

SUSS BULL 51 (3)

OCTOBER – DECEMBER 2012



News and Gossip	1
Flood effects in McKeowns Valley and Mammoth Cave, Jenolan Caves, NSW.	2
Cave Diving Trip Report 26-27 October	6
Great Expectations - Blue Mountains Canyoning	8
Cooleman Plain	9
Blue Rock Caves	16
Jenolan post conference 2013	18
Sydney University Speleological Society – 7/8 September '96	20
The road to Tuglow is paved with good intentions	21
Photo Gallery	23
Things to Buy	25
Trip list: Feb to May 2013	26

**Cover Photo: Henry Shannon in Mammoth, Jenolan, Jan 2013.
Phil Maynard**

Editorial

Welcome to the award winning SUSS Bull.

That's correct, at the Clubs and Societies award night towards the end of 2012 SUSS recieved an award for "merit for the quarterly publication".

Well done to all those who produced articles, took and photo-corrected photos for the bull, and assisted in any way with the production; let's aim this year for Best Publication!

In a continuation of stories from yesteryear this edition contains details of water flow along the northern Jenolan Valley taken by Henry Shannon in the early 1970's. This information would still be relevant for scientific analysis today. In fact Henry, SUSS Legend, has two articles in this Bull.

There are some great dive trip reports in this edition, describing the discoveries, and re-discoveries SUSS is making after researching 50 year old documents.

Keep those stories, trip reports, articles and photos coming.

Stop Press – story

Australia Day honour for John Dunkley

Congratulations are due to caver John Dunkley, who has been appointed a member of the Order of Australia. The honour was given for "significant service to the exploration, science and conservation of caves and karsts".

An article from Fairfax about John can be seen here:

<http://www.canberratimes.com.au/act-news/johns-journeys-are-all-about-his-passion-20130125-2dckg.html>

Congratulations to Ron Allum - National Finalist Senior Australian of the Year 2013

It is not often a cave diver is nominated for such a role, but Ron Allum was nominated this year. See the details at:

<http://www.australianoftheyear.org.au/honour-roll/?view=fullView&recipientID=931>

In the News

Cathedral Cave at Wellington has had its lighting replaced

The cave lighting in Cathedral Cave, Wellington has been updated to a modern led light system. This reduced the power needed to light the caves. (I contacted Watts In Renewable Energy and the cave used to use 8000 watts and now uses 1500 watts, slightly different to that in the newspaper story, leading to a reduction of about 80% in power usage - Ed).

<http://www.wellingtontimes.com.au/story/806390/system-shines-a-light-on-caves/?src=rss>

Tagging Progress

In 2012 several cave entrances in Jenolan were tagged.

- J333 south of J47 (the resurgence near Paradox)
- J334 2m deep hole north of Block (possibly previously known as "Tony's Cave" by BMSC.)
- J335 South west side of Bottomless Pit Flat.
- J336, J337 Holes in grassy slope between Cookes Cave (J291) and J47 (the resurgence near Paradox).
- J338 Hole in bluff above J47
- J339 blowing hole collapse on east side of Bottomless Pit Flat, opposite creek bed entry.

These caves will be explored and mapped as part of the work in cataloguing the southern limestone.

Errata

The photo claiming to be of Renee's feet in the last bull may have been someone else's feet. If anyone can lay claim to ownership of these feet please let me know and I will ensure this error will be corrected.

Due to an oversight the map of "Scrothole", located above Wybirds, was left out of the last bull. This map is included



FLOOD EFFECTS IN MCKEOWNS VALLEY AND MAMMOTH CAVE, JENOLAN CAVES, NSW.

BY HENRY SHANNON

Introduction.

The author has been putting his archive of caving reports on to the hard disk of a new computer with a view to making the information more generally accessible. In the process all the flow measurement data from the Jenolan hydrology project has been put together, and enough new concepts have emerged to make this paper on the subject worth the effort. The hydrology project flourished from 1960 onwards, tapering off after peaking in 1972, and since the author is ageing and living in Tasmania it really needs some dedicated successors to take on the quest, train themselves in the velocity head measurement technique, and collect the necessary better and missing data. The heroes of my vision will take on Northern Mammoth in full flood conditions, laugh as scale the Ninety Foot pitch, splutter their way through the no longer dry "Dry Siphon" roof sniff, grunt their way through the North Tunnel crawlway and arrive gasping at Great North Cavern. But there they will collect the measurements considered "too hard to get" in 1972.

The original work was oriented around water tracing and became a "learning experience." Less was achieved by the work with fluorescein than would be possible now with more developed technique. But the flow measurement data taken at the time, and not then regarded as very important, got figures when critical and rather rare flow situations were observable. These now appear to hold most of the answers that the fluorescein tests were supposed to find. A core concept developed during the work is that of the limited capacity choke. In essence a conduit with a limited capacity choke accepts increasing flow up to a critical point, then spills any more into an alternative route. In this paper the author attempts to locate all the limited capacity chokes that affect Mammoth Cave and to place true values on their capacity.

A fix on the capacity of the Jenolan Underground River

On 17th January 1963 the creek ran through the Devils Coach House for about a day following a day of heavy rain, reaching a peak flow of 200 l/sec. The Jenolan Underground River built up in flow after this and reached a flow of about 1000 l/sec (estimated) with some time lag as measured at the efflux into Blue Lake. This estimate is based on a mix of measurement and extrapolations, and is less reliable than I would like. At this time the weir at the efflux was set up so that a substantial proportion of the flow went over the top and could be measured, and it moved out into the lake as a separate stream alongside the portion going through a hole in the weir. This relationship meant that a figure could be obtained indirectly for the total. At still higher stages previously known figures for the flow under the weir gave a basis to work an estimate from when the flow over the weir interfered with the relationship. It was a far from ideal set up to work with but changes since then have made it impossible. Later and after dark that same day other figures were collected at the bridge in Imperial Cave, then well under water with the flood still rising. This allowed an estimate of 40 cusecs, say 1150 litres/sec. It is a bad measuring point having a drowned bridge in it, but this value would approximate the "full capacity" of the underground system. It is compatible with the earlier figure on the day, and these data are all there is in the author's records for the situation where there is flow through the Devils Coach House.

Of course "full capacity" is a concept that wobbles. Considerably higher floods in the Imperial Cave have occurred; up to the thirty second step in the floods of 1954 (F. Harman pers. Comm.) What the conditions of the day probably revealed is the situation in which unexceptional levels of base flow; (that is, the slowly diminishing drainage from groundwater storage) was supplemented suddenly by unexceptional inputs from all the watersinks along McKeowns Creek; that is, the typical situation.

The flood response to an advance to Wiburds Bluff.

In December 1960 an advance of McKeowns Creek to the vicinity of Wiburds Bluff produced something like a doubling of the flow in Lower Level River (160 to 370 litres/sec), with little effect on Central Level River (a rise of 4ft or 1.2m in Central Lake). A measurement of 1.5 cusecs = 42 litres/second was taken first crossing appearance of the river. The more usual figure taken for the Central Level River around this time was 0.5 cusecs = 14 litres/second), a figure the author got repeatedly during the early 60's but at the second crossing or Ohmenez measuring point.

The interpretations that follow from this behaviour are that the rivers are separate. Lower Level River has its main source up the valley from the vicinity of Wiburds Bluff and that Central Level River has a different and more local source. Prior to these observations it was possible to argue that Central River floods were evened out to produce the flow of Lower River. A clue that was missed at the time concerns chemistry. Central River is a borderline case for carbonate saturation. Portions of its bed upstream from first crossing have stones coated with travertine, and calcite flottante can appear on the surface of Central Lake; its downstream continuation. Lower River is always lime dissolving.

The drying of Central River at second crossing.

The flow measurements considered standard for Central River at this period were taken at the second crossing. As the 60's and 70's progressed generally drier conditions prevailed, leading to lower values for the stream at 3 l/sec or even 1.5 l/sec and scepticism with regard to earlier measurements. Fewer measurements were taken at the first crossing and the hints of a larger flow were attributed to poor measurement technique. Eventually the Central River dried up at the second crossing on at least two occasions while continuing to run at first crossing. A hidden and more permanent tributary or anabranch is needed to account for this behaviour.

The flood response to flow reaching Serpentine Cave.

A series of three trips in February-March 1972 produced good data set for resolving the relationship of the water sinking outside Serpentine Cave to the response in Mammoth Cave. The point to be made (see table below) is that there is a very close match indeed between what goes down here and what appears in the Northern River passages. Other points are that water comes out of the Infinite Crawl before the Serpentine Cave itself starts to operate, and that although the Infinite Crawl gets most of the water some goes to second crossing and boosts the flow going to the Bypass. I would guess that this is what comes through the ceiling of Great North Cavern. Serpentine Cave is fairly well over to the west of the limestone belt but the Woolly Rhinoceros Cave must lie even further to the west.

The flow measurements also revealed the notional unseen permanent tributary of Central River more clearly. It is effectively an underground river below you even when you are underground. The author has been calling it the Sarasvati after the Hindu sacred river believed to join the Ganges from underground at Varanasi. It is interesting that early 60's flow measurements show the same difference of 1 cusec extra for the First Crossing site detected in the 1972 data.

At the second crossing measuring point an example of a limited capacity choke can be seen in operation. Normally the Central River goes down a floor hole but once the critical capacity is exceeded, any additional flow is spills over into the normally dry Bypass stream way, and the original route through the floor hole operates as a constant volume conduit.

Flow in the Northwest Passage through to the Overflow in full flood is very confusing with streams entering and leaving the accessible passage at several points. Both the Hidden Branch from second crossing (Ohmeneez) and the Sarasvati apparently join and cross underneath the Northwest Passage to get to the points near the Overflow Lake where all bar about 7 litres/sec of what got to first crossing on 26-2-72 was visible.

Table of Flow data: Serpentine Submergence point and Mammoth Cave Location Date and amount sinking (in l/sec) shown by colour: 29-2-72,26-2-72,12-3-72. Measurement point for flow in McKeowns Creek which sinks in the stream bed in the vicinity of Serpentine Cave.

Location	Date and amount sinking (in l/sec) :			
	Measurement point for flow in McKeowns Creek which sinks in the stream bed in the vicinity of Serpentine Cave.			
Serpentine area, surface and S. Cave		U/s cnr. M.Ck.	Serp. Cave	
29-2-72		8.5 l/sec	No flow ?	
26-2-72		20 l/sec	trickles	
12-3-72		100l/sec	28 l/sec	
Ohmeneez	Measurement points/inferred flows taken beyond the Dry Siphon in the Northern River Passages of Mammoth Cave			
	Hidden branch	Bypass stream	Infinite Crawl	Sarasvati
29-2-72	25.5	2.8	11.5	28.5 (indirect)
26-2-72	25.5	7	14	28.5 (indirect)
12-3-72	25.5	20	85	28.5 (indirect)
	Measurement/inferred flow of Central River at First Crossing, below the junction of all the separate streams above			
1st crossing	Below 90 foot			
29-2-72	68			
26-2-72	78			
12-3-72	159 (indirect)			

Table 1: Table of Flow data: Serpentine Submergence point and Mammoth Cave

The Hidden branch is determined from the difference between the Ohmeneez measuring point and the flow in the Bypass. The Sarasvati from the difference between first crossing and Ohmeneez plus Infinite Crawl Streams; it includes some identifiable minor streams as well as the larger concealed stream(s). From these relationships the

First Crossing indirect measurement is calculated for the situation occurring on 12-3-72 when the measuring point was under floodwater and not measurable.

