SUSS BULL 50 (1)

JANUARY – JUNE 2011

Lumen in Tenebris

SUSS

Founded 1948

Bulletin of the Sydney University Speleological Society

Cover Photo: **Decorations, Main Cave, Cliefden.**
Rhonda Lum

http://suss.caves.org.au

PO Box 35 Holme Building, Sydney University 2009

NEWS AND GOSSIP

Bull Devotional

Rev Coops

Jesus Caves: John 11:38-44

In this reading we see Our Lord does a dig, goes caving, performs a successful rescue and a resuscitation.

In the News

Why does rain keep bats grounded?

From our reporter Guy McKanna

In a new study published in Biology Letters, researcher Christian Voigt from the Leibniz Institute for Zoo and Wildlife Research in Germany details their findings on Sowells short-tailed bats and the effects of rain and water on flight.

http://www.physorg.com/news/2011-05-grounded.html

Subterranean worms rule the Underworld

From our reporter Guy McKanna

A new species of nematode worm has been discovered living several kilometres beneath the surface of the Earth's crust, indicating that deep, underground ecosystems are more complex than previously thought.

http://www.cosmosmagazine.com/news/4372/subterranean-worms-rule-underworld

The long suspected link between cave lakes at Wellington and the Bell River.

From our reporter Ian Cooper

There has been argument about how the river links to the caves for years. During the floods earlier this year it was found that there is a direct link only when the Bell River is backed up by flooding down the Macquarie River which joins the Bell at Wellington about 5km downstream of the caves.

http://www.abc.net.au/news/stories/2011/03/01/3151528.htm http://www.abc.net.au/news/stories/2011/03/01/3151528.htm?site=westernplains&source=rss

Other Wellington Caves links

http://www.abc.net.au/local/audio/2010/07/28/2966318.htm

http://www.smh.com.au/travel/lowdown-on-a-giant-cover-up-20100716-10dj6.html

http://www.showcaves.com/english/au/showcaves/Wellington.html

Interested in Cave Rescue?

Cave rescue is an affiliate of the NSW Volunteer Rescue Association and has 50 members drawn from the speleological community and other emergency services. Members train in all forms of rescue including caves, cliff faces, wilderness search and rescue, canyoning, communications and logistics.

http://www.caverescue.org.au/node/4

They are actively looking for new members. If you are interested in joining see

http://www.caverescue.org.au/howtojoin

ANNUAL REPORT 2010-2011

BY KAT BADIOLA

The past year has been another busy one for SUSS. The society and our members have had triumphs in a range of fields from exploration of new caves and surveying of existing ones to the expansion of our student base and everything in between.

Firstly, I wish to extend a very big thank you on behalf of SUSS to Michael Bates, our previous President. Unfortunately, late last year Michael was unable to commit as much time towards the society as he would have liked, and offered to step down. Despite stepping down Michael continues to be an active member of the society and we wish him the best of luck finishing his PhD.

Throughout the year, SUSS has reinforced its status as a very active club. Numerous trips have been run, almost every week, not only to our regular haunts, such as Jenolan and Wombeyan, but also other areas such as Cooleman, Colong, Tuglow and Cliefden, just to name a few. With such a high volume of trips, the society and our members have been able to make a significant amount of progress on several important projects. The newly named "Vortex" at Wombeyan has been pushed and surveyed from an insignificant 3 m hole to over 750 m in length with more leads to explore. Our ongoing commitment to survey Mammoth cave and the Imperial stream-way at Jenolan has also progressed well during the year.

O-Week this year was a great success, seeing more student member involvement than recent years. For SUSS the three day event culminated in our main stage act hosted by Keir Vaughn-Taylor, which had one of the largest crowds seen at O-Week gather around the stage. Unsuspecting first years were cheered on by their comrades as they attempted the infamous milk-crate squeeze and the newly constructed table traverse. Many thanks must go to all involved for putting on a brilliant show and running a highly visible and successful stall. In recent years as a direct result of these well run stalls SUSS has seen large increase in the number of students not only joining but also signing up for trips and returning for more. This year was no exception and I extend my thanks to all involved in SUSS' O-Week stall which resulted in more than 50 new members to swell our ranks.

In response to an increase of new members the committee has endeavoured to purchase some more user friendly equipment for lending to beginners. We have purchased four new Princeton Tec Apex headlights to trial. Hopefully they will do well and ease our new members into the underground world in a more comfortable manner (comfort is relative underground). Many of our members will be familiar with the heavy, dim by modern standards and bomb proof FX2 miners lights that these may replace. We have also invested in new cave packs, rope and tapes to replace those worn out by the notorious gear-destroying world underground.

Despite being a very active club overall SUSS has traditionally had a poor record in the events and activities on campus category. To counteract this we have begun to run semi-regular Thursday night single rope technique training at The Ledge. Through these nights we hope to be able to teach new cavers rope skills that will be vital for some trips in a beginner friendly environment, revise more experienced cavers in rescue techniques and increase the social aspect of the club especially on campus.

As SUSS is a very active club, a lot of organization is involved in running the club. Scheduling and running of trips is the primary focus of the club and is more complicated than it first appears. This process includes organising permit applications, car-pooling and coordinating available (and willing) trip supervisors. I wish to thank all the people who work hard behind the scenes and ensure that the society is able to function smoothly. Further still I implore all keen cavers (especially new student members!) to download the trip supervisors form from the website and begin to fill it in. It is not a final exam to be taken when you think you are ready but will facilitate you becoming a better caver as you learn as you go.

Overall the society is in a sound financial position. However, while an increasing student base is good for the society the large number of new student members whose fees are heavily subsidised are starting to be a drain on the society as the number of full fee paying members decreases. Despite this SUSS is not in any short term financial strife and a large thanks must go to our treasurer Chris Norton for putting a lot of time and effort into managing our accounts.

Earlier in the year, termites were discovered in our library, by the newly elected librarian at the time, Denis Stojanovic. Thanks to coordination between Michael Bates, Denis Stojanovic, the staff at C&S namely Angela Vogiatsoglou and the Holme Building Manager, Rob Bannister we were able to ensure that our comprehensive collection remained largely intact. A long fight against the colony resulted in a victory and we have now relocated back to our previous storage cage and are in the process of auditing the library's collections.

Finally I would like to extent my thanks to everyone who helps the club run. From the often under-appreciated trip supervisors and leaders to my fellow committee members as well as all those that volunteer to drive and those that put in the energy to go on trips and enjoy themselves. This coming year is looking great for SUSS and there are plenty of projects to get involved in, to make your own, or you can just go caving and have a great time if that is your style. Before I sign off,I would also like to take this opportunity to congratulate our very own Jill Rowling whom at the recent Australian Speleological Federation conference held in Chillagoe, Queensland was awarded the Joe Jennings Award for cave science.

Yours in Caving,

Kat Badiola

SUSS President

Editorial

Greetings from your new bull editor.

I took over from Deborah at the last AGM and I aim to get out a new SUSS bull quarterly.

To help me in this I am looking forward to getting lots of articles from SUSS members, be they trip reports, news articles, or research papers relating to caves. Please send high resolution photos for inclusion in the Bull to "suss.bull@gmail.com". Also include details of what the picture is of and who took it.

