heavy loads climbed into the back of the logging company's truck. Now started the most dangerous part of the whole trip, a fast and hair raising drive on dirt roads for one and half hours to the point where we would start the walk into our first caving area. There was no rush of course, but the driver was having fun and, for a few of us, it was quite exciting as well.

When our first objective, the Sungai Baai sink/resurgence system, had initially been looked at by the French in the Eighties, their only means of travel had been to canoe upriver, which had taken them nearly a week. Our journey along the forest paths took only one day. Our path left the road where a small marker showed the number of kilometres back to the logging base. The path, cut by birds' nesters, followed the river upstream towards the cave we were heading for. First, we were in secondary forest with small immature trees, regenerated over the past 20 years since the logging began. However, deep in the forest and nearer the limestone, where it is difficult for the loggers to operate, we hit primary forest. During the huge fire, it was only isolated pockets of primary rain-forest on the limestone that survived.

The path led to Ambulabang, a birds' nesters' camp at the resurgence cave, after an easy five hour walk, which included a one hour stop for lunch when the porters devoured a third of our rice stock in one sitting. Our camp at the cave was undoubtedly one of the most pleasant any of us had ever stayed in. Set on a white sandy beach under the natural overhang of the cave mouth, it was ten seconds to water for washing and cooking, and only

30 seconds downstream to a natural toilet perched above the river where the fish gathered each morning for the feast. There were no bugs or nasty biting insects and sand flies were only a problem after eight days in the same place. There was just one slight worry - crocodiles. The French had reported seeing one on their trip and it was a little disconcerting, not to say difficult, standing naked up to your waist in murky water washing your hair while trying to keep a lookout for crocs. We never saw one but the locals knew they were there and only went to the river in pairs, refusing absolutely to swim.

This was the base camp of base camps, a perfect setting to start the work of exploring cave .

Steve Jones

6. THE CAVES

THE SUNGAI BAAI SYSTEM

The caves are described north to south, resurgence to sink.

GUA KELUAR

The resurgence cave had been explored and surveyed by the French in '82. They had, however, left a couple of leads which needed following up. Georges described an inviting blackness above the sump which they had not had time to check out. We imagined an easy climb that would leapfrog us over the sump and take us on upstream in splendid streamway. On boating up to the sump on the first day and shining up a strong light it could be seen that there was no passage . We turned our attention to the other question mark. Georges described how in '82 they had surveyed a fossil passage above the sump which had exited into the forest . It was dusk when they had emerged. They had crossed the vegetated doline and found another entrance from which they had heard the unmistakable sounds of a bear. They had retreated. Now, 14 years later, we went back with Georges in the hope that this entrance would lead back down into the streamway. Six of us hunted and thrashed in and around the doline for hours, searching for the alleged entrance but we found nothing, neither cave nor bear.

GUA KADULANG

The main birds'nesters' track leads from the expedition camp at the resurgence, one kilometre up the valley (south) and through a 100m section of cave passage, Gua Kadulang. The walk to the cave takes about 35 minutes and when we first reached the entrance, music was blasting from inside the cave. It was coming from a camp, home of the guard employed by the birds' nesters to protect their livelihood.

The guard's camp is situated at the bottom of the initial heavily calcited boulder slope at the point where a sediment slope leads up to another entrance. The main valley track leaves Gua Kadulang through this entrance and leads south up the valley .

The descriptions of the cave start from the guard's camp. To the north-east of the camp a low wall has been built across the entrance to a 150 metre section of still, hot,muddied and calcited passage. This area is home to large numbers of 100mm long cockroaches and various other cave dwelling invertebrates.

50 metres north-west of the camp a large vegetated doline gives access to another exit into the forest and two significant sections of the cave. The most impressive is a 50 metre wide day-lit fossil trunk passage leading to yet another doline. In the floor of the doline and in 100 metres of flooded passage is a section of the main river, the Sungai Baai. Both upstream (south) and downstream (north), the river sumps.

Returning to the first vegetated doline, the fossil trunk continues and is reached by descending a boulder slope. A 100m long side passage leads north, away from daylight to a breakdown termination. The main passage trends south-east then north-east. At the point where the passage changes direction, a small inlet enters the passage and flows to a sump. This part is characterised by mud banks and appears to back up in high water conditions.

Gua Kadulang has a surveyed length of just over one kilometre and is similar in character to the other caves explored in the Sungai Baai system. Numerous entrances have developed