The flow at second crossing was already up from the “healthy” base flow of 14 litres/sec by 17 litres/sec when the flow at surface was barely reaching the Serpentine streamsink complex. This water most likely comes from a streamsink like that feeding Serpentine Cave in the limestone bluff near where Hennings Creek has its normal sinking point.

The flood response to flow getting to Bow Cave.

The Bow Cave is unusual in that there is an obvious inflow cave going off from the surface creek. Its open arch is subject to clogging with vegetable debris making its intake capacity inherently more variable than the gravel drain conduits that are usual in the valley. For years it has been known that water goes via Sand Passage to the Cold Hole where flow splits. It goes first to the Forty Foot and at slightly higher stage also to the Railway Tunnel. But water emerges first from the Rockpile at the foot of the Forty Foot and in quantity. The author has witnessed a situation (June 1960?) where the waterfall going down the Forty Foot was about 1.5 l/sec but pouring out of the Rockpile was a flow of some 100 l/sec. This must be fed from a route diverging from Sand Passage. In 1960 the author suggested that the base of the Eighteen Foot shaft was the likely take off point.

The behaviour of the Bow Cave has fascinated other speleologists. The quote below is from someone else's typescript found loose in the archive:

“Behaviour of flood passages deriving from Sand Passage depends entirely on how much surface flow is diverted into Bow Cave. As Peck (1956) has observed, it is possible for the route to Southern Section to be dry with a foot of water in McKeown's Creek, or for Southern Section to be flooded with little or no surface water downstream of Bow Cave inlet. For example, in June 1963 McKeown's Creek was flowing its full length through the Devils Coach House and the Southern Section was dry at least to the base of the Forty Foot. Yet within two hours of a party industriously diverting the bulk of the flow into Bow Cave, the surface downstream was dry and there was water flowing over the Forty Foot. Clearly, then, this system is hydrologically independent of conditions elsewhere in the cave, yet it is clear that minor adjustments to surface bed configuration either now or in the past would have induced significant differences in lateral water flow.

Base flow in Sand Passage escapes to the foot of Forty Foot by impassable gravel conduit, but increased volume produces a pressure flow which debouches water into the Cold Hole. Here some may proceed direct to the lip of the Forty Foot, and the rest bifurcates and makes its way to the great mud sink in Horseshoe Cavern. In exceptional conditions, this latter may overflow to another sink 60' north up the Railway Tunnel. In previous times this flow may have proceeded to the palaeo-Central River via the Skull and Crossbones.”

But there is also evidence that water sinks in the bed of the creek outside the Bow Cave. In the 12-3-72 flood situation by afternoon about 115 l/sec was sinking partly in the cave and partly outside it, about evenly split. That morning the flow had been 132 l/sec with indications that the flow had only just ceased going on to Mammoth Flat and retreated to the vicinity of Bow Cave. Between these measurement times Mammoth Cave was visited and, going by memory alone - this is not in the trip report record - there was a loud noise of running water coming from Sand Passage on the way in, but no noise on the way out.

The explanation the author suggests is that the first 115 l/sec of water sinking in the vicinity of Bow Cave, both that going through the creek bed outside, and in the entrance zone of the cave itself must go directly to the Woolly Rhinoceros Cave by an independent route. Only flows in excess of this and penetrating past the entrance zone can get into Sand Passage. The situation for Sand Passage is like that for the Serpentine where the flow going directly through the creek bed to Infinite Crawl has priority over the route through Serpentine Cave. This mechanism can adequately explain the reports of bigish floods passing the Bow Cave without causing a flood in Lower Level. The reports imply enough water in the creek for some to have got past the leaky barrier of flood debris at the cave's entrance. The next issue is what is the capacity of Sand Passage itself. There is a choke capacity limit imposed by the gravel conduit between Bow Cave and Sand Passage itself, which applies whenever the cave is clear enough from vegetable debris for it to become the functional limit. In fact what is likely to happen in a flood is that the cave fills first to the limit imposed by the conduit's choke capacity. Then a lake backs up in the cave close to flood level in the creek outside. Any further increase in the creek flow simply runs past. But flood debris is swept in and can't get through the conduit so as the flood progresses less water goes down Sand Passage. As the lake becomes more stagnant the characteristic dam of debris builds up at the entrance.

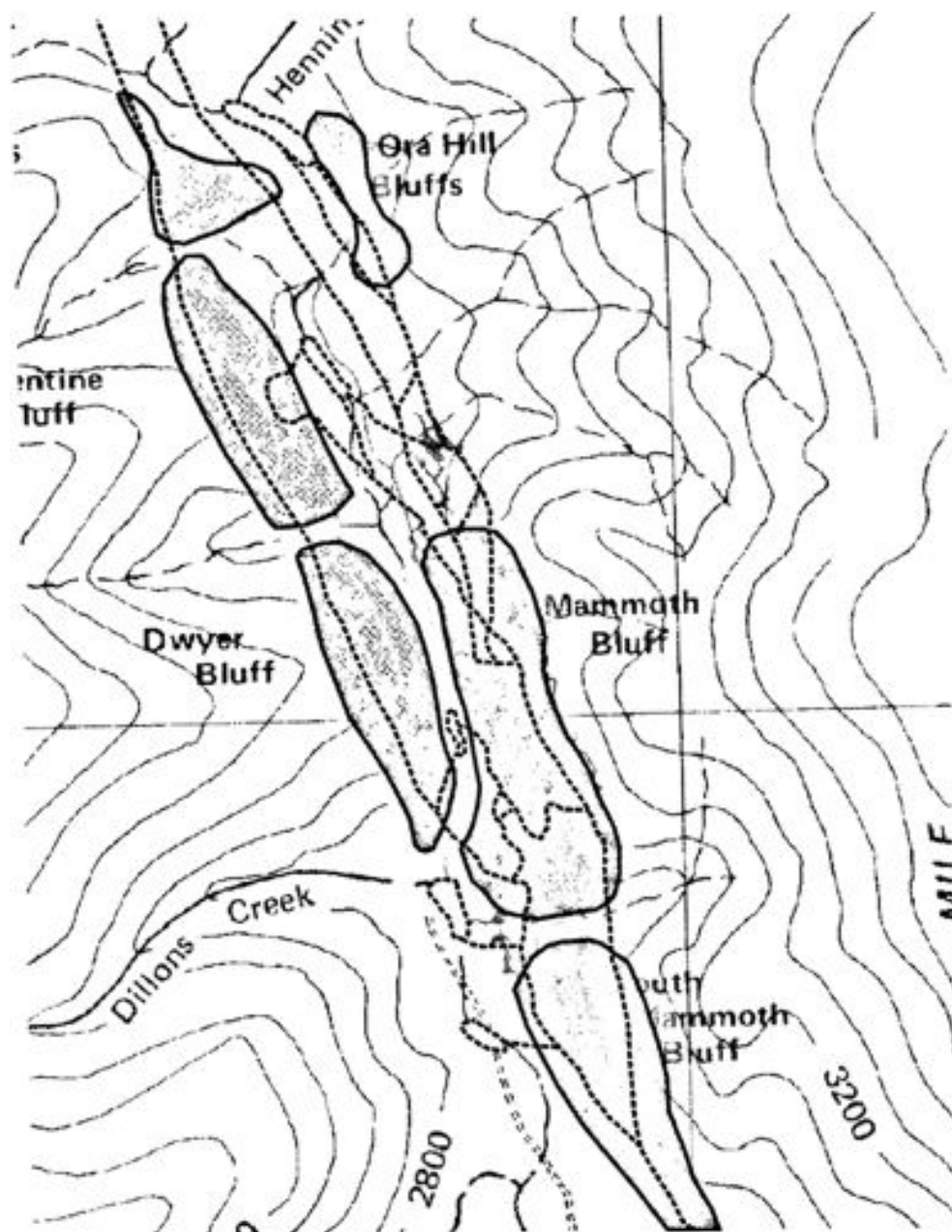
The automatic shut off mechanism in the Bow Cave has an effect in Mammoth Cave, which can be read in the effect on sediments in the Horseshoe Cavern area. It takes close to the maximum flood to fill and overflow the lake which forms in the Mudsink. The markings in the sediments indicate a modest though reasonable inflow yet the lake often does not completely fill and overflow so hinting that the inflow does not last for long enough.

There are flowmarks in sediments in the Mudsink and on to the point where the “unsurveyed connection” drops down to the Ice Pick and Central Lakes. This data is all there is to go on for putting a figure on “modest though reasonable.” But from experience of relating measured streams to their effects on sediments flows of 21 l/sec for

what goes down the Mudsink and 7 l/sec for what overflows it are of the right order. The same approach can be applied to the very much larger branch of the Sand Passage stream which goes to the top of the Forty Foot. "Very much larger" can be put at 172 litres/sec. When it comes to the flow coming out of the rockpile next to the bottom of the Forty Foot there is direct observation to go on in a situation when there was just a waterfall over the top of the Forty Foot as well, thus giving the basic maximum flow. Unfortunately no actual measurement was taken but a retrospective estimate of 100 l/sec can be made (from a real underlying guesstimate of 3 to 4 cusecs - all these estimates are really converted from originals in cusecs). Putting all these together gives a convenient round figure for what can be delivered through Sand Passage of 300 l/sec. In any particular flood the utilization of this capacity can vary between all of it to none of it. But the common situation for when Bow Cave starts clear of its debris dam is for close to full capacity to be open at first, then it closes off as the flood progresses.

Conclusions.

Barring problems with calibration a surprisingly good picture of how Mammoth Cave relates to its surroundings hydrologically comes out of these figures. There is a believable difference between what comes out of the Jenolan Underground River at Blue Lake and what can be identified as passing through Mammoth Cave. Also there are some previously unsuspected leads for speleologists to follow up. In particular there is a potential lead to the Woolly Rhinoceros Cave from the vicinity of Bow Cave, and a possible route to the headwaters of Central River from the Bluff opposite Hennings Cave. Both areas should be examined for digging prospects. Finally it looks like Mammoth Cave accounts for even less of the notional total of cave passage in its vicinity than was previously thought.