This Bull includes several trip reports, a map, and a couple of detailed articles containing theories and analysis of where the underground rivers at Jenolan are likely to be. It even has a contribution from an old caver, written 91 years ago.

Finally I need to give thanks to Mike Lake, the editor prior to Deborah, who spent much time with me in the last few weeks passing on the skills he learned in producing four Bulls in the 2008/2009 SUSS year.

Rowedita (AKA Rowena)

THE DISCOVERY OF JENOLAN CAVES

BY ALFRED S. WHALAN

The following was passed to the editor by her former manager Alan Taylor, who is married to a direct descendant of the author of this article. Alan found the article in a storage box in his attic. Extracts from the article is referenced in several other journals and an extract can be found on the website:
http://members.optusnet.com.au/rawhyte/newspaperclippings_lmjmar31_1899.htm

Until recently there was some difference of opinion as to the date of discovery of the Jenolan Caves, some placing the year as early as 1838, while others fixed it as late as 1851. Careful investigation has established beyond all doubt the correctness of the earlier date. In that year, Mr. Charles Whalan, my father, following directions given to him by my Uncle James who had noticed the openings in the limestone range, now known as the Grand Arch, went out to search and was rewarded with the discovery of that arch and several of the earlier known caves.

I distinctly remember being at the caves in 1861 and seeing my father's name and that of Nicholas Tjrwin written in the West End of the Grand Arch and dated 1851, and that probably led to the supposition that that was the year of discovery. The discovery itself was made by following a man named McKeown, an expert convict, who used to rob all the stations in the district.

My Uncle, the late Mr. James Whalan, had a station at Gingkin. Mr. William Tom (commonly known as Parson Tom) had one at Oberon. The stockman's hut was just near where Mr. James Whitely's place is built now, close to the Oberon showground. Captain King had a station on the Fish River Creek eight miles from Oberon. My father had the Glyndwr Estate. This man McKeown used to visit all the properties in turn and would take anything that he thought fit.

One day he was on a visit to Gingkin when one of Uncle's men, a man named Jerry Beel, had occasion to go back to camp for some purpose and he saw McKeown at the camp; he kept out of sight until McKeown left and he followed him through the ranges to the area of Jenolan Caves but lost sight of him in the area now known as McKeown's Valley.

On my Uncle's next visit to the station, Beel told him what had happened and my Uncle went to Hartley and got a mounted trooper and they took Beel with them to look for the bushranger and about sundown they saw his hut in the valley and decided not to disturb him until morning; so at daylight they went down and Uncle Jim stood at the window of the hut with a loaded pistol, while the trooper went and knocked at the door. As soon as McKeown heard the knock he stuck his head out of the window. He was wearing a riding cap which belonged to Mrs. Roberts of the Plough and Harrow Inn, O'Connel Plains, and my Uncle ordered him not to move or he would blow his brains out and the trooper went in and arrested him. On searching the hut they found women's clothes, flat irons and, as the auctioneers say, 'sundries too numerous to mention.' Outside the hut there was a neat stack of tools and wheat.

As my Uncle and party were searching for McKeown they saw the side of the mountain the cliff of limestone rocks above what is now known as the Lucas Cave. On my Uncle's return he told my father what he had seen and said, "Charlie, I believe that there are caves there and as you have always been interested in that sort of thing you had better go out there and have a look." My father was very interested and he got all the information that he could from Uncle Jim. Early one morning he set off taking one of his men, Nicholas Urwin, with him. They searched all day and just at nightfall they saw from the rocks above what is now known as the Devil's Coach House. It being late and the descent looking rough, they decided to camp until morning. The next morning they scrambled down and went through the Grand Arch and the Devil's Coach House.

Soon after they made up a small party, which included my mother, and some of the older members of our family and after that large parties came to our place for the purpose of visiting the caves, the ladies being accommodated in the house while the gentlemen had to camp as best they could; some camped in my father's flour mill.

Amongst some of the early visitors were Dr. Palmer, then Police Magistrate of Bathurst, Mr. District Surveyor Davidson, 'Old' Doctor Machattie and some of the McPhillamy family. My father acted as honorary guide for a number of years, then my brothers, Charles and Edwin, took up the running and often I acted as guide myself.

On my first visit to the caves I was only nine years old and, on my second visit, two years later, the Lucas Cave was found. Two of our party, Mr. George Whiting and Nicholas Urwin, while roaming the hills nearby saw the entrance, but, on crossing the hill to the side where they had seen it, they could not find it; so they came back and reported what they had seen and my brother Charles and Mr. Noble Wilson went with them to search for it and they were successful, After they had done a little exploring in the cave they came back to camp and took all the party to see the new cave, The ladies in the party were Mrs. Joe Hughes, Miss Clementia Hughes, Misses S,M. and Emma Whalan. All the names were written on a rock down where the bridge is now and dated 1861.

One day while working in this cave, I had an argument with Mr. Jerry Wilson as to who was the first visitor taken into the cave. He said that Mr. John Lucas was the first visitor taken into the cave and that the cave was not discovered on the date I mentioned, so I took him and I showed him the names and the date mentioned above and the next time that I was around that way I found that all the names had been obliterated.

My brother Edwin did a lot of exploring in this new cave and often acted as guide to parties of visitors. I was in on the discovery of the Imperial Cave, I was working on the zig-zag from Oberon to the caves at the time and nearly all wet days were spent exploring. Mr. Jerry Wilson had been appointed guide for some considerable time then and one day he told us that he had lost his cap; it had fallen down a hole in the Elder Cave and he asked us if we could bring a rope that was used for lowering logs to the other side of the road, to let him down this hole to see if he could find his cap, So, accordingly six or seven of us went in and when he got to the bottom he found his cap. He called out to me to come down as he thought that there were caves going on from where he had landed. So I went down on the rope and everyone that now visits the Caves knows what a wonderful cave we found. The others in the party scrambled down somehow and afterwards we spent seven hours exploring and looking at the wonderful scenery. The next thing was to find a better way of getting into the cave and we spent days looking for this better way. At last, after a lot of hard work we broke a hole through where the present track is. We had a job getting through but when we got out we found ourselves in one of the old caves that we knew very well. The name that had been given to this older cave was the King's Table Land, as it was such a climb to get to it.

The names of those that broke through are Jerry Wilson, John C. Whalan, E. B. Wilson and myself, I was always very much interested in the caves and at one time I had a Government contract putting improvements in and around the caves. I put a wire rope ladder in the underground river and a big ladder leading from the Nettle Cave to the Eastern Cavern and did a lot of improvements in the Lucas and Imperial Caves. There is a wonderful difference in the improvements in the place than when I first visited it. The track from Oberon used to go past Mr. Robert Armstrong's place on the Duckmaloi, thence to Blackbutt Hollow and up along McKeown's Creek which had to be crossed seventeen times and the track down the caves hill was a corker.

Very few parties visited the caves in winter as it was too cold for camping out and in the spring the nettles in front of the Nettle Cave was something to contend with; we had to get long sticks and beat them down before we could get along. All the necessaries had to be taken out on pack-horses and carts.