GUA KADULANG
Sungai Baai

Pengadan Kecamatan Sangkulirang Kalimantan Timur

Surveyed by members of the International Speleological Expedition 1996

Survey BCRA grade 5B

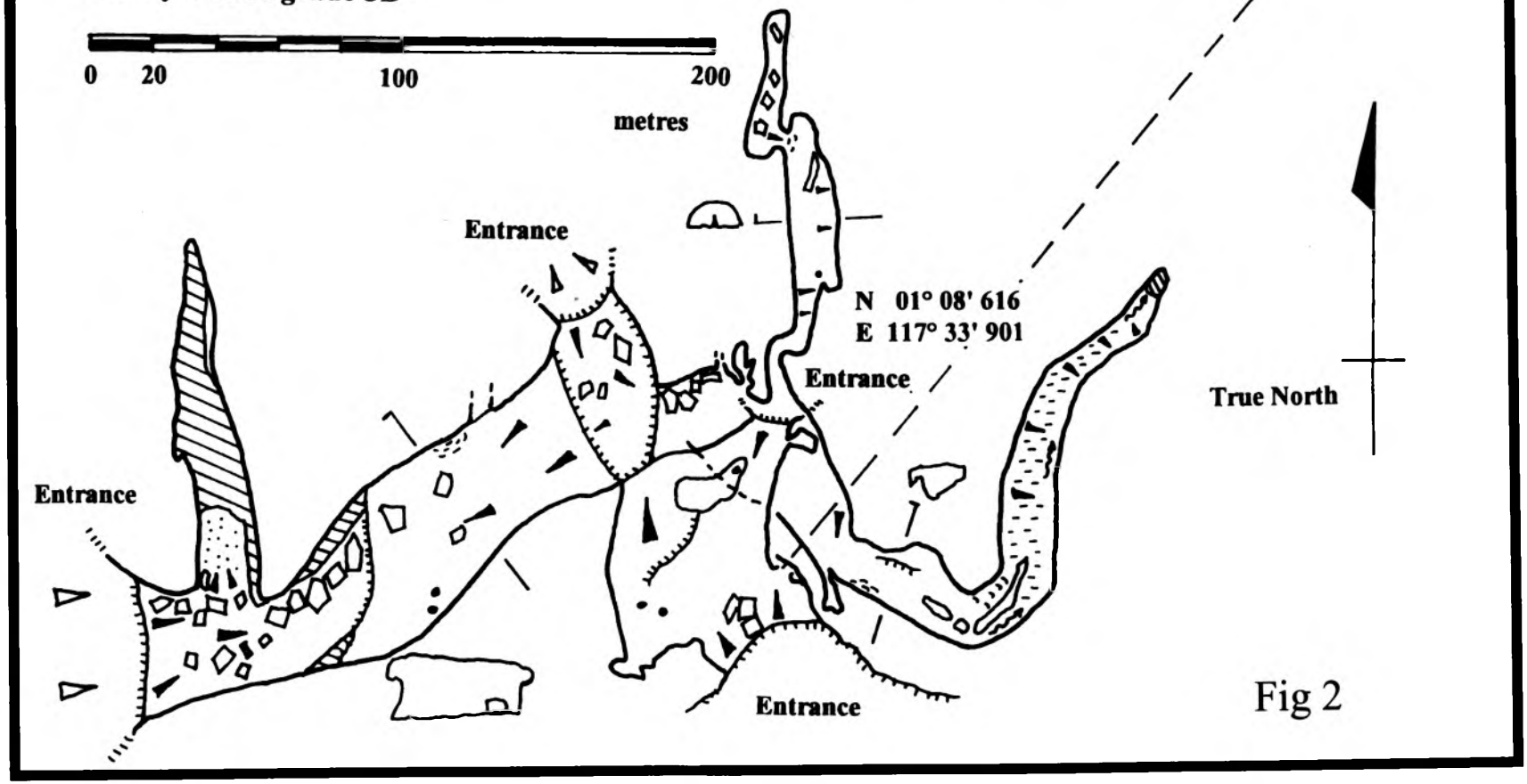


Fig 2

Kelumbak river passage, the connection was made from the Kecabe side after Kelumbak had already been mapped. The connection had not been noticed .

The original entrance to Kecabe is about ten minutes walk from the main track. It lies east of the track, two or three minutes after stepping off the rock at the Gua Madu headwall. Madu means honey and we gave it that name because of the bee hives hanging off the conspicuous head wall. The cave itself below the wall was not significant. A GPS fix was obtained for Gua Madu but we never did manage to get one at any of the entrances of Kecabe .

The first of the three main entrances at that point has the inevitable birds' nesters' sleeping pondok built outside it, apparently disused. This entrance leads into a series of large fossil passages that go to a major entrance to the north-east. The map later showed that these passages go right over the main river but no direct connections were found down into it at this point. Towards the south, from the first entrance, the wide passage leads after a short way into a breakdown area. This can be climbed up and through, to come out into another wide passage, which is fully day-lit and about 100 metres in length, running north to south, right through the mountain.

Back at the pondok, the second of the two main entrances is a bit further on and lower down. You can hear the sound of the river coming out here even before entering. Inside the promise ends in anti-climax because there is only a muddy chamber that leads down to a natural bridge over the river. The river appears out of a sump from the south-east at the back of the chamber and disappears into another in less than 100 metres towards the north -west.

The third of the main entrances leads to the greatest length of passage. The entrance itself consists of a mud shelf at the back of which there are two ways into to a big chamber from which dim light can be seen coming in a breakdown entrance 70 metres to the north. Running out of the bottom of the chamber in a southerly direction is a passage that showed signs of being an occasionally active river bed. After about 100 metres, two other passages fork off at a higher level to the left, toward the south east. The smaller one is decorated with mud stalagmites on the floor and ends in a mud choke in about 100 metres. The other one starts off promisingly as a spacious passage 10 to 15 metres wide but soon ends in about the same distance. From the end, there are leads to the north into some breakdown which carries some wind but which we never got through. To the south, across a small step, it connects back into the passage with the mud stalagmites.

Meanwhile, the river-bed passage continues and it was almost 300 metres before we came to another entrance, the longest passage without daylight in this part of the cave! There is a big cross roads at this point. To the left was an entrance, perhaps the biggest. Here also was a sleeping platform at the drip line. Up to the right there is another big 'borehole' passage leading off to the south-west while ahead the river bed passage continues straight on into a muddy slide down into the main Kelumbak river passage. The point of the connection is small, dark and muddy and hardly noticeable when you are in the river passage. Back at the cross roads, the 'borehole' leading off to the south-west is very wide but again failed to deliver and, like all promising leads, ends in yet another entrance series after a couple of hundred metres.

GUA KELUMBAK

Kelumbak is the name that the local people use to refer to the cave system through which the river flows south to north. The cave that was explored and surveyed has over 20 different entrances and at one point connects with the higher level passages in Gua Kecabe.

This description follows the cave from an easily accessible entrance in the northern end of the cave complex. From the small platform next to Gua Mungan, head down in a westerly direction for 50 metres. Two entrances appear on the left, both emerging after a few metres in a large daylight lit passage that trends to the west and goes down to the valley floor. At the floor of this passage a small muddy passage heads north-east before splitting and ending in two sumps. The mud and the large logs jammed between the walls suggest that in times of high rainfall a large amount of water passes along these passages.

The westerly trending passage emerges at the valley floor with passages appearing to the north, south and west. To the south, the mud, pebble and pool-floored passage soon emerges in a surface doline, only to go underground again on the far side of the doline. This pattern is repeated for a second time after a further 80 metres underground but this time, as the cave is entered again, the distant roar of a turbulent river can be heard in the cave. The river is encountered 100 metres inside the cave.

The river is coming from the south and turns to the west into a substantial and solid log jam. This can be by-passed through small passages to its right, but unfortunately only emerges at a point where the river sinks directly into a sump.

The river can be followed easily up-stream with occasional chest-deep wading sections, when it is necessary to cross the river. A large inlet comes in from the east after about 350 metres. This carries a strong flow of water representing approximately 25% of the flow in the main river. The inlet sumps only 70 metres from the main passage. Returning to the main passage, a skylight appears on the left and shortly afterwards on the right the passage from Gua Kecabe connects to the river passage.

Upstream, the river passage continues to meander, passing several more entrances and skylights. There is a wide bank for much of the rest of the way and it is possible to stay out of the water for most of the time - but only if you don't slip in. Steve found himself placed on a precariously steep and slippery slope about 200 metres from the entrance and did slip, falling 10 metres down the slope to the river. His hand caught some rock on the way down and opened a gash that put a stop to active caving for a week.

Finally, the passage comes out into the valley. There is a swampy feel to the place here, with plenty of rotting logs and mud. The river is only visible for approximately hundred metres out of the cave to where it rises, dirty and muddy looking, straight out of the floor of the depression.