CAVE DIVING TRIP REPORT 26-27 OCTOBER

BY KEIR VAUGHAN-TAYLOR

Participants: Deborah Johnston, Andreas Klocker, Phil Maynard, Rod Obrien, Keir Vaughan-Taylor

Special thanks to support team Bill Lamb, Aiden Lloyd, Scott Moores and Ted for his in-house support.

Saturday: Imperial Streamway Climb Participants: Phil Maynard, Greg Ryan, Keir Vaughan-Taylor

Expecting this time to be climbing into the attic avens I wore my caving suit over a dilapidated surfing suit and underneath were generous layers of thermal clothing. Knee and elbow pads are an essential when going light. I would only be underwater for at most five minutes and hopefully way up in the roof where the expected lead would take us.

Climbing gear, and various equipment we did not want wet, was packed in a waterproof drum and suitable loaded with lead to get a neutral buoyancy passing through sump 1.

Phil's brand new regulator packed at the edge of the Imperial Bridge Sump. A minor problem required tightening the high pressure hose. Usually I have a tool kit but being in light weight mode we had no tools with us. Phil had to leave the cave and find a spanner back at the car.

While Phil was gone Greg and I floated all our paraphernalia through the sump unpacked it all and positioned it under the rope hanging from the climb.

In time Phil returned. He was first up the climb and was the only person that could safely go into the upper regions because of possible falling debris. Greg and I waited in the river watching Phil's light make its way higher and higher into the roof. Phil would occasionally shout some piece of information but in the echoes it was impossible to hear what he said.

After a few hours he returned with the disappointing news that the tunnel had just terminated. He was completely covered with mud and so I could tell that this was not the huge passage we had imagined. Oh well! It had been a brave effort.

Saturday: River Lethe

Participants: Deborah Johnston, Andreas Klocker, Rod Obrien

Previously, August 12th, Rod passed Lethe's vertical squeeze using a setup of lightweight gear. Michael Collins acted as support diver passing auxiliary tanks and other bits and pieces through the squeeze to him after he had crossed into a larger area beyond the squeeze.

Rod's examination was cautious, revealing passage developing into something more substantial and running off into the murky void. After establishing a route through the tunnel system coupled with various body positions within the squeeze, a dive plan was established. After spending a lot of time examining the passages, it was enough for him on that day. It was not until October they could get back and Michael couldn't make the later trip because of other commitments.

Apparent to everyone, our group was about to find the missing section of River Lethe between the Mud Tunnels and BlueTongue. This was something dive trips had focused on for years. The squeeze had



Phil Maynard, Imperial Climb. Photo by Greg Ryan



Lethe Squeeze. Photo by Deborah Johnston

been passed several times now and next trip was likely to be the breakthrough.

With the anticipation of new discovery Lethe was a favorite topic of discussion. There was considerable discussion about the Lethe squeeze around the kitchen table. In general it was felt that all the line, now somewhat old should be replaced with new orange 3mm, with past exploration blind routes taken out.

The squeeze didn't have a line in since it was originally thought to be a potential entanglement in the tight manoeuvrings that needed to be done. It was resolved to put a line in but take time to make sure it was secured properly and routed in a safe manner through the obstruction.



Lethe, Rod Obrien. Photo by Deborah Johnston

After establishing a safe route Rod began his exploration on the other side. Deborah and Andreas managed to film some of the manoeuvrings with a Go Pro video. The quality is poor, but one day in the future, may hold the quaint trapping of limited technology in the same way, we today, view Kodak's Brownie black and white pictures.

Rod laid line along a fairly wide passage. At times the tunnel surfaces and runs along a waste deep canyon similar in structure to the canyons found upstream from the far end of Barralong. In part there were rift passages rather than vadose canyons and broken with the occasional joints and kinks in the waterway.

The tasks on the journey require ensuring the tie

off provides a return path in a complete visual blackout and so the first journey will take longer than return trips.

Downstream and upstream Imperial Streamway

Participants: Greg Ryan, Keir Vaughan-Taylor, Phil Maynard, Deborah Johnston

Greg has been doggedly surveying the Downstream Imperial. On a previous trip with Merv Mahr he did about eight survey legs but the results didn't match with a previous survey done by Ron Allum back in the 1970s. Ron's reputation is good enough that Greg sought to remeasure his survey legs again and just make absolutely sure his measurements are correct. In my opinion this is not easy in the murk and cold of Imperial.

We descended to the air bell from the WoolShed which is a chamber separating the main Imperial downstream sump and a 60m underwater passage back to the Imperial Bridge. Climbing down to the WoolShed Air Bell avoids disturbing silts passing through the first downstream sump from the Imperial Bridge. The chamber is not really an air bell because there are surface tunnels leading to the Devil's Coach House on one side and Imperial on the other but historically its get called an air bell.

Notwithstanding our silt reducing strategy, the water visibility was murky. In the confines of the small chamber, Greg summarized our procedure. He indicates a survey station and I hold the end of a survey tape on that station, hovering in the water while he reels out the tape to the next station. When he has recorded compass, depth, left right up down on a diving slate, two tugs on the tape signals that we proceed to the next survey station and repeat the process. Greg emphasized that the orange line should be the only guide to locate the next station rather than following the survey tape.

It might seem to be a dull way to spend a dive but on the contrary it can be relaxing giving time to take in the little things that you would normally miss. Just float and look at cave formation, evidence of flood action scalloping on the wall noticing current flows and formations evidencing a time when the passage was dry.

Without much swimming and movement it gets cold. After eight survey legs, I was starting to shiver so was pleased when Greg decided eight legs was enough for one day. We returned to the Imperial tourist bridge where Phil and Deborah were waiting to start on their upstream trip.

Deborah and Phil made their way to the fourth upstream sump and took a quick look round at Rubble Trouble. The group is still fossicking in this area hoping to find a more civilized route through the rock pile into Spider Cave rather than the current horribly small connection or the long route through Pirates. When Big Route is found it will revolutionize the diving exploration of Spider.

Returning to the Imperial tourist bridge we packed away all the gear keen to return on another day.

GREAT EXPECTATIONS - BLUE MOUNTAINS CANYONING

BY THOMAS WILSON

Participants: Alison Chau, Rob Jones, Phil Maynard, Max Midlen, Alan Pryke, Eric Tan, Denis Stojanovic, Thomas Wilson

19th January 2013

In the week leading up to it, the canyoning trip was shrouded in mystery: cut back from a weekend to just a single day, the destination a closely guarded secret, even the guest list only known per speculum et in aenigmate. Eventually a single email went out, with a rendezvous point and precious little else. Theories abounded that Fearless Phil, our Fearless Leader, might be leading us to one of the much-discussed “secret” canyons. It was with hearts in our throats, then, that we arrived at the North Richmond bakery, and with hearts still in our throats (despite the growing sensation of needing to swallow) that we arrived at the **other** North Richmond Bakery, where we found Phil sitting at a table strewn liberally with pastries and strawberry milk. Eagerly we pressed him for details of the top-secret mission.

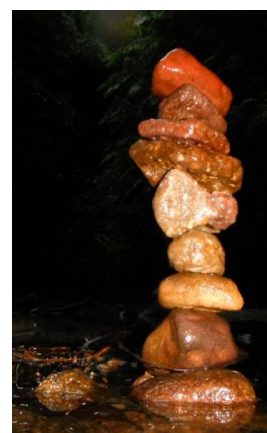
And the answer was...

“Upper Bowens Creek South!” The excitement rapidly dissipating, since two of us had done that same canyon less than a month earlier, we could only content ourselves with the delights of the bakery. Even the caramel slice did not look so sweet to our jaded eyes. But the arrival of Magic Max in his Max-mobile quickly buoyed our spirits. When we had all assembled, rationalised down from six cars to three, and made the customary trips back for everything we’d forgotten, we set out along the Bell’s Line of Road.

Wandering through the bush to get into the canyon turned out to be rather more pleasant than it had been on the previous trip, with the lack of wet leaves everywhere dripping down our backs a definite positive aspect. Once we were down in the canyon, all sorts of fun was had, with Eric’s camera ably and thoroughly documenting the day. Just to keep us on our toes, Phil decreed that we should do the first abseil, which we had bypassed on the previous trip, and bypass the second, which we had done. Max demonstrated his magic by setting up some fixed rigging in the form of a conveniently shaped log wedged in the right place, making an awkward climb much easier.

Reaching the third abseil, there was no way to bypass it, so down we went, some more elegantly than others. Thomas elected for the “slide down on your side” abseil technique – what it lacks in grace it makes up for in, erm... something. At the bottom we had company in the form of an unidentifiable, but very, very dead animal, which provided the fragrance component of the trip. With quick side trips up Corkscrew Canyon and a thrash through the bush to reach Hand-over-hand Canyon, we were making good time. In Hand-over-hand, Max made a second demonstration of his magic by climbing something the rest of us had written off as too hard, returning about thirty seconds later to report that it wasn’t worth the effort.

After the climb through the cave, the slippery log of death, and other such delights, we reached the junction with Range Creek. Those who were new to the canyon explored up the side canyon while the rest of us cooled our heels at the junction. Denis, ever the geologist, amused himself by seeing how big a tower of rocks he could build; sadly, the forced-perspective photos of tiny Phil next to enormous rock tower didn’t turn out.



Geologist’s work. Photo by Thomas Wilson



Fearless Phil flops into the water. Photo by Thomas Wilson

Moving down the canyon, we looked wistfully at Rush Canyon, but as always, there was not enough time in the day to look at this final side canyon. Maybe it was named because you have to rush to fit it into the day. (Sorry.) A solemn pact was entered into that the next trip to Bowens Creek would include a trip up here, even at the cost of the rest of the side canyons. We found the first exit without trouble, and, after balancing up the log, trudged up the hill to the fire trail in increasingly heavy drizzle. By the time we reached the cars, the drizzle had turned to fog, and it was a rather sodden, but mostly satisfied group of canyoners who returned to Sydney via a wood-fired pizza restaurant.

COOLEMAN PLAIN

BY KEIR VAUGHAN-TAYLOR

Participants: Ian Cooper, Deborah Johnston, Andreas Klocker, Rowena Larkins, Phil Maynard, Rod O'Brien, Alan Pryke, Keir Vaughan-Taylor

23 – 30 January 2013

The Australia Day week long trip has been one of the most productive in years rendering hundreds of meters of surveyed passage. New sections of cave were discovered, surveyed and photographed helping to piece together the puzzling hydrological relationship in two important cave areas, Easter Area and Glop Pot.

Rivers both surface and underground were significantly silted. At the main Blue Waterholes resurgence vivid green algae grows. It might be expected the algae to develop downstream from here however as soon as the water emanates from the underground the algae is prolific. Camping and pit toilets were moved back from the river years ago hoping to reduce nitrate pollution but perhaps the problem begins in the underground water upstream from the efflux.