R.H. Campbell and myself had a contract to run the first telephone line to the Caves and we also had a hand in building the first accommodation house. Included in the first distinguished visitors to the Caves were Lord Marshall, Mr. Holyroyd, the Reverend W.B. Clarke and Mr. McIntosh.

Lord Marshall returned to England and he sent my father two coils of magnesium wire, one flat and the other round. We used to break off about a yard of this wire and hold it in our hands whilst burning to light special places in the caves. On one occasion when my father was giving an exhibition of the light to some visitors, one of them remarked that 'daylight' was a fool to it.

Many of the early visitors to the Caves wanted my father to purchase the land but he stoutly refused and said that the Caves should always remain a national affair. The land at that time was very cheap and could have been bought for 5/- an acre. None of our family ever received any remuneration for services rendered as far as I know.

I have heard the account of the discovery of the Caves so often from my father and my mother that I consider this account here given is as near to the facts as one can possibly give.

Alfred S. Whalan

Burnt Yards, via Mandurama

February 27, 1920

For details on the exploits of James McKeown see the following web site which includes copies of a convict register from 1844 etc.

http://www.ackma.org/journal/79/JamesMcKeownPart2-DrDanCatchpoole.pdf

BEGINNERS CANYONING TRIP 12TH AND 13TH OF MARCH

BY ERICA DAVEY

Participants: Marcel Lando, Deborah Johnston, Tom Short, Erica Davey, Fiora Lin

Friday

I was excited.

Finally I was going to get to go canyoning after Deb, Phil, Megan and other various SUSS members have spent large amounts of time telling me about how awesome it is recently. Bags were packed, wetsuit acquired and I was ready to go.

Fiora and I met Marcel at Central and we were off, with Deborah and Tom not too far behind. Heading up to the mountains the feeling in the car was electric, I was so keen to finally go canyoning, Fiora was on her first SUSS trip and Marcel hadn't been up in the mountains for a while. The atmosphere was so electric in fact, that we were treated to a spectacular lightning show accompanied by loud thunder and torrential rain.

Thoughts turned to "we're going to camp in this tonight, and then go canyoning in rather soggy canyons?" as we neared Katoomba.

We pulled up at Coles and headed in for supplies and then Marcel's phone rang. It was Deborah, calling from further down the mountains where there was at least 15cm of water over the road and they were beginning to have doubts about the pleasantness of camping in the pouring rain on soaked campsites. We decided that it probably wouldn't be that nice, and made the call to can the trip.

I quickly purchased some peanut m&ms and we headed back down to Sydney. On the way home we passed several points where there was a great deal of water over the road, and were glad to be heading home to dry, warm beds.

We later heard that some people did head up to the mountains to canyon on Saturday and Sunday, however the water levels were too high.

It was the furthest I've ever travelled for m&ms, but they were enjoyed on the journey home. My quest to go canyoning continues, and Phil still won't shut up about how awesome it is.

IT'S CLIEFDEN . . . IT'S EASTER . . . IT'S THE VIBE CLIEFDEN, 22–25 APRIL 2011

BY THOMAS WILSON, SHAMELESSLY PLAGIARISING CHRIS NORTON

Participants: Alison Chau, Blake Churton, Karonny Fok, Clare Galvin, Rhonda Lum, Chris Norton, Denis Stojanovic, Jack Wachsmann, Thomas Wilson

Being an Easter long weekend trip, we'd been promised lots of police around to ensure our compliance with the road rules. They weren't much in evidence until Bathurst, and then no fewer than five cars in ten minutes presented themselves to us, including one that tail-gated us for a while, then overtook, and promptly reappeared with siren on chasing a car in the other direction. In any case, by 10:30 or so on Friday morning, everyone had made it to Cliefden in one piece and more or less without incident, although I have it on reliable authority that Rhonda, Blake and Alison's sat-nav was less than wholly impressed by the area's infrastructure. Some time after this, Denis, Jack, Thomas and Clare arrived in Denis's mum's very, very full car. First goal for the trip – drink all the beer to make more room on the way back.

After some enthusiastic attempts by Alison to clean the easternmost bedroom of the hut, and some equally enthusiastic attempts by the vacuum cleaner to fuse itself solid, the eight of us set out for Main Cave. (Jack's attitude to housekeeping was rather simpler - throw some beer in the fridge, and worry about the rest later.) Unfortunately the road only got us so far, and the thistles that greeted us were a mere foretaste of things to come. Nonetheless, we set off down the hill for the first of many caves that weekend. Chris settled down at the gate for a minor struggle with the padlock which provided an interesting counterpoint to our morning tea/lunch/pre-cave snack. However, the cave was eventually opened without too much difficulty, and we proceeded down the entrance passage with Chris offering encouraging comments like "This section's not a hundred percent stable, try and follow the pieces of string." We shortly popped out unharmed into the main chamber, and proceeded in our exploration of the cave, punctuated every few minutes by observations from various parties that the caves at Cliefden are really quite hot underground. However, excitement struck as we drew near to the infamous lower entrance of the cave - we weren't the only cavers in there. That's right, a caver had snuck in without a permit, and was alone in the cave.

After a little discussion, we decided to forcibly remove this intruder by what seemed at the time the best means available - in this case a yellow plastic lunchbox which the frog was ultimately convinced to enter. When we found the appropriate shaft for the lower entrance, Chris started up it with our new best friend in tow. Thump, thump, "ROCK!" Yep, glad I wasn't following too closely on that one, the rock was easily the size of an average cave pack. Meanwhile, we'd found the other half of our frog's erstwhile caving party, so Thomas followed Chris cautiously up to the lower entrance, retrieved the lunchbox, brought it back down for the frog catching experts, and then took it back up to be released. In this process we discovered that (a) the lower entrance isn't sealed tightly enough to stop frogs, (b) it is sealed tightly enough to conclusively prevent its being opened from the inside, (c) Denis knows how to say "I am the frog-catcher" in both Dutch and German[1], and (d) Denis does not often have a chance to demonstrate this knowledge in a practical context.

Following our little diversion with the frogs, we proceeded down the cave with Chris explaining in hushed tones that there was a dyke ahead which Denis, an enthusiastic geology student, would appreciate. As if on cue, Denis piped up excitedly "Oh look, a dyke." We then sat around regaling each other with geologist stories while Denis inspected and prodded the dyke in various places[2]. The remainder of Main Cave passed without incident, and we emerged from the upper entrance muddy and sweaty but smiling. One cave down.

Following our return to the hut, we fought over the showers - or rather shower, as only one could be made to work at a time. The rest of the evening was passed in the usual Cliefden activities, that is, sitting around the fire sipping a range of beverages, regaling one another with stories, and not much else. Ultimately, the lure of the fire proved too much for Denis, Clare, and Thomas, who chose to sleep in the room with couches and fireplace rather than brave the cold - this was encouraged by the convenient discovery that the red vinyl couch folds flat into a bed.