South of this muddy depression, the river course can be followed up-valley as it intermittently surfaces from breakdown . To rejoin the main flow, however, it is necessary climb a steep path from the rising and walk south. The path leads through a ridge and back down through a short fossil cave passage, Gua Kepayung, to a perfect campsite under a rock overhang overlooking the river (but watch out for wild pigs). The river runs northwards in a large day-lit passage and emerges into the open valley. It flows on the surface for a short distance then re-enters another impressive passage and sinks, while still in daylight, into a huge log jam.

Upstream of the rock overhang the surface river can followed, sometimes with difficulty, as it flows in a steep sided valley, at one point crossed by an dramatic natural arch . A short distance further on and with a last wide sweep it resurges from Gua Masuk, the sink section of cave passage explored and surveyed by the French in '82. This capacious section of cave, is about 600 metres long, well decorated and inhabited by thousands of bats above and attendant crawlies below. The river level is packed tightly with enough hardwood to keep Britain happy for a decade.

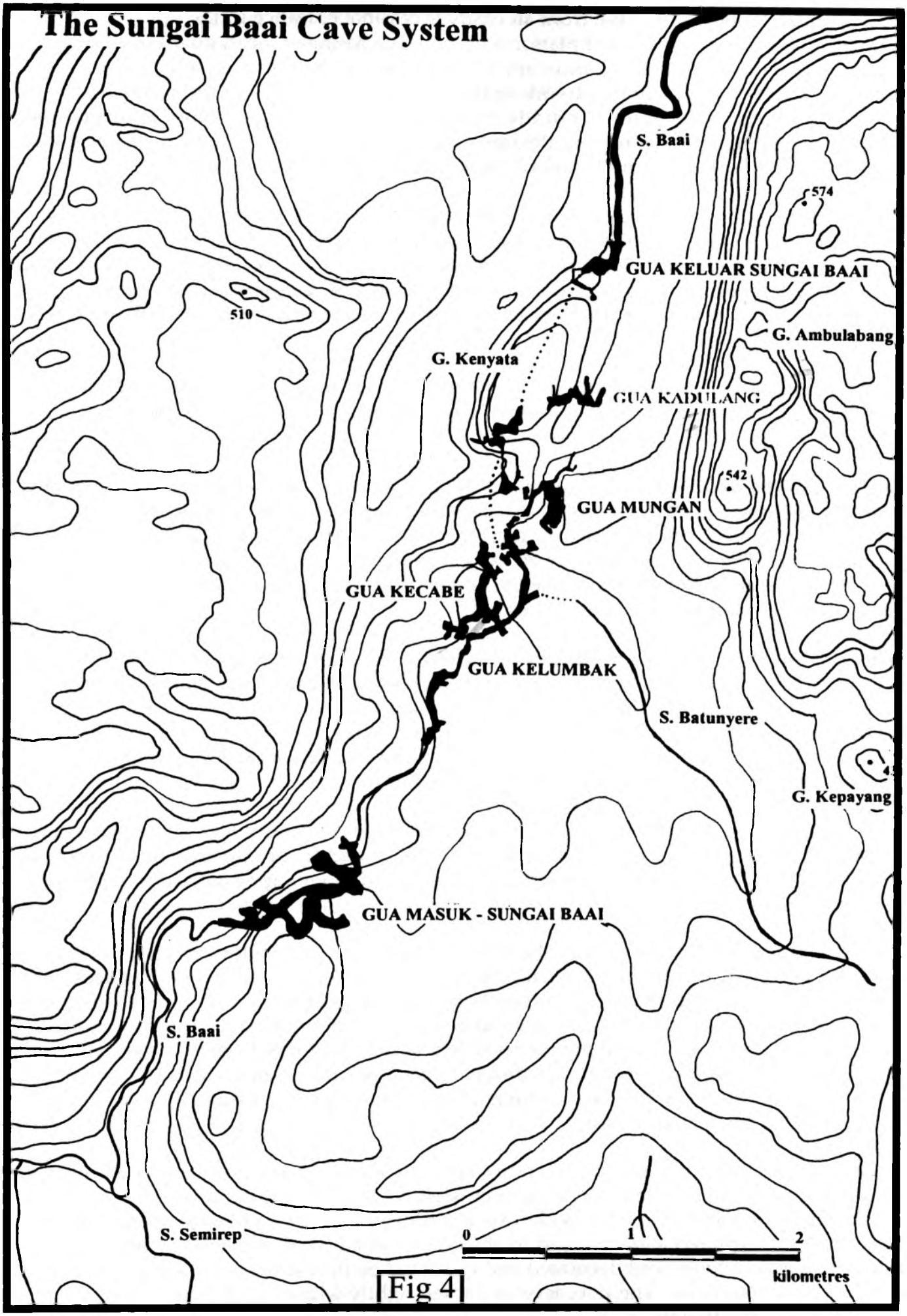

The Sungai Baai Cave System
S. Baai
574
GUA KELUAR SUNGAI BAAI
510
G. Ambulabang
G. Kenyata
GUA KADULANG
542
GUA MUNGAN
GUA KECABE
GUA KELUMBAK
S. Batunyere
G. Kepayang
GUA MASUK - SUNGAI BAAI
S. Baai
S. Semirep
0
1
2
kilometres

Fig 4

Surveyed cave lengths:

Gua Kadulang	1068 metres
Gua Kelumbak	3943 metres
Gua Kecabe	2394 metres
Gua Mungan	612 metres
Total	**8017 metres**

Combined Kelumbak/Kecabe length 6337 metres.

SUMMARY

The Sungai Baai System has a surveyed length of almost ten kilometres. It consists of sections of active river passage, sections of episodic passage and remnants of massive phreatic trunk route . There is one known main tributary entering from the east in the main Kelumbak streamway which offers potential for further exploration . From the massive log jams, it is evident that the system is subject to significant flooding. The area has been extensively explored and exploited by birds' nesters.

7. RECONNAISSANCES

Three recces were carried out during the expedition, the first by Tim and Colin while we were based at Ambulabang and the other two after we left Pengadan with ten days of the trip remaining. (refer to Fig 1, page 4)

7.1 RECCE 1
TIM AND COLIN' S ADVENTURE

From the maps and aerial photos we had available and had studied in Pengadan, it appeared that the northern flanks of the main limestone block west of the Sungai Baai had speleological potential. There were rumours of another resurgence similar to the Baai and there are a number of streams draining north from the horseshoe of cliffs to the Sungai Bulan.

Our initial plan was for three of us (Colin, Tim and Hairuden) to walk from the expedition camp out to the forestry road at kilometre 34 and then continue to the Sungai Bulan,where we hoped (and were reassured it was possible) to hire a boat and boatman to take us up the main tributary of the Bulan into the area. The tributary was clearly named on one map and could well emerge from the fabled resurgence. Great plan. The first night out found us at kilometre 41 in an old pondok next to a trickle of a stream. No boat, no boatman, no tributary to follow and no choice but to walk in! We reached the cliff line the next day and traversed under it for approximately a kilometre, finding no caves or resurgence. The next day, we went west to attempt to reach the western cliffs of the horseshoe and from a forest clearing were able to see one possible cave entrance high in the cliffs. Our time away from the rest of the team was running out and we walked out to the logging road and staggered back into the expedition camp in darkness.