Many brumbies are seen commonly on the plains. A horse will deposit its dung in one place rather than spread it far and wide over the grass it wishes to eat and so is often piled high in hundreds of places along the tracks looking at time like strange basalt coloured rocky outcrops. I like horses but there are too many on Coolleman Plain.

Full dive kit is heavy to carry, especially so with our current summer temperatures. Despite the heat of the day the cave water would be cold. Deborah and I packed full wet suit, tanks, weight belt and thermals. It was not appropriate for the conditions that prevail in the cave. The trip through the gorge is beautiful and the river track is not too steep although my shoulders are usually aching on the return trip.

Deborah made not one note of complaint and Alan chatted on about every topic that might cross a persons mind. The slippery cascades down the water fall after Whitefish Cave could be nasty if you were to fall. With extra extra caution, no such calamity struck. I needed lunch by the time we sat outside the swift currents sweeping into the river from the mouth of Easter Cave which indicates how early we started off. Munching on beef jerky and nuts observing the Easter cave resurgence waters discolouration didn't bode well for a high visibility dive.



River tunnel formation, Glop Hole. Photo by Keir Vaughan-Taylor

Alan wandered off to complete a survey in CP93 and was to find yet even more new short sections of passage to add to his survey. Deborah and I slipped into the Easter entrance. A short river passage sinks into a short duck under, a strong rope guiding intrepid free divers. We slipped through without turning on our air.

In the other side passage, previously placed guideline representing the far point of past explorations floated forlornly around in the turbid waters. It was abraded and torn from the far exploratory points. Easter's water was seriously silted and uncharacteristically warm. We could have avoided carrying a lot of weight by instead wearing a few thermals and a surfing wet suit. A good plan for the psychic.

I tied off to start the exploration once again setting off through a cylindrical underwater passage into the back most chamber. There was nothing to see at all. In the back most chamber it was not possible to progress any distance in Easter cave and we decided this was not a day we would be diving in Easter.

Rather than struggle back up the slippery cascades Alan suggested walking up the valley side to the top and walking around the ridge to Whitefish. I have concluded that Deborah chose a better path than I because, today I sport long rose bush scratches raining down my legs like the motifs from the film *The Matrix*.

For me the climb up the ridge involved crossing unforeseen gullies rock climbs and slippery grass. I took a fall on the grass but managed to avoid slipping too far down through the rose bushes.

We did eventually regrouped at the entrance of White Fish with me completely stuffed from my foolish choice of route. In the heat of the afternoon I sank with relief into one of the cascade pools outside Whitefish Cave raising river water temperature several degrees. (Honest I measured it)

Our next dive was in White Fish. It was apparent there had been a recent significant flood event . White Fish Cave, like Easter was missing its guideline swept and tangled in the first sump. Previous line had remained in place for more than twenty years but some deluge exceeded anything previously and remove the guideline.

Normally a simple and short dive, attempts to lay new line were thwarted by lack of visibility and blockages from logs in small rooms choked with grasses. Grass carried in caught and wedged between logs waved about like some television hair commercial. Several attempts to pass the sump waived my resolve. I was somewhat spooked by grassy hands stroking my faces and arms in what was previously an empty underwater space. Half a dozen white fish attracted by the diving light were possibly keen to find a way back to the sun. Hard to say, since no-one knows what a fish thinks. Fish in Easter can get out anytime but chose to live in the dark recesses. Does a fish make choices or do they just swim in response to immediate stimulation?

Again for the second time because of the blackout I was unwilling to push through the logs and lay line.

There is no water flowing into the entrance of White Fish. As they say in the Road Traffic Authority; “Changed Traffic Conditions Ahead”. Schrodingers Cave only found on our last trip, suggests the water may no longer flow as much as it did into White Fish.

Schrodingers Cave Swallet was very changed. Where once a pool formed in the bend of the river, some water penetrated from the back eddy pool of the river into Schrodingers. Now the eddy pool is gone transformed into a sand bar over which half the river water flows straight into the cave. Inside the cave, the sump we intended to dive and explore was completely gone, leaving dry passage instead. Andreas and Alan followed the dry passage into a difficult rock fall with possible leads requiring knee pads and time. Outside on the hill a new shaft has opened dropping into another section of Schrodingers. The shaft is unstable at this time and was not descended.

Alan’s visit to CP92 produced new section of survey. We hope to link the various caves in the Easter area showing the spacial relationship of the very interesting cave features that we know about.

Alan was somewhat grumpy later realising his surveying device, a Disto-X was incorrectly calibrated. Later relaxing around our camp site we were able to log readings from Phil’s correctly calibrated Disto-X and make the same measurement using Alan’s device. Later I ran a Python program to fit a polynomial correction function and re-calculated the bearings from Alan’s surveys. Overkill perhaps but we are a team of super nerds. Rod Obrien arrived after working at Lake Jindabyne installing large Snowy Mountain Scheme pipe valves. Talk about keen. Work all week in some cold deep lake and race to Cooleman for cold cave and a cold beer. I think he likes the company.

Camping equipment seems to have change over the years. My car is packed with an array of charging devices, lights LEDs, DC to AC inverters, laptop computers diving compressor and hopefully I didn’t forget food. In my car its all in a disorganized state. everything you could possibly want is there but it always takes a little time to get it.

I was keeping chargers for my camera battery in a red box inside the tent alcove. The little waterproof point and shoot needed a recharge for the oncoming dives. A black snake scurried out of the atrium of my tent on my approach. I decided, thereafter to keep the main tent section securely zipped up and summoned caution while rummaging. That night two mice cavorting in my electrical box scampered up between two fabric sections of the tent and over my head. Could be, that is what the snake was after?

While Cooleman baked in a Snowy Mountain summer, as SUSS people arrived, news came that the rest of Australia was drowning in what many think is the climate change reckoning. Brisbane flooded yet again and Bundaberg also in flood crisis and Tasmania was in the grip of flames. Alan reported dire weather predictions. Skies clouded a bit but ominous clouds always bypassed us seeking to rain on some other part of the country .

Tomorrow was River Cave for Deborah and Rod while the rest of would rig ladders in Glop Pot ready for diving the next day. I though it would be a chance for me to have a days rest. A rest day carrying tanks and wet suits and weight belts across the Cooleman Plain and then rigging ladders down a couple of pitches. Lots of fun!

Both River Cave and Glop were dived in two strong efforts in 1965 and 1966 by the Highland caving Group by Bob Smith Allan Moule, John Allen and Pete Newton. (Calcite Issue 10 1965 and Calcite Issue 12 1966). Calcite, in 1965 was a short three page publication with very brief description of any caves they found. Nevertheless on this trip an entire half page was devoted to the SUSS presence on that Easter weekend. In the 1966 Calcite editorial, Evalt Crabb strongly condemned SUSS’s behavior accusing SUSS of drunkenness untidiness and failing to assist in a search for a lost fisherman. Who knows what the circumstances were. SUSS was pretty wild in those days. And as for drunkenness what can I say?



Phil Surveying, Glop Hole. Photo by Keir Vaughan-Taylor

In 1965, cave divers had the luxury of being able to drive with their diving paraphernalia to the cave entrance and their main problem seemed to be finding the entrance of River Cave. Geographical confusion was sorted by the famous Joe Jennings. It was assumed by Highlands that Glop Pot and River Cave would be connected. Today with hundreds of meters explored, no such connection has been established

Highlands offered little description of the River Cave Downstream other than passage length, which they estimated to extend the known cave by 400 feet and ending in a rock pile. In the brief trip reports that was the extent of the description. Their dive in Glop Pot was of limited success consuming much effort and involving blow up boats, ladders and much rigging. It must have been a long and arduous effort. They had a go in the first pot hole giving up in the poor visibility. The second and more interesting pool provided a dive straight down and estimated to reach a sloping floor at 60 to 65 feet. Very interesting because this is much more than our experience but perhaps they found a vertical hole in the lake floor that we may also have touched on in this Australia Day Weekend trip.

Joe Jennings, present on the Highlands trip, later briefly reported the experience in *Helictite*. Vol 7 Oct 1969. His article has more material upon which to focus from a later dry survey trip done by SUSS in 1968.

Rowena's arrival was somewhat appreciated because of her help with logistics and the extra carrying help. There was considerable tackle to carry across the plain to River and Glop Pot. The walk is beautiful with flies made more tolerable for me continuously swishing my face with a branch from a bush.

Deborah Johnston, Rod Obrien set out to extend the upstream River Cave. Phil, Andreas and myself set up the rigging in Glop pot for a surveying dive the next day.

For Deborah and Rod the dive was difficult. River Cave water visibility was extremely poor. Although guideline was largely intact, the impact of flooding had dislodged sections and line needed to be re-fixed. Rod and Deborah managed to safely re-secure line as far as the previous exploration point in very poor conditions. Although the visibility was preventing easy exploration the temperature at 15 degrees was much warmer than we were used to at Cooleman, experienced as low as seven degrees. At the furthest point Rod made multiple attempts to find the way on discovering the same blind passage I had found on previous trips. Blindly feeling around he managed to locate a downward progressing passage extending the distance from the last exploration point perhaps another 15m. Not very much but importantly the main flow passage had been located ready to explore in better conditions on a future day.

Andreas, Phil and I set out the following day to dive Glop Pot. Over two trips we surveyed from the entrance through to the start of the second sump and has culminated with one of Phil's excellent maps. Fine motivation to get the rest of the survey and get an even bigger map.