The next morning was pleasantly sunny but rather crisp. Nonetheless, the group was, for the most part, awake quite early, especially by SUSS standards. Chris had previously explained the water situation, but we discovered that the "safe for drinking" water in the tank outside the hut was rather gray and developed a distinctly unappetising black foamy scum when boiled. As we were preparing for the day's cave, Anthony Dunhill (the owner of the property) arrived on his motorbike to offer the trip's second exciting moment - a new hole had opened up less than two hundred meters from the hut. We followed him over to inspect a hole perhaps 1.5 meters deep. It looked like it might have some potential but it was difficult to tell in the bright sunlight and we agreed to return to the cave later in the trip. Anthony also let us know about another drinking water tank beside the shearing sheds, which proved far more

[1] Ik ben de kikkervanger and Ich bin der Froschefänger respectively

[2] Try reading that sentence out loud with a straight face.

satisfactory as a water source.

After this minor delay, Chris, Denis, Jack, Rhonda and Alison set out for Taplow Maze. A page describing their excursion was later salvaged from Chris' expedition journal...

> "A cool but fine morning dawned in the camp, and the lazy sun was still some distance from the yardarm, casting shadows from the bodies of the mutineers dangling therefrom. It was time to be off, as the warming rays on said corpses would likely produce one hell of a stench come midday. The subalterns saddled up the beasts of burden and loaded them with our equipment, and we rode out with them groaning under the weight. Don't worry Freshers, the hazing will be over soon! The muddy river posed a threat to the shine on our freshly spit-polished leather boots but crisis was averted by asking the natives to kneel amidst the torrent and present their backs as stepping stones. We located the entrance and descended a rickety ladder tied off to a porter wedged securely across the shaft.
>
> It was soon clear that the housekeeping staff had been lax, as a thick layer of dust coated the passage to the Southern wing of the cave, and we were soon cursing that we had left our spats at home, as our plus-fours left plenty of room for the dust to trickle underfoot. I made a mental note to have the head butler flogged (although not until he had served tea).
>
> Some time was spent in the Leprechaun's Den. Whilst I repressed the bally Irish midgets, Lieutenants Stojanovic and Wachsmann led a pioneering assault down a dank corridor, followed at a respectable distance by Ms Chau (who, along with Ms Lum, simply refuses to believe that caves are no place for a lady, don't-cher-know). Ms Chau made a serendipitous discovery of a connection between the upper and lower rift when she dropped a glove, only to have it ejected out of a chute on top of me. Although the corridor did not yield vast new acres of empire to be conquered, the exploratory crew enjoyed sliding down said chute, their progress aided by liberal lashings of lubricating mud that greased them up well.
>
> Upon our return for a late lunch, the ladies considered it prudent to withdraw to the surface, whilst the officers decided to put in a bit of work on the Northern front. Determined to show the subalterns a thing or two, I led them to the Horny Toad Roundabout, an area not noted for its spaciousness. There then followed a long sequence of manouevres which Lieut Wachsmann later described as "not so much squeezing as shoving". There were also a few moments where the fork of the route which initially looked enticing turned out to be of more slender dimensions than we. Of course, the British Army never retreats, therefore we occasionally advanced in reverse.
>
> Before too long we had returned to the entrance and ascended to the surface once more, where we hoped the ladies had made themselves useful for once and put dinner on - although Lieut Wachsmann was highly sceptical that anyone but he possessed the necessary skills to fry a sausage correctly."

While the rest of the group were in Taplow, Clare and Thomas searched fruitlessly for the elusive lower entrance to Main Cave - still on the "to find" list - but eventually gave up and returned to the hut.

The next morning Rhonda and Blake departed to visit family in the approximate vicinity, while Karonny arrived from Sydney about 10, in time for us to head out to do the first of our caves, Yarrowiggah. We started the day with a bracing crossing of the river, which was more fun for those with gumboots than for those without. The entrance to this cave had been thoughtfully buried under rocks, so we unburied it, unlocked it, offerred Karonny helpful advice such as "Don't forget to turn on your torch" and proceeded forthwith into the cave down the very dusty entrance passage. Chris explained that this passage was dug out by cavers fed up with the upper entrance when they noticed that the lower chamber extended very close to the side of the hill. We then reached the tightest point of our weekend, the delightful squeeze in Yarrowiggah. This is apparently best done on your back - no party member tried it any other way, though, so we don't know for sure. The squeeze was not particularly tight, and in essence consisted of forcing oneself up a tube with awkward knobbly bits. Chris promised that it was easier going down.

The upper chamber was rather more open than the lower, and we even discovered the infamous upper entrance - a hole in the ceiling which was at most the size of the squeeze we'd just climbed up. At the end of the chamber there are two passages leading down; they join up fairly rapidly, but one is more awkward than the other, so naturally Jack and Denis decided to use this one. In any case, we ended up in the lower chamber after a slightly awkward descent, where we all made appropriate noises of appreciation at the formations, and attempted to paint them in for photos with our torches - the limitations of point-and-shoot cameras become particularly apparent in caves.

Yarrowiggah is a straight in-out cave, so we retraced our steps back to the entrance - the squeeze on the way down being unremarkable, just stick your legs in and slide - and returned to the river in time for a leisurely lunch joined by some dogs belonging to one of Anthony's relatives who were camped next to the river for the weekend. Chris, Denis, Jack, Alison, and Thomas then proceeded to Malongulli Cave by way of one of the trip's more spectacular thistle fields, mostly over the tops of the cars. Denis had no way of knowing where he was driving, but the resolution was to follow Chris exactly.

Chris hit a rock, and suddenly his car was leaning distinctly to one side, with two wheels in the air.

"Don't follow Chris!" Um, thanks. Our valiant attempts to build ramps and/or push the car off the rock failed, and eventually we opted for the quick fix of tying the two cars together using a piece of tape and towing Chris off[3]. Chris then opted to park there and walk the extra twenty metres - not a particularly appetising prospect in that field of thistles, but better than another rock-hitting incident. We traipsed down the hill to Malongulli Cave, another buried entrance. Thomas opted to go first down the belayed ladder pitch, and Chris told him that the way on was a small opening on the right as you faced the ladder, not to keep going down the slope at the bottom of the pitch. Thomas was perhaps slightly over-enthusiastic in interpreting these instructions, and Jack, next down, found him perched on a ledge partway down inspecting a hole in the wall about the size of a post office box with something less than enthusiasm. Jack helpfully pointed out the waist-high opening at the bottom of the pitch. Cave: 1, Thomas: 0.

We proceeded into the next small chamber, where the way on was down a tight flattener. Chris thought it didn't look like what he remembered, but in the absence of other options, Alison was sent through as easily the smallest, and confirmed that it opened out into a large chamber again. Chris went through next with some scrabbling to get past knobbly bits of the flattener, inspected the room at the other end, and announced that that was indeed the way on, but he didn't remember the flattener. Eventually he found the easier route over the top, by which time Thomas was the only one left to take advantage of it.

[3]The tape was retired and replaced

For those not familiar with it, Malongulli Cave is essentially a series of diagonally sloping chambers and passages with horizontal shafts joining them. As such, it involves a lot of up and down. As we crossed an "up", Alison cried out in pain. "What's wrong?" "Nothing, I just dislocated my knee." That's nothing? In any case, this made progress for Alison in a rather "sporty" cave (Chris' word for it) somewhat difficult, so Jack, Denis, and Thomas proceeded up one side and then down the other of a fairly steep set of tubes, to the "Krazy Kolumn", which Thomas, who had forgotten the previous mention of this feature, summed up neatly by saying "Wow, that's a crazy column." This is one of the few instances of indisputable feature naming in any cave.