In conclusion, all the main drainage from south to north through the limestone block appears to have followed the present day route, the Sungai Baai valley. It is therefore unlikely that significant active caves exist west of the valley.

Tim Fogg

7.2 RECCE 2

STEVE, PAUL AND COLIN 'S JOURNEY UP THE SUNGAI KARANGAN

The river ferry leaves Pengadan at 10.00 am on its way back to Sangkulirang. The whole team was on it, but heading for different destinations. Three of us, Colin, Paul and myself were intending to jump ship after two hours, catching another boat on its way from Sangkulirang, heading north up river to Karangandalam. This is a small town on the right hand Karangan tributary in the very heart of the peninsula. Pilot charts show the area as having high limestone mountains, up to 1,100 metres covered in dense forest and probably almost completely unexplored. We planned to spend as many remaining days as possible prospecting for cave in this area.

Jumping ship was the easy bit, common practice for local people. The whole procedure was done in a few minutes while the two boats drifted side by side in mid-stream. The journey up the Karangan is a long one, taking nearly six hours, so we didn't arrive until 6.30, just as it was getting dark. Not the best time to arrive in a new village as finding accommodation is not easy. There is no losman, so we were lucky to meet a local entrepreneur who offered us a place on the floor of a new shop that he had built, but as yet did not have a proprietor. It was basic, but more than adequate.

After a quick meal, we immediately started putting out feelers for guides and transport. Meetings were planned with a possible guide the following morning, but unfortunately nothing happened and it wasn't until lunch time after a lot of pushing by Colin, that it actually took place. The result was not good. There were no vehicles available, and thus the only possibility was to rent motor bikes with drivers. This was impossible as they wanted 100,000 rp each, one way, so with a guide and a cook, that was five bikes and 1,000,000 rp . We hoped that by playing hard to get, the price would come down, but by 8.00 p.m. it hadn't, so we decided to walk.

The following morning, after buying supplies, we set off walking, just as it was getting really hot! We walked six kilometres to the kilometre 12 marker, along a road heading north out of the village. At this point was the first junction. A branch to the right was heading directly into the middle of the area we were hoping to get to. It started to rain very heavily at first, then torrentially, so we took shelter at the junction in an abandoned house. As luck would have it, a passing jeep (the first vehicle we'd seen all day) agreed to take us along the road. The road was a mud track and as it continued to rain and the further along it we went, the more the track's condition deteriorated, until at 27 kilometres from the junction we got stuck up to the axles. Two hours of digging did nothing and eventually the driver's mate set off to walk the six kilometres to a logging camp, where he hoped to find another vehicle to come and extricate us. Just as the final rays of light were fading, the rescue team arrived, we were pulled out and shortly after arrived in the logging camp.

The foresters were extremely generous and friendly. They gave us a room to sleep in, fed us and entertained us with wild card games. They were completely unfazed by three white men appearing from nowhere, with no permission or letters of introduction. They simply accepted that we must be mad and acted as perfect hosts. They explained to us that this whole area had been previously logged 24 years earlier, when just the best hardwoods were taken out. Now, they were here as an advance team repairing the roads, making suitable accommodation and marking the trees that would be cut in the second round of felling, which was presumably not very far away.

7.3 RECCE 3

GUNUNG SEKERAT

Gunung Sekerat is a prominent limestone block that covers about 100 square kilometres rising to a maximum height of 710 metres on the coast about 20 kilometres in a straight line south west of Sankulirang. The road to Ronggang (the point from which the ferry goes across the river estuary to Sankulirang) runs along the foot of its northern slopes whilst its southern flank runs down almost to the beach. The existence of the road on one side and the sea on the other makes it look like access would be simple from either direction, but, as those of us who did the reconnaissance of the area (Tim, Pam and John) found out, it is not a major public transport destination. This means that if you don't have your own transport, either water or land borne, it's not so easy.

It was not only the existence of the limestone that made us want to do a reconnaissance but prospectors had seen a large cave entrance on the coastal side. Looking for that cave seemed the best way of starting the recce, so our first choice was to try to get a boat straight to the coastal slopes from Sankulirang. When we got to Sankulirang, however, we found that there was no regular boat service. We were told that boats did make the trip from time to time, but none obliged, and no one seemed keen to charter us one for a price that was anywhere near reasonable.

The alternative was to take the road from Ronggang. That wasn't so easy either because it had been raining, the road was sticky and the little bunch of Kijang drivers waiting at the little building at the end of the road at Ronggang seemed happier playing cards than getting stuck by trying to take us where we wanted to go. One did condescend to do the trip in the end, but he was pretty miserable and squeezed us to the limit before he would go.

The road was pretty muddy in places but the natural aggressiveness of our driver got us through. The turn-off from the main Samarinda road is at Simpanan, a cross-roads just off the north-eastern tip of Sekerat. It is about 22 kilometres from Ronggang and, apart from a single,lonely looking house at the cross-roads itself, there was no sign of nearby habitation. In fact it is only three or four kilometres south, toward the coast, to a transmigration settlement called "SP1 Kaliorang" (known locally simply as "SP Satu") which seems to survive on the cultivation of rice and bananas. Our sulky driver wouldn't go any further than this, even though the road seemed to carry on further towards the coast, so we made contact with the local Kepala Desa, Pak Tayip, who let us stay in an abandoned house and use it as a base.

Although the western slopes of the limestone rise from close by the settlement here, access did not look easy. The 1:50,000 map showed a big blank space from cloud that apparently covered the whole of the upper area of the mountain when the aerial photos were taken. Also, the fact that this was a transmigration camp meant that the people had not been there for long and it seemed that they didn't venture up there much. It looked like the lack of a good map or guides meant that it wasn't easy to find out what was up there without mounting a trip and that was going to need more time and equipment than we had. So we decided to leave most of our things at SP1 and walk straight to the coast to look for the cave facing the sea that we had been told about.

The rumoured location of this cave was at the point where the beach village of Jepujepu was marked on the map. It turned out to be a long walk to get there; over 40 kilometres for the round trip. We went as straight as we could to the coast, passing through the villages to

the east of the Gunung Sekerat. There were only about three of them, although they were well spread out along the trails and it seemed like more. The first was SP1, then just south of that was SP2, which is as far as the road goes, and then on paths to Selangkau. Selangkau in particular turned out to be more a district than a single community and had several different sections strung along the paths; one was centred on the school and another was at the head of a narrow river where a lot of boats were moored. We found the local Kepala Desa lived here, so we had a bit of a chat with him and he confirmed that boats did make the trip to Sankulirang from time to time but they weren't regular and had to be chartered, which, of course, he was willing to arrange.