Final ladder, Glop Hole. Photo by Keir Vaughan-Taylor



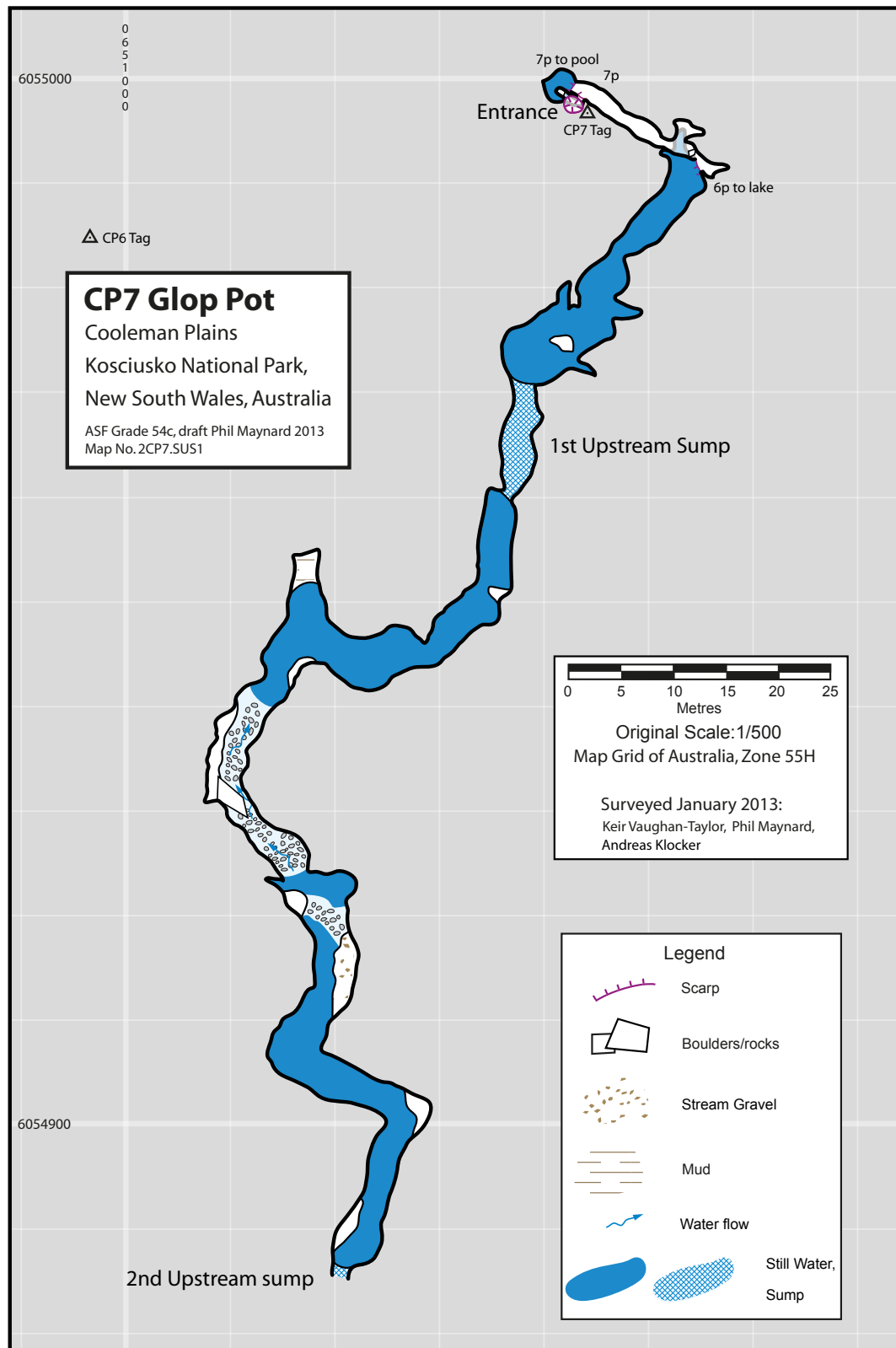
Blade Formation, Glop Hole. Photo by Keir Vaughan-Taylor

Glop entrance is located about 50 meters from the River cave entrance. Inside are two 7m pitches separated by a crawl tunnel maybe 10m long and the second pitch looking down upon black water. The sump viewed from the top of the second pitch appears as a single pool but is part of a larger lake chamber separated into two by a swimmable constriction in between.

I was the first diver in the water and now cognizant that previously fixed guide line might not be fixed any more. That was indeed the case. Abraded guideline untidily wrapped round a speleothem was removed replaced with a more stout orange 3mm line. I wound the old line up into into a ball stuck in our pack and set about making forays into the sump with the hope of laying a fresh fixed line. I knew this sump was short however with zero visibility it took three attempts entering and backing out of the sump trying to find the way on.

Rowena free swimming and keen to make sure the trip was on schedule descended the ladders finned her way around the figure eight shaped chambers accompanying the scuba equipped Phil to the upstream sump. She seemed to be assessing if this trip was a goer or not thus able to decide whether to go off exploring elsewhere. If there was no

way through the siphon there would be some slightly less than exuberant de-rigging of ladders. I was sure, knowing this sump, that a way could be found. No bulky logs and wavy grass for a start



The final trick to getting through was by feeling along the river gravels on the floor which indicated a main water flow. The gravel disappeared under a frothing silt bank but marked just above by a scalloped rock surface completing the directions into next air chamber. Although I had the perception that I was spiraling to the left it was actually a straight line.

The old guide line intact on the other side traced another circuitous route back through underwater rift and fissures. This older route was not at all congenial compared to the new route derived from blind luck navigation. Possibly the new route was exhumed by a recent past flood event.

Andreas removed all this old line leaving only the new line in place. We were easily able to run a survey tape measure through the sump in a straight line estimating the length depth and angle. With this reasonably reliable estimate of the sump extent we connected the survey of the outer cave to the the stream way passage within. Phil was equipped with a Pelican case to get his Disto-X through the sump but he would have to stand in one of the few shallow parts of the figure eight lake to connect into the full cave survey.

Last time I visited Upstream Glop the floor was gravel with a trickle of water running over the gravels. The gravel floor was now gone. instead the passage was knee deep/swimming water canyon all the way to the next sump. Flood had exhumed all the gravel possibly lowering the sump and enabling the current civilized route into the next chamber.

Phil and Andreas went to the furthest planned survey point at the start of the second sump from surveying back toward the entrance.

The line in the second sump was also gone. This second sump is more than 50 meters long and in this visibility it was too ambitious to try on this day. This job will require an electronic compass in a housing to survey. That would have to wait until a later trip. Phil and Andres surveyed while I struggled trying to get my point and shoot to take a half decent picture.

Many of the photographs taken are poor because of water on the lens, cavern fog and my photographer incompetence. Nevertheless enough pictures have worked well enough to give a representation of what is beyond.

Meanwhile Deborah and Rod were having unexpected successes in River Cave.

Visiting River Cave first in 1967, SUSS were unable to progress far upstream or downstream because of the underground river.



Web Feature, Glop Hole. Photo by Keir Vaughan-Taylor

Australia's longest drought is recorded as happening in 1963 to 1968. The dry destroyed half of Australia's wheat crops, the death of 20 million sheep and catastrophic loss of farm income. SUSS, returning to River Cave in 1968 set out with the usual SUSS innovation to float the river using a raft. They "...found the river was non existent. It had dried up leaving only occasional pools and puddles." We know of this trip from a draft of a letter in the SUSS library that was sent to Joe Jennings in 1969 at the behest of SUSS member, the late Glen hunt. The survey bearings were recorded using a Silva compass and distances guessed. Distance estimates totaled more than 1000 feet or about 300 meters of river passage but beyond that downstream sump whatever passage existed was not visited since that time.

Pushing against the current at Jenolan's Lower River teaches a lesson of caution about diving downstream in a cavalier fashion without sufficient re-

gard for the important return journey. I'd seen the downstream River Cave sump on one occasion in high water where there was a substantial whirlpool drawing in every hapless object that sucked into its path. I was not enthusiastic about a downstream dive because there was so much other cave available to explore. Downstream River was to me a distraction although I knew of the 1968 SUSS letter and was intrigued.

On this occasion the water was low, no whirlpool and curiosity is a powerful motivator.

Using a three litre cylinder Deborah and Rod with some difficulty, located a slot in the downstream lake. It was a canny piece of work by Rod locating the position in the lake where the outflow might possibly be. The intrepid pair slotted themselves through a letter box hole in the side of the lake thus finding for the first time the cave described by our early SUSS explorers.

On the other side stream way passage similar to the River Cave we all know continues as a river/lake section entering into small domed lake rooms with similarly domes alcoves on each side.

It is evident that the description and map of the 1968 team greatly understates the size and beauty of these passages. There are two connections to a rock collapse chamber both through alcoves on the right side and again on the left along a triangular water filled passage that finishes with a climb over jammed river stones. Here there is a climb up to a large chamber of breakdown rocks. After the climb Deborah and Rod found their way into the chamber on the far side to an abandoned river passage containing a shallow pool. They found a second large chamber where the way on appeared to be a long crawl. Deborah not a fan of crawl in her dry suit chose, with Rod, to turn round. They were the first to see the cave with its characteristic rivers because in 1968 it was all dry.

Rod and Deborah had to leave to go back to Sydney. The next day Phil, Andreas and I went to survey what they had found and see if we could push exploration further.

We replaced the orange guideline through the second sump with less visible green polypropylene fixing the outside end just below the water surface unnoticeable unless it is known there is a way on. Surveying through the sump and to the other side we surveyed and mapped our way along the route found by our companions the day before.

There are two connections from the river to the first large chamber, one through an alcove to the right side and another obvious triangular passage on the left with a climb over loose jammed stone and rocks into the chamber. A horizontal basalt layer projects out of the limestone in the tunnel and at one point although small, a delicate insect wing encased in a web casing stood on a piece of basalt. Similar to a glow worm a web like substance shrouded the wing. What snared the winged insect in this sealed off environment is difficult to say but perhaps it is a type of glow worm.

At the last chamber explored by Rod and Deborah, we knew from the map there was a way but it was not altogether obvious. Formed from collapses around the junction of several intersecting streams a breakdown chamber seemed to end in all directions. Rod and Deborah found a difficult crawl seeming to be the way on and dissuaded by the hands and knees grovel in their dry suits they returned with their break through news.

The next day we retraced Rod and Deborahs fin prints to explore the crawl and find that it terminated.

Andreas searched in the rock breakdown finding a small squeeze on the opposite side of the cavern from where we imagined the river course might be. Andreas' squeeze dropped back to a stream in a stand up walk passage well decorated with formation. The stream possessed less water than we experienced in the first passages. It seems to me, likely to be another water feed into the river system that was mostly elsewhere. Another small incoming stream joined the main walk along passage. Somewhere we had lost the main river but this was brilliant illustrating that the Coleman hydrology is made of many inlets and streams.