Alison then took an easy route back to the chamber next to the flattener to protect her knee, while Chris, Denis, Jack, and Thomas went up, down, up, down, duck under, up, down, step across the rift, up, down, up, down to join her[4]. We proceeded up the entrance pitch to return to our cars and thence to the hut. On return, Chris bent down to check the damage to the car, and was presently surprised to see only minor scratches. He then noticed the neat gouge which looked like it had been made with a can opener. However, the car was apparently still functioning, which was fortunate.

The next task was inspecting the new opening near the shearing sheds, affectionately labelled "the farmer's hole". However, Denis refused to do this without a gin and tonic in hand, so, after a brief visit to the hut, the entire party returned to the hole and one by one stepped down into it - perhaps 1.5 metres deep, with soil on three sides and bedrock on the fourth. The hole was surrounded by a thick blanket of thisltes, and in order to stop sheep, small children or gin-sodden cavers from accidentally falling in, Anthony had covered the entrance with a makeshift gate which had to be lifted off to gain entry. Thomas thought there was a prospect of more cave, using his patented "There's space around my foot" technique, but Alison, who was smaller, went slightly further down the hole and reported that it continued down as a sloping flattener with a loose soil floor for at least 3 metres, before turning out of sight. As the entrance was moderately unstable, we elected not to pursue it this trip. Chris came up with the inspired name of "Gate and Thistle Cave", reflecting the state of the entrance, to be abbreviated to G.T. Cave.

In the hut that evening, the conversation was livened by Jack and Denis's work on filling out a trip supervisor form, with Chris grilling them on everything from the fitting of helmets to requirements for reporting new discoveries.

The final morning was distinctly warmer than the other two, and we proceeded to the last cave of the trip, Murder Cave, again through a thick field of thistles. This has one of the more impressive entrances at Cliefden, partly covered over with cyclone wire, although I'm not entirely clear why. This was also probably the best decorated of the caves, and had a "dragon" coming through the roof of one chamber (various attempts to find a better description were not entirely successful). We were fortunate to obtain permits for both this and Main Cave, which was largely due to the fact that our trip was four full days. Despite needing to leave for Sydney by mid-afternoon, we managed a fairly complete tour of the cave. As we had some time to kill, Chris sent Denis off on what he described as a fairly nasty muddy crawl. Apparently few people have the enthusiasm to pursue this to the end, which was enough to spur Denis on. Despite getting mildly disoriented in the passage system, he reported that there seemed to be a somewhat promising lead at the end of it. However, at this point the time constraint cut in, and we had to retrace our steps to the exit of the cave, past a feature which Alison thought was more dragon-like than the official Murder Cave dragon. The rest of the cave was uneventful, and we made our way back to the hut in good time to leave.

Epilogue

We'd deliberately planned to leave on Monday afternoon to beat the traffic back into Sydney, as the long weekend continued to Tuesday. However, the drive back wasn't that simple for Denis, Jack, Clare, and Thomas. After dealing with a flat tyre - which involved unloading everything in the boot onto the side of the road, and drinking the beer somehow hadn't helped with our space problem - everything was going well until we reached the top of the Blue Mountains. As we climbed the last few hundred metres to the top, we noticed a strange burning smell. This didn't really concern us at first, but the smell continued with us, so we pulled into a petrol station to assess the situation. We eventually realised that the engine was overheating because the air intake was blocked - with compressed thistles. After removing an impressive volume of these, we continued in very slow-moving traffic down through the Blue Mountains to Sydney - apparently everyone else was also coming back on the Monday. Chris and Alison, on the other hand, realised about this traffic jam in time to take the Bells Line of Road, and so arrived well before the others, despite leaving later. The thistles also spared them. Life's just not fair.

[4]Not for navigation.

JENOLAN FLOODS! DECEMBER 2010

BY IAN COOPER

During late November and early December of 2010 there was significant rain and flooding at Jenolan Caves that overlapped with a SUSS week long trip. Creeks and cave streams were flowing in a way not seen since the early 1990's (Cooper 1992, 1993; Scott1991; Staraj 1987, 1989, 1990, 1993). As noted by Staraj (1990) the opportunities to see floods and make observations are limited by both the coincidence of trips with floods and the presence of wet periods associated with La Niña weather systems. Previous flood observations appear for the periods 1985-93, 1971-75, 1962-64, and 1953-56. For example the largest recorded floods at Jenolan were in 1975 and 1985 and the last time there was a lake in Wiburds Lake Cave was 1990. Now we appear to have entered another wet period for 2010 to ?. The following is some observations and musings from the SUSS week long Christmas trip. Flow measurements are estimated by measuring cross sections in straight sections of stream and measuring or estimating flow velocities.

Firstly the rainfall readings taken at the Jenolan guides office each morning at 0900. The rainfall intensity is a standard way of measuring how quickly water enters a catchment. For example if the rainfall intensity is one millimetre/hour then each square kilometre of catchment receives 1 000 000 litres of water/hour. At Jenolan the northern catchment is 25 km^2 and the southern catchment 2.7 km^2, so the peak collection into the Northern Limestone was $5x10^7$ litres/hour.

Day	**Date**	**Rainfall** (mm)	**Rainfall Intensity** (mm/hr)	**Comments**
Friday	27/11/2010	2.0	0.08	
Saturday	28/11/2010	0.6		
Sunday	29/11/2010	16.2	0.68	
Monday	30/11/2010	30.0	1.25	
Tuesday	31/11/2010	18.0	0.75	
Wednesday	1/12/2010	49.4	2.06	Major flood with 2 m deep flow in Jenolan River through Devils Coachhouse.
Thursday	2/12/2010	36.3	1.51	Major flood with 2 m deep flow in Jenolan River through Devils Coachhouse.
Friday	3/12/2010	7.5	0.31	Major flood with 1 m deep flow in Jenolan River through Devils Coachhouse.
Saturday	4/12/2010	27.8	1.16	Jenolan River flowing to Blue Lake. Northern Limestone observations. Wet SUSS barbeque.
Sunday	5/12/2010	9.6	0.40	
Monday	6/12/2010	2.0	0.08	
Tuesday	7/12/2010	4.0	0.16	Northern Limestone observations.
Wednesday	8/12/2010	Nil		Southern Limestone observations.
Thursday	9/12/2010	10.2	0.43	
Friday	10/12/2010	8.2	0.34	
Saturday	11/12/2010	0.1		
Sunday	12/12/2010	Nil		Southern Limestone observations.
TOTAL		221.9		

Saturday 4/12/2010

One group followed the Jenolan River from Blue Lake to the north end of Wiburds Bluff then went to the main and southern parts of Wiburds Lake Cave. Below is a summary of observations working from the north at Rowe Flat to Blue Lake. Locations in McKeowns Valley are shown in Figure 1. The conditions observed represent the waning stages of a Stage 6 flood (Shannon 1976). All of the valley floor gravel aquifers were fully saturated and providing water into the underground drainage as well additional flow forming the surface stream. Flow observations are summarised in Figure 2. As the river passed Wiburds Bluff about 1500l/s was lost into and under Wiburds Lake Cave. About 400l/s of this was visible in Lake Chamber with the remainder to be split between River Section, Yawning Gulches, J56 and any unknown areas. South of Lake Chamber, 40m along 22Passage, a small sump was consuming about100 l/s of flow into a previously unrecognised area. This is a prime area for prospecting in dry conditions. A report by Jackson 1996 (page 8) suggests that this water may flow into Yawning Gulches. This water may be flowing along a newly formed passage at a lower level than 22 Passage and re-joining the stream way closer to Henry's Dig. The U-tube at the end of 22 Passage was sumped with the water appearing to be at the same level as the lake in Yawning Gulches. Streams were entering Yawning Gulches from the east and south.