The biggest section of Selangkau was on the beach, farther down the narrow river at its mouth. The distance from the point where the boats are moored to the beach couldn't have been more than a kilometre or two in a straight line but there was no direct path along the river. The only walking route that seemed to exist went a very long way around, heading first to the east, away from the mountain, then south again to the beach. It was hard to believe we were doing the right thing but people we saw assured us that we were and we later decided that the circuitous route might have been necessary to avoid a big swampy area although we never confirmed this. In any case we got the impression that there wasn't a great deal of contact between the different communities.

The beach on which Selangkau-on-the-sea was built was big enough for a spacious football pitch, at least at low tide. The goal posts were under water when we first got there. The width of the beach might explain why it didn't have a proper pier for boats and the bigger boats had to go up-river to the boat-yard we had passed. Anyway, from this point it was a straight walk along the beach for two or three kilometres to Jepujepu.

When we finally arrived at Jepujepu, we were in for a surprise. It was completely abandoned! It had been quite a big place and its setting on a palm-covered beach, centred around the mouth of the river, seemed idyllic. We never did get a convincing reason why everyone had left the place to rot but there were certainly enough biting insects there to drive away most sane people.

From here, it looked like just a few hundred metres straight inland to the base of the slopes of Gunung Sekerat, where the stream was coming from. We found a few fishermen sitting in one of the derelict houses mending their nets and they told us that there wasn't any cave at this point. Since the stream was only a small one anyway, we were inclined to believe them. They said, however, that there was a cave at the point where the next river up the beach came out of the mountain, so we carried on to find it. It didn't look all that much bigger than the first, and it had dense vegetation to its banks and looked pretty messy to wade through. Also we could still see no sign of a cave entrance that would have been visible to French oil prospectors looking in from the sea. So we decided to carry on for a bit and walked three or four more kilometres to where the beach finally ended in a headland covered in woodland.

There was yet another stream coming into the sea from the mountain here but the limestone was even further away by now and there were no paths through the undergrowth and still no sign of any large visible opening. So we decided to go back to the second stream and follow it right to the limestone. When we got back there and started off, the limestone didn't look all that far away but it didn't take long after we had dived into the undergrowth to find out that it was going to be unpleasant going. We tried both to wade in the water, which was difficult because of the soft mud on the bottom, and to push our way through the undergrowth on the banks, but that was also hard going that got even worse when the stream degenerated into a mangrove swamp of sticky, smelly mud and roots. It was miserable but we persevered, probably only because the fishermen had confirmed the

existence of a cave here. Eventually, the mangrove did thin out and the water consolidated into a recognisable stream that came, gin clear, out of a cave!

It was a small cave, but it was the only one we found so we made the most of it. It had two passages, both of which ended very quickly. The left-hand one was simply a secondary inlet and ended after 20 metres of wading passage maybe a metre wide. Straight on, the stream came out of the 'main' sump after only 10 metres or so. At the sump, the beds appeared to dip steeply (possibly as much as 45°) to the north-west. It was a picturesque little spot but not very productive. In the area around the cave entrance, there was a lot of breakdown and low crags, so, to avoid facing the mangrove again, we decided to follow the foot of the forest-covered slope to see if we could find anything, particularly the rising for the stream that came out at Jepujepu. We went on for quite a long time without finding anything and eventually decided to make for the beach again, only to find ourselves out of the frying pan and into the fire. We didn't have mangrove now but we still had swamp. At least in the mangrove we had been out of the sun but here we were in low undergrowth and tall grass with the sun beating straight down on us. Underfoot, it was the worst for whoever was leading because you could never be certain how far up your leg would be in the swamp before your foot hit hard ground and the thickness of the low undergrowth made it impossible to see where you were going. It couldn't have been more than a few hundred yards to the beach but it was a nightmare of a trip - and then we ended up back at the beach finally, only 100 metres down from where we had gone in! Not a triumph of navigation. There seemed little point in hanging around here any more because there really didn't seem to be much potential for significant caves. So we decided to walk all the way back to SP1. At Selangkau, we tried to find a shorter route north, avoiding the fish ponds, either by sticking closer to the mountain or following the river bank, or even by getting someone to take us up the river on a boat. None of this worked and we ended up doing the whole route back again.

The only other thing which seemed worth doing here was to go right into the mountain. There was now some vague talk of some people knowing some others who had been up there, but the lack of time and equipment as well as worsening weather discouraged us and we decided to find out whether we could leave, either by sea or by road. The problem with leaving by sea would be getting our things down to Selangkau and it was that which really forced us to leave over land in the end. The road was bad by now, however, and we had a lot of trouble getting a vehicle. We had to do it in two stages in the end, via the lumber town of Bengalon, so it took two days to get back to Samarinda.

John Wyeth

8. THE USE OF A GPS ON THE EXPEDITION

We were lucky enough to be lent a GPS receiver for this expedition, but if we hadn't we would have had to find one some other way because even in the short time they have become available, they've also become one of the most important navigation aids to be introduced since maps. For those few still not familiar with how one works, it's an instrument you point toward the sky until it has found three or four of the 26 satellites that are now roaming about up there. This can take anything from three to 20 minutes, depending on the machine and where you are and the time of day. When it has the information it needs, it gives your position according to the measuring system (latitude/longitude, UTM etc) you choose - preferably to coincide with the one that is on the maps you have.

A GPS was also taken on the 1992 Baliem expedition, in Irian Jaya, but even though that was just four years before, it had been about the shape, size and weight of a large car radio. That, combined with the fact that the full GPS satellite system was still not then in full operation, meant that using it had been a bit of a trial. Technology and user friendliness have come a long way in the meantime, however, and prices have fallen a lot too. The one we had this time was a Garmin 38, about the size and shape of a small cell phone, with a screen that can be switched to a number of different modes which have become fairly standard for these instruments over the last year or two. Apart from the basic function of showing where you are, different screens also show the position of the satellites you are receiving, the strength of their signals, and several alternative navigation aids. These include the distance and bearings between two points, the direction you have to go to get to a particular point, several screens help you plan the route and then guide you between them, and also (sometimes more entertaining than confidence building) a little map of the route you have actually taken. It is also possible to save the basic information about individual fixes ('way points') so you can refer to them later, and the units used for the different measurements can be altered quite easily through set-up procedures. Finally, ours also had a port which allows you to exchange saved data with a personal computer.