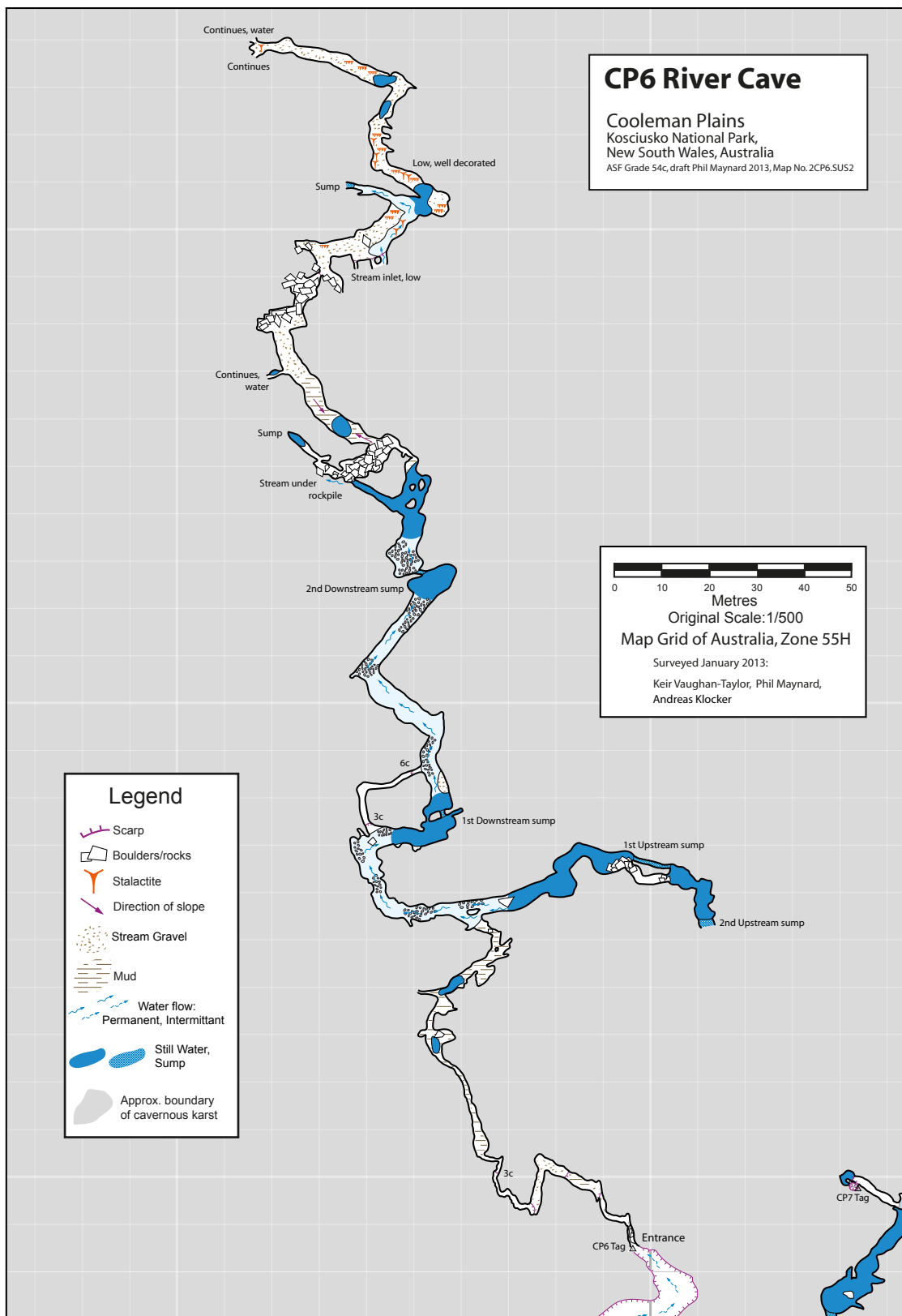
Unlike the rock fall chambers, the stream way tunnels are well decorated with yellow stalactites, shalls and straws. Stream water percolated across river gravels under many formations and then into a lake with a left hand bend in the river, with a course sand bar exposed in this low water, referenced in the 1968 map.

The ongoing tunnel exquisitely decorated finally ending at a small dive able sump and a passage to the left labeled on the 1968 map as unexplored left hand branch. Serpentineous, the left hand branch terminated after about twenty meters in another possibly divable sump.

We surveyed and sketched the cave up to this exploration place (attached map drafts). The 1968 map shows that the sump was dry, a crawlway passage and there is considerable passage estimated from that time, to be a number of long survey lengths totalling more than another 100 meters of passage.



Insect wing, Glop Hole. Photo by Keir Vaughan-Taylor



I can't wait to get back. Maybe Easter.

BLUE ROCK CAVES

BY MIKE LAKE

Date: 24 November 2012

Participants:

This was a joint trip with Central West Caving Group (CWCG), Highland Caving Group (HCG), Hills Speleology Club (HSC), Newcastle and Hunter Valley Speleological Society (NHVSS) and the University of Technology Speleological Society (UTSS).

SUSS: Jill Rowling, Mike Lake, Phil Maynard; **Central West Caving Group:** Peter Dykes CWCG; **Highland Caving Group:** Joe Sydney, Bruce Waddington; **Newcastle & Hunter Valley Speleological Society:** Andrew Baker, Tess Baker, Jodie Rutledge, Michael Rutledge, Rod Smith, Natalie Etherton, Ray Etherton, Fletcher Etherton; **Highland Speleology Club:** Rick Pinnock, Kim Pinnock, Andrew Burkitt, Harry Burkitt; **Uni of Technology Speleological Society:** David Hammond, Sandra Bean

Saturday 24 November 2012

Blue Rocks caves are in the Capertee Valley, about an hour and a half drive north of Lithgow. Our job today was to relocate the caves CV 5, 6 and 7 and to get GPS locations for them. They had not been visited for at least several years, probably longer. The caves have CV numbers as they are in the Capertee Valley.

Joe had arranged to meet most of the group at the Capertee pub at 8.00 am and to meet Phil, Jill and myself at the Crown Station Road, which is off the Glen Davis Road, at 9.00 am. We had stayed Friday night at our farm as it is just a half hour away. However Google Maps shows Crown Station Road is a loop that joins Glen Davis Road at two places but it's not a through road. So you have to make sure to pick the right intersection – choose the intersection that is furthest from Capertee township.

After meeting up here we all travelled in convoy along the Crown Station Road for a few kms until we reached Crown Station. This is private property and Joe had arranged access through this property. It makes access to Blue Rocks much easier, otherwise one would have to come in from Baal Bone Gap which is 4WD access only. Entering Crown Station we travelled west along the dirt road to Blue Rocks. It's fine for 2WD vehicles and passes through gate after gate and one has to make sure to leave the gates as one found them. The road then enters the National Park, which used to be part of Crown Station. We parked at a convenient spot for camping, about a km from the caves.

We split into a couple of groups in order to find the caves. The country is steep but open bushland. Still it was tricky to find the caves as there are a few small gullies that don't show on the topographic maps. Peter Dykes had a general idea of where they were; "on this side of a hill about four gullies along the valley" as he waved at some spot on our top maps. Jill and I went with Peter Dykes and Harry wandering up hills and then down gullies and up another hill. The up-and-down hills and became a bit much for Jill as it was quite hot and the hills were steep. She decided to descend into the valley to join others who were trying to find the cave by going up gullies from the valley.

The day was sunny and getting hotter. Everyone should have bought water with them but some didn't. Fortunately others had bought enough to share but it's still amazing that some homo sapiens think they have the physiology of camelids.

The other group found CV5 and CV6 first. CV5 is a lowish, semi-circular entrance at the base of a limestone bluff. It looks like it was once an outflow. I didn't go into this cave as it was already filled by one person, perhaps it was further, that however I don't know. At the top of this hill is CV6. This is a vertical slot which requires a ladder.

CV7 looks more inviting. It has a similar semi-circular, old outflow type entrance but you could see in for quite some distance. I crawled in and just a few metres into the cave you can stand up and its walk-through passage. Unfortunately I had left my camera at the entrance not expecting to find anything in here that was worthy of a photo. But there on the wall was quite a nice display of what I think are fossil worm cases. They are hollow tubes, standing proud of the walls, and about several mm in diameter, with 1mm thick walls and up to several cm long. These are in a narrow band of fine, thinly-bedded shaley limestone.

Further on in the cave is a chamber which would be several metres in diameter but in the middle of which is a large boulder or un-eroded bedrock so that one must walk around the outside. Here there were also a dozen or so small horseshoe bats. We tried not to disturb them. Phil, Harry and Andrew started to do a survey of the cave. Neither Andrew or Harry had surveyed a cave before so Phil was teaching them as they surveyed. The map is in this bull.
editors comment - it was requested not to publish the map at this time

After exiting the cave I met up with Jill again. She also went into the cave to checkout the fossil worm casings. After the survey had finished we all scrambled down the steep hill and headed off back to the cars. Jill and I left for our farm just as it started to bucket down rain from a thunderstorm.



Entrance to CV5. It has a low, semi-circular entrance, part way up the hill, at the base of a limestone bluff.



CV6 is an open vertical slot at the top of the same hill as CV5.



CV7 with Andrew and Tess Baker. This was surveyed by Phil Maynard, Andrew Baker and Harry Burkitt.



Rod Smith, Mike Lake, Jill Rowling, Dave Noble, Phil Maynard, Peter Dykes at CV7 entrance. David Noble is the ranger from NPWS that manages the Capertee area, he had just popped in to say hello and see what we found.

JENOLAN POST CONFERENCE 2013

BY HENRY SHANNON

13-1-2013.

After driving from Galong I got to the cavers' cottage at Jenolan while there was still some light. None of the SUSS party were there yet but several from the conference attendees were, mostly Queenslanders so we sat around an outside table in the heat having a quiet whinge about the situation in Queensland over beer, wine and nibbles until the SUSS crew turned up and showed how we could all have got into the main building anyway but we had by then set up bunks in the old garage annex instead. For me this was the first time I had got to the cavers' cottage despite some visits to Jenolan during the time it has functioned as caver central. Once inside the building I found that I had been there for years in the form of photo images from the Pleasure Dome in Kubla Khan Cave, from that famous trip when the camera pack went whizzing down the entrance pitch (10 years ago now ouch!)

14-1-2013.

Next morning began with a quick visit to the guides office and some wandering around Grand Arch, Blue Lake and Devil's Coach House. I got a flow measurement of sorts from the weir at the Jenolan underground river outflow, done by (a) measuring what comes over the weir and (b) estimating the proportion going through the pipe to emerge some 20m away into Blue Lake. In the old days very little water used to go this way; now it is enough to spoil things as far as flow measurement is concerned. I got a figure of $3 \frac{3}{4}$ cusecs = 105 l/sec; unusually low and short on accuracy. For the Styx efflux I could not get a measurement at all since the channel is now too large for velocity to reach 1 foot per second; the minimum I need to work with (giving a head jump of $\frac{3}{8}$ of an inch); visually maybe 1 - 2 litres/sec. Arrangements were made for a tourist cave trip that evening.

There was a bushfire panic on which helped push the choice of Mammoth Cave as the place to go. I went in a 4-person party led by Phil Maynard and including Tom Porritt and Mara Silins, going basically to the Railway Tunnel. For me this was a return visit to an old friend as I don't think I've been in Northern Mammoth since Nibicon, so I kept a lookout for changes after 40 years or so. The general picture is one of more polish and slipperiness along the main track, and loss of some steps in the mud. A big change is the presence of bats. Before there were rare sightings of a bat or two in the Entrance Cavern, now there is a substantial number say dozens maybe even a hundred or so in Horseshoe Cavern, where there never used to be any. Bat research including a bat banding program was going in the 60's and the only recognized bat site at Jenolan then was Bat End in the Grand Arch back of a small transformer building.