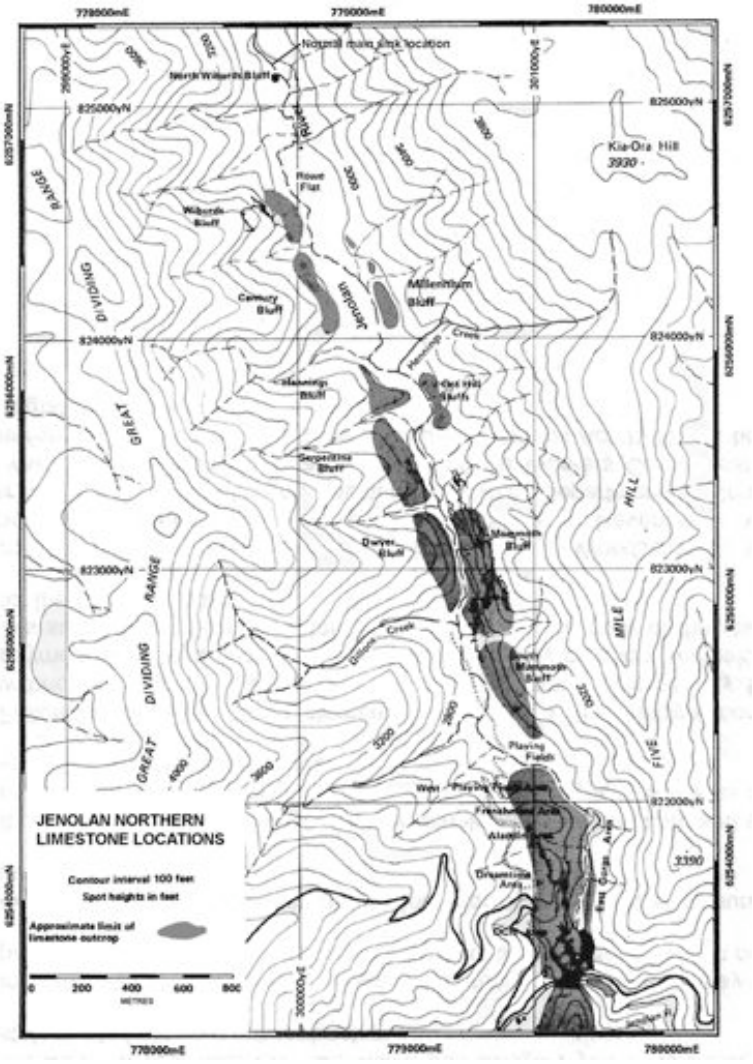

Figure 1: Northern Limestone locations (modified from Welch 1976).

Wiburds Lake Cave represents an ancient section of the Jenolan Underground River (JUR) that has been reactivated as a series of flood swallets. The Jenolan Caves Limestone has a westerly dip of 30°....A result of this is that the JUR will be located a considerable distance west of the valley floor. Where the JUR is observed in Spider and Mammoth Caves it is 50m below the valley floor and it is anticipated that the JUR is 40m to 60m below the level of Rowe Flat. (Cooper & Staraj 1996). Recent extensions of Northwest Passage currently have the deepest point in Wiburds 50m below Rowe Flat. This area was likely to be completely flooded and was not entered during the trip.

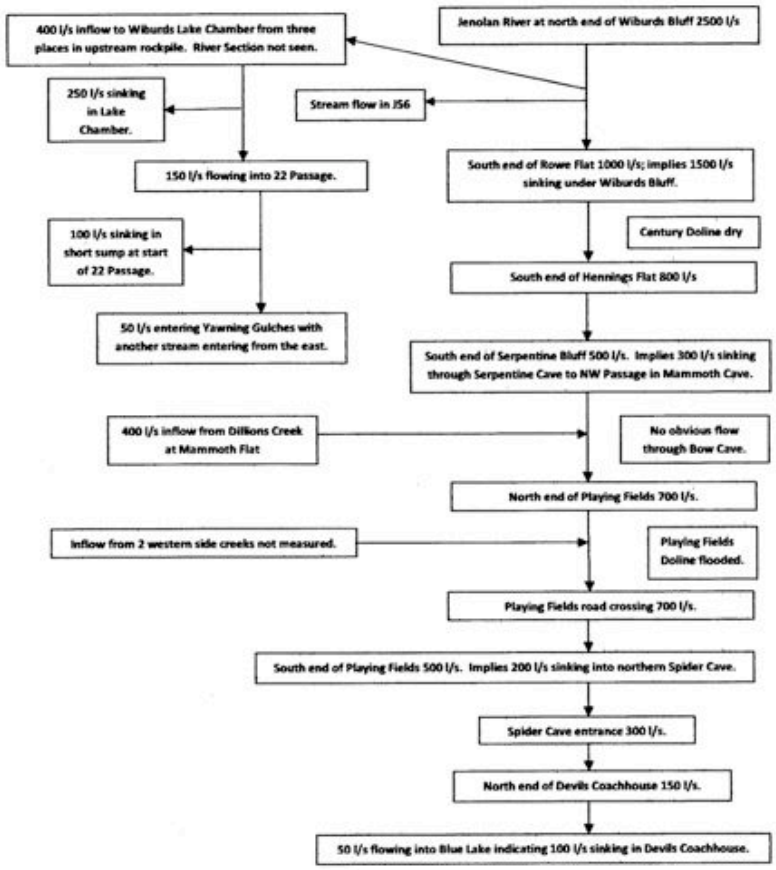

Figure 2: McKeowns Valley flow observations, Saturday 4/12/2010

Work by Kelly (1988) shows that the valley floor from Hennings to north of the main sink (Hennings Flat, Century Flat, Rowe Flat) contain approximately 107m3 of alluvium that feeds water into the JUR at an estimated average rate of 60l/s under normal flow conditions (Shannon 1976). After dry periods such as 2000 to 2010 it takes a great deal of rainfall to recharge the alluvium but once charged it takes only a small amount of rainfall to cause the surface stream to flow. Such alluvium typically has porosity between 12% and 46% (Lambe & Whitman 1979). Assuming a mid - range value of 25% porosity this suggests the aquifer holds 2.5x109 litres and can supply 60l/s for about 450 days. At least some of this flow goes through and under Wiburds Lake Cave. Other flow is probably lost under Century Bluff and Kia-Ora Bluff.