Most GPSs, including our Garmin, also give an estimated error in the position fix. More expensive ones are more detailed about those errors as well as about the positioning of the satellites and the strength of their signals. Different models also vary quite a bit in the speed at which they gather and process data and their accuracy. Even the least accurate seem to be able to place you as closely as anyone is likely to need, on a map. The table shows the fixes for the main places where we took fixes on this trip. In some cases, various fixes are shown for the same place and the difference between them gives some idea of accuracy.

It's tempting to say that you can't get lost if you've got one but there are things you have be careful about. For one thing, the batteries don't last long. It's all right if you just turn the instrument on occasionally to take a fix, but if you want to be tracking (i.e. recording the route you are following) you need to leave it switched on. Even in the battery saving mode which gives 20 hours at the most, you will need a set of batteries for every couple of days you do tracking.

The other main problem is the need to have plenty of sky visible before you can make a fix. Clouds don't matter much but you do have a problem if you are in a deep valley or jungle. Anywhere you are in the world there are always eight or so satellites in the sky above a 180° horizon. The geometry of their movements does vary quite a bit with time and depending on where you are, however, and this can make a big difference to the speed with which you get a fix - or if you get one at all. There are computer programs, the makers of the Garmin produce one, which simulate the position of the satellites and tell you the optimum times of day to take a reading at any geographical point, but the program needs more power than the GPS receiver has and you can't carry a PC around everywhere just to keep track of the satellites. It is also worth mentioning that estimates given for altitude by the instrument are not very useful. A reasonable two dimensional fix can be calculated with the information from only three satellites, but estimating altitude needs at least four. Even then, the difficulties of making an estimate of altitude when measurements are taken from above (as the satellites obviously do) are much harder, and the result is not usually very reliable. The several fixes on the beach at Sankulirang, for example, usually put us between 70 metres below sea level to 50 metres above it! and the variations from the same instrument on other occasions (in mountainous areas) show variations of well over 100 metres. The simplest altimeter can do better than that. In fact, the Garmin 38 apparently trusts its own calculations of altitude so little that it doesn't even bother to save them when it saves the rest of the information about a fix.

None of these problems detract from the feeling of security a GPS receiver gives when you don't know where you are on a map and when visible landmarks are scarce, especially when you are doing a reconnaissance in a remote area. The confidence you get from having a GPS therefore makes it worth ensuring that every recce group has one. The price of an adequate one is already down to £150 and they are still getting both smaller and cheaper.

No	Date	Place	Latitude	Longitude
1	4 Aug	Samarinda: Hotel Pirus	00 29 950 S	117 08 820 E
2	4 Aug	Sankulirang (mosque)	00 59 323 N	117 59 082 E
2b	4 Aug	Sankulirang (mosque)	00 59 313 N	117 59 090 E
2c	5 Aug	Sankulirang (wharf)	00 59 378 N	117 59 165 E
3	5 Aug	Pengadan (air strip)	01 15 066 N	117 45 309 E
3b	6 Aug	Pengadan (air strip)	01 15 027 N	117 45 289 E
4	8 Aug	Truck drop off point	01 11 008 N	117 36 458 E
4b	18 Aug	Truck drop off point	01 11 058 N	117 36 427 E
5	8 Aug	Ambulabang camp Gua Keluar	01 09 218 N	117 33 983 E
5b	17 Aug	Ambulabang camp Gua Keluar	01 09 194 N	117 34 009 E
6	9 Aug	Gua Kadalung resurgence	01 08 616 N	117 33 901 E
7	10 Aug	Gua Kelumbak (clearing near rising before cave entrance	01 07 511 N	117 33 400 E
8	12 Aug	Gua Madu	01 08 269 N	117 33 787 E
9	16 Aug	Gua Masuk resurgence	01 07 054 N	117 33 185 E
10	18 Aug	Road Km 26	01 11 017 N	117 37 044 E
11	18 Aug	Road km 34	01 12 442 N	117 34 414 E
12	18 Aug	Road km 29	01 11 664 N	117 36 295 E
		Recce 2:		
13		Karangandalam	01 21 153 N	117 39 451 E
14		Road junction (caught lift)	01 24 N	117 37 400 E
15		Clearing on logging road	01 29 162 N	117 44 304 E
16		Stuck in mud	01 30 539 N	117 45 407 E
17		Logging camp (used as base camp)	01 32 791 N	117 45 407 E
18		Pondok by river on walk-in	01 35 274 N	117 44 860 E
19		Cave bivi (furthest point)	01 34 959 N	117 43 282 E

John Wyeth

9. CONCLUSIONS

There is clearly great potential for further cave exploration in this area of the peninsula but it will be a difficult task. Transport can be extremely problematic and even once you get into the field, finding the caves is a lengthy and challenging process. There are a few options: aerial reconnaissance could work and study of aerial photographs is a possibility as we now have a way of obtaining them before departure. My guess is that anyone wanting to find significant caves in this region is going to need a lot of time and even more luck.

Details of how to obtain aerial photographs of Indonesia can be obtained through Steve Jones . The instructions are written in Indonesian.

Steve Jones

10. FINANCES

Income and expenditure account for Kalimantan Caves

Expenditure:		
Travel		
Flights to and from Indonesia	6,586	
Flights Ireland to Manchester	123	
Travel in Indonesia	431	
Total Travel		**£7,140**
Administration		
Gear hire	35	
Insurance	481	
Medical	96	
Telephone	17	
Report	500	
Liaison	66	
Total administration		**£1,195**
Expenses in Indonesia		
Administration	430	
Advance party	321	
Food and accommodation	840	
Equipment	743	
Labour	167	
Total in Indonesia		**£2,501**
Total Expenditure		**£10,836**
Income:		
Sports Council of Great Britain	200	
Ghar Parau Foundation	600	
Speleological Union of Ireland	200	
Foundation for Sports and Arts	990	
Mount Everest Foundation	1,200	
Members	7,646	
Total Income		**£10,836**

Notes
The expenses were for six people for four weeks in the field.
Flights were with Singapore Airways.
Insurance was with BCRA.
Travel in Indonesia was mainly taxis and boats.
The advance party of two were in Jakarta for six days.
Equipment bought was mainly boats and ropes.