Phil took us all on to visit High Shawls, where there were more bats. This bit is new to me and up a climb on the left going in, and well past the turn off to the Skull and Crossbones as we used to call it, the area being now known as the Sugar Cubes for the wedged rockpile a bit further on. These shawls are large features but mud covered from a flooding period likely to be the same as is responsible for the general mud cover of the Railway Tunnel, including the gumming up of the rockpile at the far end. Since the mud is sort of chocolaty-brown if not obviously full of organics it looks fairly young to me (relating to some blockage downstream?) but these sort of floods are not happening now. After this we all plodded on to the end and had lunch. Once the rockpile here was considered a frustrating end to the prospect of following a probable former course of the Jenolan Underground River, but not to worry it is picked up again as "Can't get los" a cavern I remember as being found in the early 60's. Yet it is likely enough to mean there is a big rockpile floored cavern further in, up and to the left in the gap between here and Can't get lost.

The promised Conference people's trip through some tourist caves was conducted for us by Sasha Kennedy who is both a working guide and a keen caver in SUSS. Access was through the Binoomea Cut and we saw the caves at a pace slow enough to take it in, doing essentially Orient, Temple of Baal, Ribbon and River Caves. For my part I was on the lookout for the white clay Armstrong Osborne is on about but having difficulty staying on subject with such superbly presented gob-smackingly beautiful cave all around me plus confusing routes. Armstrong had told me about one site near a gate inside the Baal, and this turned out to be the only example of the exceedingly old white clay I actually saw. At this point the white clay is exposed in a little dugout hollow under a cover of more ordinary looking mud; but any contact with cave wall limestone can not be seen. It is positioned far enough out from where the cave wall projects behind it as to make the cave fill hypothesis possible, but why not consider it simply a fill of a small old cave itself insoluble and hence projecting into the open space of a much larger and younger cave? There is a great deal of more ordinary cave mud around and it occurs in pockets associated with ceiling pendent forms associated with incision upwards into limestone, even if most wall sculpture is of non-directional scoop-out forms indicative of slow-flow phreatic speleogenesis. As far as the idea that the major cave openings relate to the white stuff I would say no. Rather look to the common fill type for an association with the major cave development.

Things were a little different at the Pool of Reflections in River Cave. Here it appears there was a U-tube low point, and stream flow was confined enough for rudimentary incut forms to develop; likely enough because of silt buildup

on the floor in a U-tube situation which tends to constrict the stream and increase the flow velocity. I did notice a general lack of river gravel on our tour with one exception being a cobbled stream bed glimpsed from above. Back in the Baal I did notice a big sediment cliff with angular boulders in it, which I think is the “mass movement deposit” A. O. had told me about in addition to the white clay site. Is this fill of an in-cave sinkhole?

Mons Meg is a name on older maps I have never understood; this time it was revealed as a big fallen lantern canopy thing, which has broken from the wall/ceiling junction about 10m away leaving a scar behind and some of the limestone still stuck on the fallen bit. The travertine surface is a bit corroded possibly from immersion in aggressive water, but maybe just from exposure to the air.

15-1-2013.

Phil Maynard had a short bit of traverse to do connecting the end of a traverse through the Mammoth squeeze to a copper nail permanent survey mark. I remember being on the survey when these were placed; it was done with a forestry compass with a wooden tripod. What impressed was the ease of doing nasty steep survey legs with a Disto X. Our group then went on towards the river, one group looking at Smirnoff Passage which from memory gets to an impenetrable slot with trickling noises coming out of it. The name comes from a member I knew in the 60's who got drunk on vodka and scotch whiskey and was called “Angus Smirnoff” afterwards. Once at Lower River I took a flow measurement which came out as 3 cusecs, that is 85 litres/sec; and as low as I have ever seen it. Next it was up to Oolite Cavern. My impression is that Oolite Cavern is now in a well cleaned up state, relative to what I remember. Has there been a cleanup or is it natural washing? Whatever, it has been cleaned successfully. The red colour in Oolite Cavern used to seem more intense but this is likely because modern LED lights don't have the red imbalance of carbide lights. We did not go past the de-trog spot. In one narrow bit I noticed an old flowstone which had current scallops, indicating a return to riverine conditions, after an interval as dry cave. There were some splendid roof pendent forms in a side passage.

I left in time to get to Cleifden at last light.

BY DON MATTHEWS AND CHRIS NORTON

Those that dared:

Chris Norton, Robert Fairlie-Cunninghame, David Connard, Peter Downes, Deana Nixon, Jason Liddell, Annalisa Dixon, Matthew Hole (Yes, really!), Estelle Lifran, Steve Contos, Don Matthews

Editor's note: The meaning of this trip report, found in the visitor's book of the Jenolan Cottage, is unclear. Nonetheless, due to its important historical value, we reproduce it here for your edification.

[Don Matthews writes:]

"No!" exclaimed Katherine impetuously, "I shan't", and she stamped her delicate size 6 riding boot down on the cobblestones of her father's stable. Prince, Katherine's favourite Palomino Stallion, shook his fiery mane in agreement, as if to say in horse language, "Yes, I agree with you." Katherine's father argued his eyebrows archly and replied to his impetuous daughter:

"The moors are no place for a young woman. There are dangers and other things out there which could make you come to grief. While you are my daughter, I will decide which things are done to ensure you aren't put in situations where there is a chance of dangerous. . .". His voice trailed away meaninglessly as his train of thought was derailed – and went hurtling off into the neighbours' pastures. Count Bon's Blass was lost in reverie – thinking of his wife. He wandered out of the stables – vaguely switching at Prince's well-toned flanks as he passed by. Prince nickered in approval.

When her father had left the courtyard, Katherine glanced slyly at Prince, and he tossed his mane as if to say, "Yes, I know what you are thinking. Let us ride out onto the moors, and forget what your father said." That night, while her father dozed in fitful, but generally peaceful reverie, Katherine threw her favourite riding saddle across Prince's well-toned flanks. She gazed slyly at the peaceful form of her sleeping father – occasionally starting as he moved fitfully, but never quite waking up. Prince was startled to feel the saddle land on his flanks, but was reassured when Katherine fumbled her way over to his nervous horselike head, cupped her hands over his face, and blew warm air over his nozzle. He was instantly reassured. When Katherine was reassured – she assumed the riding position, and nudged Prince with her soft leather boots – he galloped off out of the stable, his four hooves plunging – first over the familiar cobblestones of the courtyard, then over the reassuring grasses of the field, then, finally, over the unfamiliar limestone pebbles that marked the end of civilisation, and the start of the moors.

On Sunday, we were all up by 8:30 – and after some SRT work outside the hut (for Rob's trip leader accreditation) one group proceeded to Aladdin, while Chris' "We three" proceeded to Mammoth. The other three left early – something about "sore knees". While I wrote this, Estelle drank some tea, Annalisa kept reading "A Man Rides Through". Chris stood around in his thermals eating fruity bread. Matthew just sat with his arm in his shirt. Steve cleaned his teeth.

[Here Chris Norton takes up the pen:]

Meanwhile, Katherine and Prince galloped through the night, up the morning, and around the edge of Midday, where Prince's hooves slipped stutteringly along the precarious pathway which perambulated around the perilous precipice. Katherine clung tightly to the reins, startled as she was to find a precipice in the middle of the moors. She was also disappointed at the lack of strapping black gentlemen depicted in her Encyclopaedia Britannica. She made a mental note to write to Britannica and tell them. She stuck the mental note to her mental refrigerator with some mental sell-o-tape.

The moors had also changed a lot since Count Boris had last ventured out upon them. In his last decade his habit of sinking into month-long opium-induced comas had become a weekly occurrence, and he was consequently oblivious to the many events that had transformed the moors. After the bad press the moors had received from Paul Verhoeven's blood'n'guts version of Wuthering Heights, the local progress association had lobbied hard for a change in image for the moors. With the proceeds from a cake stall conducted by Mrs Spratchett outside the vicarage every alternate Sunday after church, they scraped together the funds for a resurfacing of the moors with pebblecrete, the construction of a multiplex cinema and accompanying McDonalds, and a putt-putt golf course, the profits from which would pay for the eventual erection of a 1/4-scale model of the Ponte Vecchio over the main stream, where vendors in authentic Italian costume would sell souvenir T-shirts and baseball caps inscribed "The moors did it for me!" and "I've been bogged down in the moors", not to mention "My Dad went to the moors and all he bought me was this lousy T-shirt [baseball cap]".

As Katherine and Prince clattered over the pebblecrete driveway, they noted that the main stream was half-full of water. This is how Chris, Annalisa and Steven found Snake's Gut on a brief foray through Mammoth. They also visited the Dry Siphon, having taken the Unsurveyed Connection. On their way back through the more conventional route, they found Central River to be flowing strongly and Central Lake to have risen significantly above its normal level, necessitating some foot-moistening.

To be continued. [Alas, no continuation was to be found - Ed.]

THE ROAD TO TUGLOW IS PAVED WITH GOOD INTENTIONS

BY THOMAS WILSON

1st-2nd September, 2012

Participants: Brian Hirsh, Flora Lin, Denis Stojanovic, Jack Wachsmann, Thomas Wilson

The plan was to leave Sydney at 6. Then, since we'd estimated the drive at around 4 hours, we should be able to reach Tuglow, set up tents, and be in bed by a reasonable hour. We even had a car that could handle the steep final section down to the Kowmung River, saving us the need to walk down to Gridiron Bends (but earning us the scorn of veterans who consider this an integral part of the Tuglow experience).

As everyone reading this will be aware, such plans never turn out like that. The first hurdle was encountered before we'd even left, when Denis, a man of great discernment, was unable to find a satisfactory cheese in the first supermarket we visited. Determined to turn this to our advantage, we decided to make the diversion via a combination supermarket-bottleshop which we were sure would be well stocked with cheeses. However, this had a drawback as a) this shop was located on Bondi Road, nearly as far east as one can go in Sydney, and b) Tuglow is located in the Blue Mountains, to Sydney's west.

Once in the bottleshop, we had to take advantage of the bulk discount, which meant picking out twelve satisfactory wines. Then, of course, the excess wine had to be dropped off at Thomas' house to make space in the car. All of this meant that we were over an hour late leaving Sydney.

Meanwhile, the other car, containing Jack, Flora, and Brian, had managed to stick to the plan. When we arrived at the pub in Katoomba where they had been passing the time, Jack was very unimpressed that it was now after nine (although he later confessed that he wasn't too annoyed, as the delay had allowed him to watch the rest of the footy at the pub). Wolfing down pizza as we drove, we wended our way higher into the mountains, finding increasing amounts of snow beside the road. Jack, easily excitable, stopped many times on the way to take photos and videos of the snow, while Brian, an exchange student from America, looked on in bemusement at this preoccupation with such a light dusting.