About 300l/s was being lost out of the river as it passed Serpentine Bluff. This water is thought to flow through Serpentine Cave or directly sink into the river bed and flow along strike to Infinite Crawl in Mammoth Cave and then join Central River. Some flow was lost out of the river between Serpentine Bluff and the Mammoth Cave entrance but amounts were difficult to determine. This water is considered to be seen as flow in Sand Passage, Cold Hole and The Rockpile in Mammoth Cave. Surprisingly there was no sign of obvious flow into Bow Cave which is choked with flood debris and gravel. It is thought that there must be some flow through the gravel in this area.

At Mammoth Flat, Dillions Creek was adding 400l/s to the Jenolan River. It is then only a short distance downstream of Mammoth Flat that the river runs off the limestone. The river flows on to the limestone again at the Playing Fields road crossing. From this point to the south end of Playing Fields the river loses about 200l/s into the End Zone and Downstairs Rockpile areas of Spider Cave. The river gradually lost volume downstream of Playing Fields but with no obvious sinks visible. The known sinks at Spider Cave entrance and Ian Carpenter Cave did not show any noticeable reduction in flow. There was a distinct and noticeable loss of about 100l/s as the river passed through the Devils Coachhouse. At the same time a party in Mammoth Cave reported:

- small creek flowing from rockpile near Cold Hole then down the 40 Foot.
- Home Sweet Home almost sumped with no access to Lower River.
- Central Lake flowing down Snakes Gut.
- Ice Pick Lake 10m above normal water level.
- Sand Passage sumped but there was no flow southwards towards Cold Hole or Horseshoe Cavern.

Tuesday 7/12/2010

A group followed the Jenolan River from Playing Fields to the north end of Wiburds Bluff and visited streams in Wiburds Lake Cave. Below is a summary of observations working from the north at Rowe Flat and downstream to Playing Fields (Figure 3). The conditions observed represent a Stage 4 flood (Shannon 1976). All of the valley floor gravel aquifers were fully charged and providing water into the underground drainage but surface flows were no longer enough to flow all the way along the river. The river stopped flowing above the northern end of Sand Passage in Mammoth Cave and it is surmised that the river would have stopped flowing a short distance south of Playing Fields with Spider Cave absorbing this flow. The Devils Coachhouse was reported as having no surface flow. As the river passed Wiburds Bluff about 600 l/s was lost into and under Wiburds Lake Cave. About 300l/s of this was visible in Lake Chamber and 200 l/s visible in River Section with the remainder to be split between Yawning Gulches, J56 and any unknown areas. South of Lake Chamber, 40m along 22 Passage a small sump was consuming about 100 l/s of flow into a previously unknown area as seen on the previous Saturday. A small stream of 10l/s was observed entering Yawning Gulches from the east. This was followed upstream through rockpile to a muddy area with tree roots. It is possible that this is the same stream as seen in J56 but a previous attempt at dye tracing was unsuccessful (Cooper 1996). On this day nearly all the flow loss in the Jenolan River was visible in within Wiburds suggesting that there may not be any significant passages under the known cave.

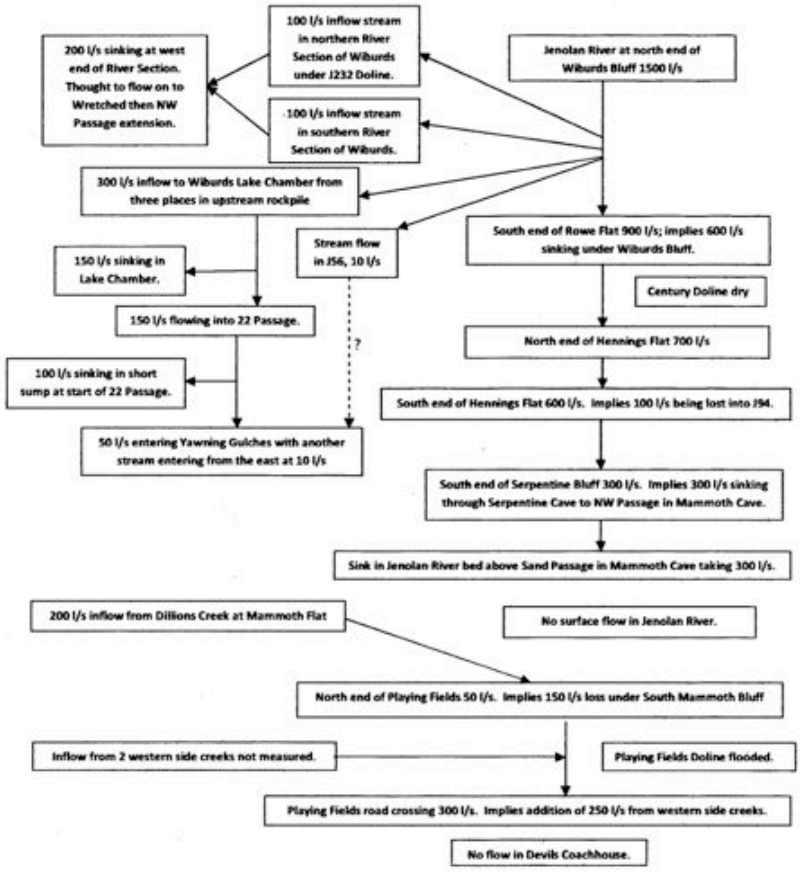

Figure 3 McKeowns Valley flow observations Tuesday 7/12/2010

The observations in Wiburds Lake Cave indicate that an inflow of at least several thousand litres per second is required to flood the cave and cause a lake to form as last seen in 1990. There has been speculation that something has changed in the lower parts of Wiburds (a constriction being removed) that no longer allows the lake to form. The lack of a lake during this event supports this theory. As the river passed Hennings Flat there was a noticeable loss of flow of about 100l/s. This water is thought to sink and pass through the gravel choked stream passage located in J94. From here it is thought that the water would join Central River about 200m to the south in the vicinity of Twiddly-Om-Pom in Mammoth Cave. As seen on the previous Saturday about 300l/s was being lost out of the river as it passed Serpentine Bluff. This water is thought to flow through Serpentine Cave or directly sink into river bed and flow along strike, 120m to Infinite Crawl in Mammoth Cave. This places the capacity of the Infinite Crawl stream way at 300l/s. About half way between Serpentine Bluff and Bow Cave the river was sinking into gravels. This area is close to, and along strike from the end of Sand Passage in Mammoth Cave.