SAMPLE COSTS OF TRAVEL IN KALIMANTAN	**[Exchange rate £1 = 3,300-3,500 rp]**
Taxi Balikpapan to Samarinda	50,000 -75,000 rp per taxi
Taxi Samarinda to Ronggang (road end)	240,000 rp
Boat Ronggang (road end) to Sangkulirang	2,000 rp per person
Boat Samarinda to Sangkulirang	22,000 - 38,000 rp per person
Hire of timber company truck Pengadan	450,000 rp for 3 trips to start of track
Taxi Ronggang to SP1	60,000 per taxi
Boat Sangkulirang to Pengadan	4,000 -6,000 rp per person
Balikpapan airport tax	14,000 rp

11. MEDICAL REPORT

The area had a bad reputation after a French trip which had one fatal case of cerebral malaria.
We went for advice to MASTA (Medical Advisory Services for Travellers Abroad Ltd.), the Royal Geographical Society Medical Cell, Dr Jon Buchan (Doctor for a number of tropical caving expeditions including Mulu) and Dr J. Caithness (GP in Florence Court, Ireland)
The following immunisation was recommended to expedition members; polio, tetanus, typhoid fever, hepatitis 'A' with rabies, Japanese encephalitis, hepatitis 'B', TB and diphtheria being optional on discussion with the members GP.
For malaria Paludrine and Nivaquine/Avoclor were recommended by MASTA but some member's GP's recommended Larium. Members were advised to impregnate mosquito nets with the insecticide permethrin (REPEL make a treatment kit)

The contents of the first-aid kits carried by the team are listed below.

MEDICAL KITS.

With any serious condition always write down what has been administered.

Diarrhoea
Mild.
Diocalm. 4 tabs every 2 - 4 hours (20 in kit)
Lomotil. 4 to start then 2 four times daily until better no solids - frequent drinks. May make you sleepy. (9 tabs in kit)
Immodium. 2 to start then 1 after every visit. (50 tabs in kit)
Moderate/severe
Ciproxin. At onset of diarrhoea 2 a day for five days. (4 courses in kit)
If severe take a salt and sugar mixture plus loads of fluid.
Flagyl Antibiotic for diarrhoea not settling after 2 or 3 days on other treatments or take immediately if blood in faeces. Take 2 tabs 3 times daily for five days - avoid alcohol. (2 courses in kit)

Constipation
Sennakot tabs 1-4 at night as necessary (approx. 50 in kit)

Stomach Upset .
Indigestion, heartburn, gastric discomfort
Maalox. 1 or 2 tabs 3 times a day 20 mins to 1 hour after meals then 1 or 2 at bedtime. (40 in kit)

Vomiting.
Buccastem 1 or 2 twice daily under upper lip to dissolve (40 in kit).

Sunstroke or heat-stroke.
This is a serious condition that can result in death in one or two hours. It has a sudden onset, starting with feeling very hot without sweating. The skin is flushed and dry, headache, mental confusion, snoring breathing, delirium, convulsions coma and death.
Cool by removing clothing, wetting and fanning.
Give lots of fluid with salt and sugar - 1 level teaspoon salt to 6 teaspoons sugar in 1 litre of water.

Heat Exhaustion
Feeling of abnormal exhaustion after work in hot climate.
Salt and sugar drinks - several litres.

Insect bites and allergies.
Triludan antihistamines . 1 twice daily (20 in kit)
Eumovate ointment. Steroid ointment (moderate strength) for skin allergies, non-infected insect bites, eczema, itchy skin lesions. Use 3 times daily as needed. (1 tube in kit)

Cold and sore throat .
Lemsip (7 sachets in kit)
Merocaine. (16 in kit)
Difflam spray. Sore throats and mouth infections. 4-8 puffs one and a half to three hourly. (1 bottle in kit)

Antiseptics and barrier treatments.
Zinc/castor oil cream to protect moist sore cuts .(1 tub in kit)
Betadine paint. paint on cuts. (four bottles in kit)
Cetavlex. Antiseptic cream (1 tube in kit)
Daktarim and canesten powders for fungal infections. Foot rot (athletes foot)
(3 bottles in kit)
Unguentum Merck. Bland cream No active ingredients for dry skin, chapped skin, minor skin lesions, eczema. Apply as frequently as required. (2 tubes in kit
Antiseptic dressings.,
Bactigras. Non-stick for infected skin wounds/ abrasions small ulcers. Apply to lesion cover with gauze or similar and change daily. (25 in kit)

Infections.
Antiseptic soap (8 bars in kit)

Polyfax antibiotic ointment for locally infected skin lesions (not fungal). Apply regularly 3 times per day. (1 tube in kit)
Genticin Ear and Eye drops. For bacterial infections Apply at least four times a day (one bottle in kit)
Nizoral. antibiotic for histoplasmosis. High fever, breathlessness after dry guano exposure 1 or 2 tabs per day with food for two weeks. 30 tabs in kit)
Amoxil antibiotic for wounds, abscess or urinary infections 1 tab 3 times daily for 7 days. (42 tabs in kit)
Baxan antibiotic for infections 2 tabs daily,one tab for minor infections. (30 tabs in kit).
Magnapen wide spectrum antibiotic 4 tabs daily an hour before food for 14 days. (50 tabs in kit)
Ampicillin antibiotic for leptospirosis (2 tab 4 times daily for 7 days) (2 courses in kit)
Erythromycin antibiotic for those sensitive to penicillin . Broad spectrum (2 courses in kit)
Septrin antibiotic for chest and urinary infection (4 courses in kit)
Amoxycillin antibiotic for leptospirosis also chest cough and ears .2 tabs 4 times a day. (2 courses in kit)

Wounds.
Skin sutures . Clean area and pull edges together loosely with a continuous stitch. Start course of Erythromycin (10 packs in kit)
Steristrip. For smaller wounds (15 in kit)

Pain killers.
Paracetamol (mild). 1 or 2 tabs 4 times a day as required. (approx. 40 in kit)
CoCodamol (medium strength) 1 or 2 tabs 4 times a day as required. (approx. 40 in kit).
DF118 (medium to strong) 1 or 2 tabs every 6-8 hours as required. (approx. 30 in kit)
Temgesic (strong) 1 or 2 tabs every 6-8 hours as required. (100 in kit)

Sedatives.
Nitrezepam. Sleeping tabs 1 or 2 tabs as required. (approx. 20 in kit)

Aches and sprains.
Indomethacin 1-2 tabs 3-4 times daily with food. (10 in kit)
Bruffin For pains especially muscular /skeletal 1-2 tabs 3 times daily After food. (20 in kit)

Worms.
Vermox. For worms indicated by scratching or seen in faeces. 1 tab 2 per day. (6 tabs in kit)

Malaria.
Treatment of acute malaria in field 2 Quinine tabs every 8 hours for 7 days when this is finished follow by 3 Fansidar tabs

Dental treatment kit.

Dressings, bandages .
Assorted.

Equipment.
Thermometer x 2 Scissors X 2 Tweezers X 2 Airways x 2 Suture scissors X1
Plasters assorted for two kits
Surgical tape four rolls
Triangular bandages x 3

Water purification .
Micropur Tabs for 5 litres of water each . Leave for one hour before drinking

For water purification we also carried Trekker Travel Well water purification pump. This is a handy system which gives water without the foul taste of other water purification methods.

There were some items which could have been added to the kit, particularly small sachets of antiseptic wash.