Then came the final sticking point. Only one of the cars, Denis' new Land Rover, could take the road down the final hill, and there was nowhere near enough room for five people plus all the gear. Undeterred, we piled all the gear into the back, and Denis and Thomas started off down the hill. By the time all the faffing over campsites, the trip back up the hill to pick up Jack, Flora and Brian, and the return for the cave map were finished, it was around two in the morning and below freezing, so we gratefully collapsed into our tents.

The next morning dawned bright and frosty. After sorting out the firewood situation, we set off eagerly for the main attraction, Tuglow Cave. There was only one problem - none of us had ever been to Tuglow before! Armed with our trusty copy of the "Tuglow Caves" book [Available to members for only \$13 - Treasurer] we launched ourselves at it. After some time searching the hillside, several times stopping to look at the map and argue with one another about where the cave actually was, Denis called out in excitement. "Guys, I think I've found someth-ahh!" He had, in fact, discovered Tuglow Cave by the simplest means possible - by falling onto the metal plate over the main rift along which the cave is formed. Had the plate not been there, this could have been a very painful way to find the cave.

Heartened, though delayed, we made our way down through the rockpile at the entrance, rigging a couple of ladders and a tape to assist our descent, and arrived without incident at the streamway, where we changed into wetsuits for the plunge into the freezing water. This turned out to be not as cold as we expected. Heading downstream, Denis got excited about the dive line, which was a welcome change from his normal excitement over rocks. Meanwhile, Flora decided she preferred a treacherous climb down over the terminal sump to the prospect of ducking through a waterfall.

With no prospect of continuing downstream without SCUBA gear, we decided to charge upstream. We located the upper levels easily enough, were somewhat underwhelmed by the infamous gaping chasm to step across with naught but a bit of old rope to hang on to, which we had been warned about, and continued to what we thought was the top of the waterfall. We decided to turn back without visiting Knight's Knobbly Knob Chamber, planning to return the next day. After the "obligatory" jump into the waterfall's plunge pool (which one member of the group decided to forego), we returned to the junction of the descent route and the streamway, stopping for many blurry photos along the way. Jack led Flora and Brian out of the cave, while Denis and Thomas stayed to de-rig the ladders.

Back at camp, we made the whitest of white-man fires, which nonetheless didn't seem to take much of the chill off the sub-zero temperatures. The next morning was similarly frosty, and, with wetsuits still very wet and mostly frozen, we decided to abandon our return to the cave. After canvassing the possibility of canyoning somewhere in the Blue Mountains, we gave up on that plan, too, despite Jack's imprecations: "Are you a man or a mouse?" Mice or

men, though, our best-laid plans had all gone awry, and in the end we took the soft option and went to Jenolan, where we showed Brian his first platypus swimming in the Blue Lake.



Following the river, Tuglow. Photo by Jack Wachsmann

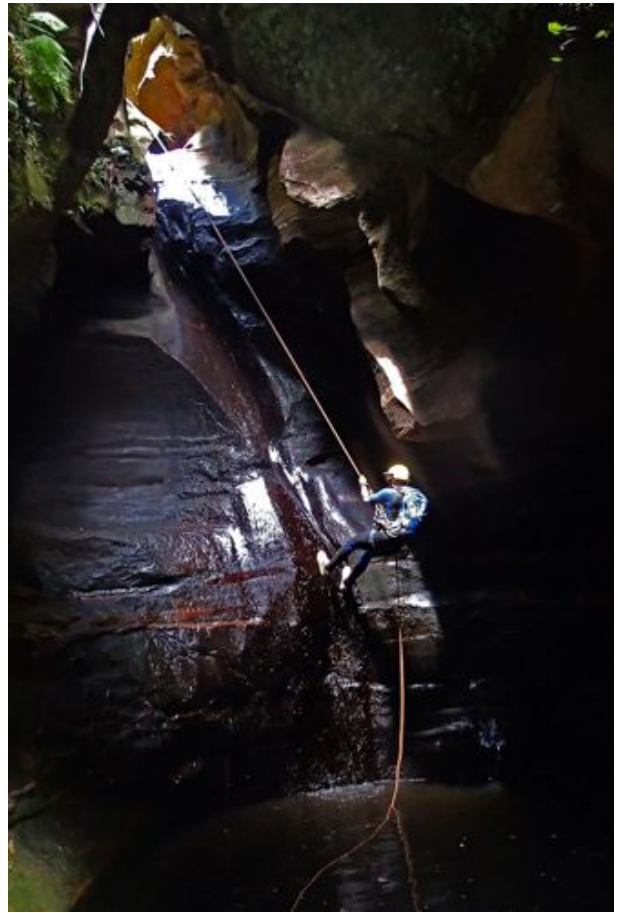


Jack, Tuglow. Photo by Denis Stojanovic

PHOTO GALLERY



SUSS President Alison, Bowens Creek Canyon. Photo by Eric Tan



Abseiling, Bowens Creek Canyon. Photo by Eric Tan



Canyon Wall, Bowens Creek Canyon. Photo by Eric Tan



Shawl, Tuglow. Photo by Jack Wachsmann

THINGS TO BUY

For postage and handling costs and the details of how to order go to the SUSS website <http://ee.usyd.edu.au/suss/> and click on "Publications". There you will also find a range of must-have maps and other publications.

Maps and Bulls on DVD

The entire SUSS cave map library of over 300 maps is on DVD and available for purchase. Our map library was scanned to provide wider access to the maps for SUSS and other ASF Caving Clubs and to ensure that many copies exist in the event of the loss or damage of the originals.

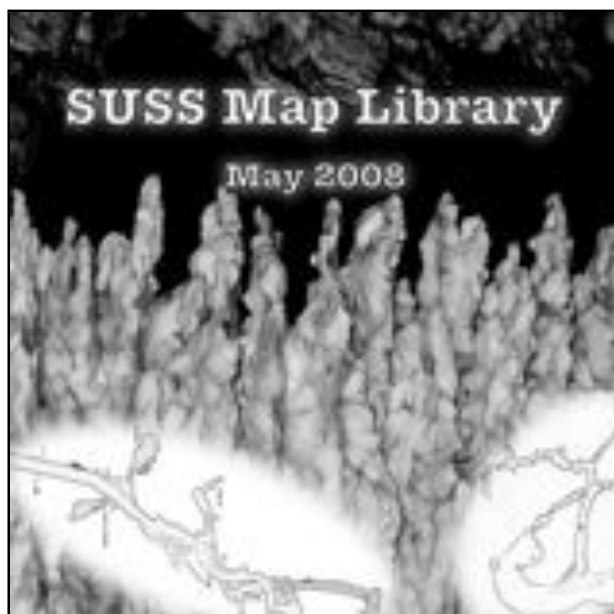
There are field sketches, ink maps produced on drafting film, ink maps produced on linen, as well as some of the latest digitally-produced cave projects. The DVD also contains all SUSS Bulls in HTML format from 35(1), July 1995 to 47(4), March 2008 and SUSS Bulls as PDF format from 42(1), April 2002 to 47(4).

Price is \$25.00 + PH. Pick one up at the next SUSS meeting or if you can't make that then contact the treasurer and they can supply you with the SUSS publications fund bank BSB and account number for a direct deposit.

Tuglow Caves

By Ian Cooper, Martin Scott and Keir Vaughan-Taylor. 1998, 70 pages.

Examines caving procedures, site descriptions, history, biology, surveying and maps, geology and hydrology of Tuglow Cave and others. Cost is \$13 for members and \$16 for non-members + PH.



A must-have reference DVD for all cavers



The Caves of Jenolan, 2: The Northern Limestone

Edited by Bruce R. Welch. 1976, 140 pages.

We still have some copies of these books left. Contains maps and descriptions of many caves in the Northern Limestone section of Jenolan plus notes on the history of Jenolan and its geology, geomorphology and hydrology. Cost is \$8 for members and \$10 for non-members + PH.

TRIP LIST: FEB TO MAY 2013

SUSS General Meetings are held on the first Thursday of the month at 7:00pm (for a 7.30pm start) in the Common Room in the Holme Building at the University of Sydney.

For updates to this list, check out the SUSS Website: <http://suss.caves.org.au>. Detailed information on each caving area (plus other useful information such as what you will need to bring) can be found in the *Beginner's Handbook* section of the Website.

Please Note: it is YOUR responsibility to inform the trip supervisor of any relevant medical conditions which may in any way affect your fitness, such as asthma, diabetes and the like.

Feb

2–3 Wombeyan. Beautiful marble caves in the Southern Highlands. Scenic campsite with a chance of ground-breaking discoveries. Contact Rhonda: rhonda.lum@hotmail.com

7 General Meeting. Holme Building, 7.30pm. Phil will thrill .

9–10 Jenolan. Stay in the luxurious Cavers' Cottage (we have to say it). Contact Rowena: rowena1234@hotmail.com

22–23 Canyoning. Denis will surprise us with his choice of canyons. Contact Denis: dstojanovic91@gmail.com

Mar

2–3 Wombeyan. Beautiful marble caves in the Southern Highlands. Scenic campsite with a chance of ground-breaking discoveries. Contact Phil :Philip.Maynard@uts.edu.au

7 General Meeting. Holme Building, 7.30pm. Alison and Flora.

9–10 Canyoning. Phil or Alison will surprise us with his choice of canyons. Contact Phil/Alison:

16–17 Jenolan. Celebrate the start of semester by escaping to our favourite haunt. Stay in (you guessed it) the luxurious Cavers' Cottage. Contact TBD (Phil or Alison).

Apr

Mar 29–1 April Cliefden. Contact Chris: chris.norton@exemail.com.au

Mar 29–1 April Yarrangobilly (dive trip). Contact Deborah: birinxi@gmail.com

6–7 Wombeyan. Beautiful marble caves in the Southern Highlands. Scenic campsite with a chance of ground-breaking discoveries. Contact Rhonda: rhonda.lum@hotmail.com

13–14 Jenolan. Stay in (you guessed it) the luxurious Cavers' Cottage. Contact Alison: a.d.chau@gmail.com

20–21 Borenore. Cunningly timed to line up with the Orange Food Week! Expect caving mixed with non-trivial amounts of excellent food. Contact Kevin: troglokev@gmail.com

27–28 Stanwell Tops (training). Learn the ropes in a stunning environment. Contact Denis: dstojanovic91@gmail.com

May

4–5 Wombeyan. Beautiful marble caves in the Southern Highlands. Contact TBC.

11–12 Jenolan. Celebrate the start of the year in our favourite haunt. Stay in (you guessed it) the luxurious Cavers' Cottage. Contact TBC

Wellington. Dates to be confirmed. Contact Keir: keirvt@optusnet.com.au

June

1–2 Jenolan. Stay in (you guessed it) the luxurious Cavers' Cottage. Contact TBD.

15–16 Wombeyan. Beautiful marble caves in the Southern Highlands. Scenic campsite with a chance of ground-breaking discoveries. Contact TBD.