A few medical problems were encountered in the field and on our return home. In the field, one member spent two days with fever and diarrhoea in Sangkulirang which was probably food poisoning . During the cave exploration, one person strained an ankle badly and spent the rest of the trip with a brace on the injury and another suffered a deep cut on the palm of the hand from a slip underground. A mild flu / cough affected two people for two days and a high fever which was treated as malaria with Larium and Quinine was suffered by one person. Eight person/days were lost in the field due to medical problems (including first-aider staying with fever patient) . On return to the UK two members were admitted to hospital with severe hot / cold flushes, shivering, sweating and general weakness. One was diagnosed as having had Salmonella poisoning and the other was never diagnosed. They both got out of hospital in two days and recovered fully within a week.

Tim Fogg

12. EQUIPMENT AND FOOD

PERSONAL EQUIPMENT AND CLOTHING

Mosquito net treated with mosquito net treatment
Goretex bivi bag
Sheet sleeping bag
Thermarest/sleeping mat
Troll Omnis
Troll Trekker trousers (light weight),
Troll cotton shorts, vests and T shirts
Troll light weight, long sleeve shirt
Light weight walking boots, sandals and plenty of wool/cotton socks
Troll Madflap hats
Thick novel
Notebook and pencils
4 x passport photos and photocopies of passport
Presents for local kids
Light weight waterproof with hood
Sun cream/insect repellent/vitamins/antiseptic
Lighter/penknife/whistle /compass/plastic bags
Caving helmet, generator and spares
Lightweight caving boiler suit (or Troll Omni trousers and t shirt)
Camera/film and spare camera batteries
Sunglasses
Petzl head torch and spare batteries
Day sack
Passport, insurance certificates

GROUP EQUIPMENT

Expedition business cards
2 camp sheets made for us by Troll Safety Equipment Ltd
3 lightweight dingys
7 life jackets
First -aid kits, base camp and field
Cooking pots, mugs, plates and cutlery (all bought in Sangkulirang)
Caving equipment : 200m 9mm rope, 4 light weight SRT kits, 2 bolting kits, 50 bolts, 20 hangers with maillons, 5 rope protectors, tape slings, wire tethers, 2x9mm climbing ropes, rack of friends/lead climbing rack, pair etriers, large tackle bags, 2 rescue pulleys,
Surveying equipment 3 sets
4 waterproof books
Calculator, graph paper, pencils
GPS
Underground photographic equipment
Carbide and inner tubes (bought in Samarinda)
Ortlieb water bags
Ortlieb dry bags light, medium and heavy weight, assorted sizes
Ortlieb map case, transparent document wallets
Ortlieb transparent waterproof snack pack food bags
Ortlieb Packman & Explorer Backpacks

FOOD

The bulk of the food was bought in Sangkulirang and included:
Rice
Mie noodles
Tins of corned beef and tuna
Tea, coffee, dried milk, sugar, Milo
Biscuits (of a sort)
Washing powder etc

Treat items for lunches etc were purchased in Samarinda and included dried fruit, pasta, bags of sweets, chocolate and also a selection of dried soup mixes and herbs and spices to brighten up the monotonous diet of sardines and corned beef.

Power Bars and Isostar Isotonic flavoured drinks powder were brought from home and were invaluable for providing an extra boost of energy during long trips. The Power Bars travelled well in sealed foil and the hot climate softened them making them easy to chew.

Pengadan stocked the basic items and also fresh eggs, meat and fruit (mainly bananas) and vegetables

NOTES

The Ortlieb items were donated by Lyon Equipment and proved invaluable in their conventional function of keeping clothing and bedding dry in the high humidity, the tropical downpours, and during caving trips. They also proved invaluable in more unconventional ways; the heavy weight dry bags were used as water butts to store a supply of boiled water in camp and the large bags were perfect bug and animal proof containers for storing perishables particularly rice and noodles, at camp. The clear document wallets, as well as serving as map/survey cases, were excellent for cameras and also for field first- aid kits as it was easy to see at a glance what they contained. The bigger dry bags became the complete hospital store containing all medical items. When we were living in the rat infested house at Gunung Sekerat we piled all our food, pots and cutlery in the extra large dry bags and hung them from the beams. At night we lay smugly listening to the rats grow increasingly frustrated as they threw themselves off the rafters onto the bags with a thud and squeak in a fruitless attempt to get at the contents.

A Petzl Duo head torch was donated by Lyon Equipment. Its water resistance was a bonus but its greatest value was in cave surveying. Its strong, long main halogen beam was excellent for picking out passage detail in big cave, so improving overall survey accuracy, while the facility to switch back to standard bulb for close up book work was a valuable power saver, conserving our limited number of batteries.

The Troll equipment was, not surprisingly, donated by Troll. All the equipment functioned well, but worthy of special mention are the Trekker trousers, the Omni trousers and the Madcaps. All three items were ideal, in their own way, for the climate and terrain experienced.

The Madcap's light weight and compactness was much appreciated and the neck flap not only kept of the sun but also the flying,biting insects, when doused in Deet. It didn't stop the leeches, though!

The Omnis proved to be a real winner. The trousers are hard wearing- several members trekked and caved in them every day with very little damage, which is quite remarkable-and they are light, comfortable and dry out quickly, all key features for rain-forest terrain. And they look good! However, the trouser design would benefit greatly by the addition of a secure back pocket and at least one secure thigh pocket. Troll please note!

The Trekker trousers come in two versions: we took the lightweight ones. These are ideal for general travel, with plenty of pockets and a neat appearance, necessary sometimes when on the permission paper-chase. They are hard wearing, wash easily and dry quickly and are comfortable to wear. As the name implies, Trekkers are great for trekking too, but for our in-the-field requirement to be able to trek and cave in the same garment, Omnis were the favourite for the roughy-toughy part of the trip.

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15. ACKNOWLEDGEMENTS AND THANKS

The expedition gratefully acknowledges and thanks the following :

Gaby Burns
Dr Jon Buchan
Dr Jules Caithness
Ghar Parau Foundation
Ortlieb, Petzl, and Beal supplied by Lyon Equipment Ltd
Sports Council Of Great Britain
Troll Safety Equipment Ltd
The Foundation for Sport and Arts
The Mount Everest Foundation
The Royal Geographical Society for their approval of the expedition
The Speleological Union of Ireland
Howard Jones
Dave Checkley

In Indonesia:

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Drs Rusihan Anwar, Dinas Pariwisata, Samarinda
Drs Jamri, Secretary to the Camat in Sangkulirang
Mr Hassan Basri, Kepala Cabang, Dinas Kehutanan, Sangkulirang
Pak Djapar, Kepala Desa, Pengadan
Pak Tayip, Kepala Desa, SP1 Kaliorang
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