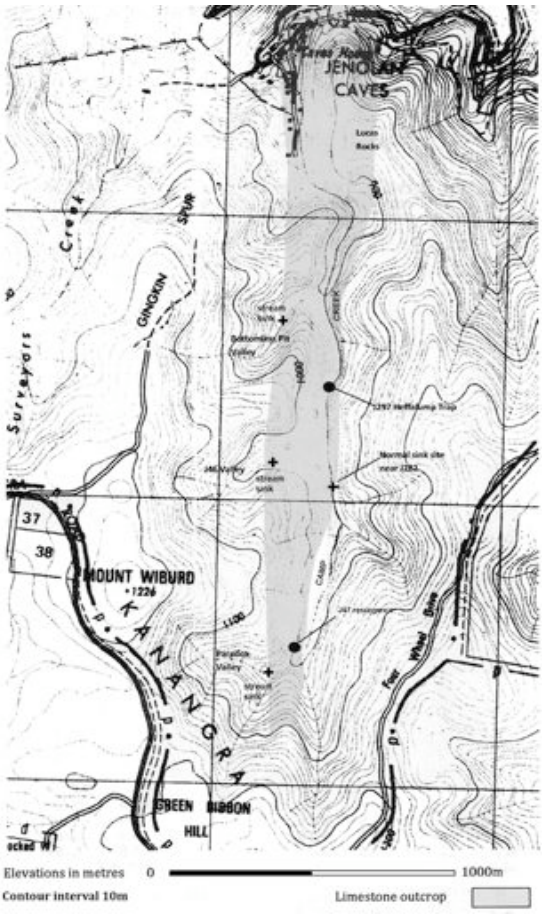

Figure 4: Southern Limestone locations

Wednesday 8/12/2010

On Wednesday a group walked up Camp Creek into the Southern Limestone as far as Paradox Cave prospecting and recording flow measurements. Locations in the Southern Limestone are shown in Figure 4. The Southern Limestone drainage is quite different to McKeowns Valley. The drainage is much smaller and steeper and it is rare for Camp Creek to flow for its full length to Caves House. In 1985 a major flood did flow to, (and almost through), Caves House. The Camp Creek drainage is small and covers approximately 2.7 km^2compared to 25km^2 for McKeowns Valley. The gradient of Camp Creek is steep, rising from 790m ASL at Caves House to 1020m ASL at Paradox Cave in a distance of 2.7km giving an average gradient of 9%. The valleys are steep and V–shaped with little alluvium in the system to slowly supply flow hence flow behaviour is dominated by erratic pulses of flow closely related to rainfall intensity. The major flood in 1985 was due to rain falling onto snow covered hills. Most of the course of Camp Creek is developed along the eastern margin of the limestone. Camp Creek between Paradox Valley and J46 Valley is located east of the limestone hence flow is on the surface. Camp Creek normally sinks in gravel near J282 (Bloodsucker Cave) and is next seen in Baralong Cave about 1km to the north. Between these two points there is a height loss of 145m giving a steep average gradient of 14.5%. This would suggest that there should be no sumps in the underground stream way.

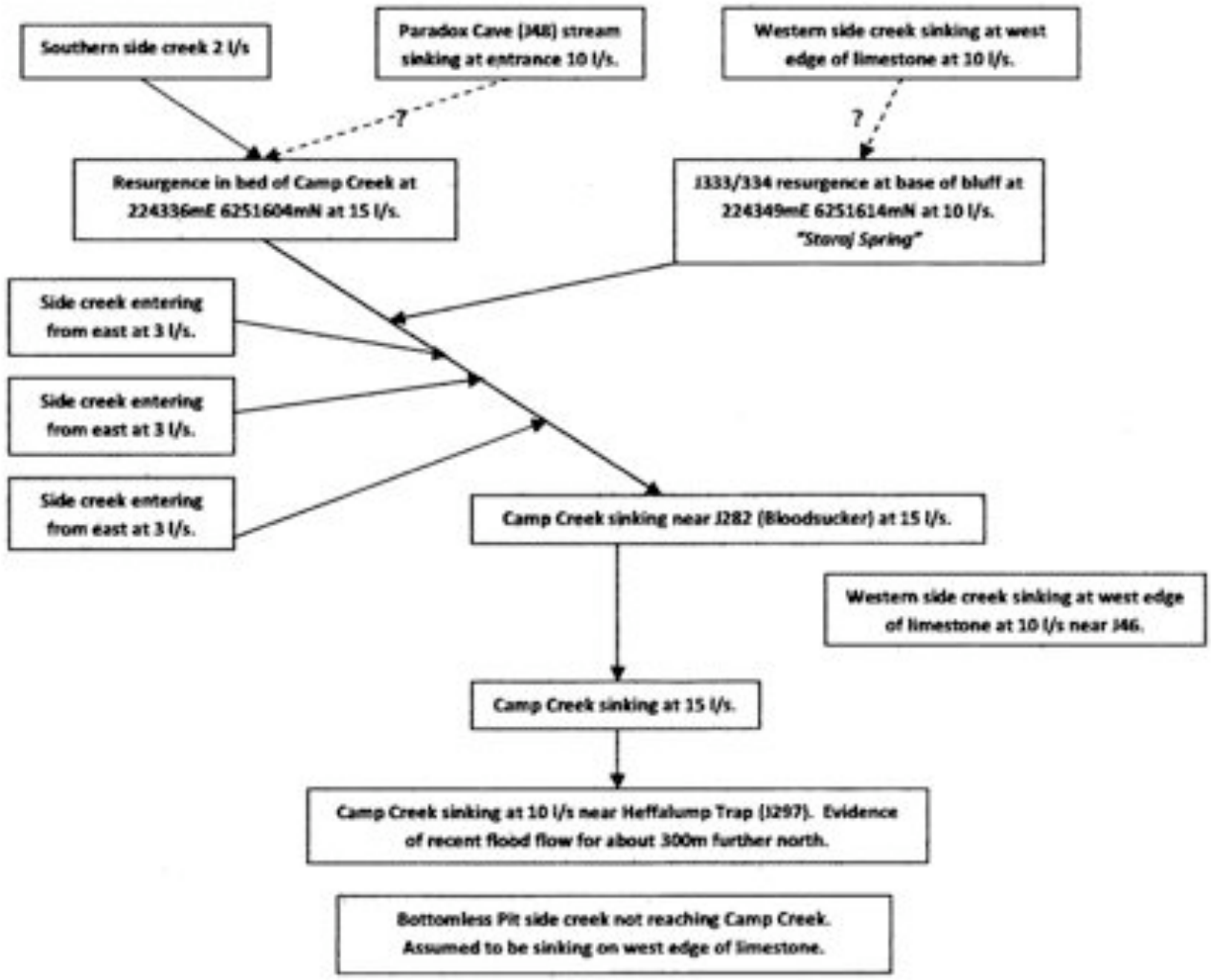

Figure 5: Southern Limestone flow observations Wednesday 8/12/2010

At the south end of Camp Creek is a long known mystery with resurgences present in the upstream part of the drainage. Paradox Cave is so named because it is a resurgence. J47 is another resurgence located at the base of a bluff at AMG grid reference 56H 0224349mE 6251614mN $\pm$ 10m. The resurgence was flowing at 10l/s. A second cave entrance, 10m south of J47, was sumped. Clearing the main resurgence also lowered the water level in the second cave showing the two to be connected. It is not entirely clear where the source for this resurgence is but it is most likely water from the Paradox side valley sinking 300m to the southwest. The limited size of this valley would explain the intermittent nature of the resurgence. The normal sink site for Camp Creek showed a loss of flow of 15l/s into the gravel bed over 20m. Flow was stopping in the gravel bed of Camp Creek close to Heffalump Trap (J297). SSS report that a stream was flowing through the base of Heffalump Trap the previous weekend, (Peter Bauer pers.comm.).

Saturday 11/12/2010

A group walked up McKeowns Valley from Playing Fields prospecting and recording flow observations. Below is a summary of observations working from the north at Hennings Flat then downstream to Playing Fields (Figure 6).

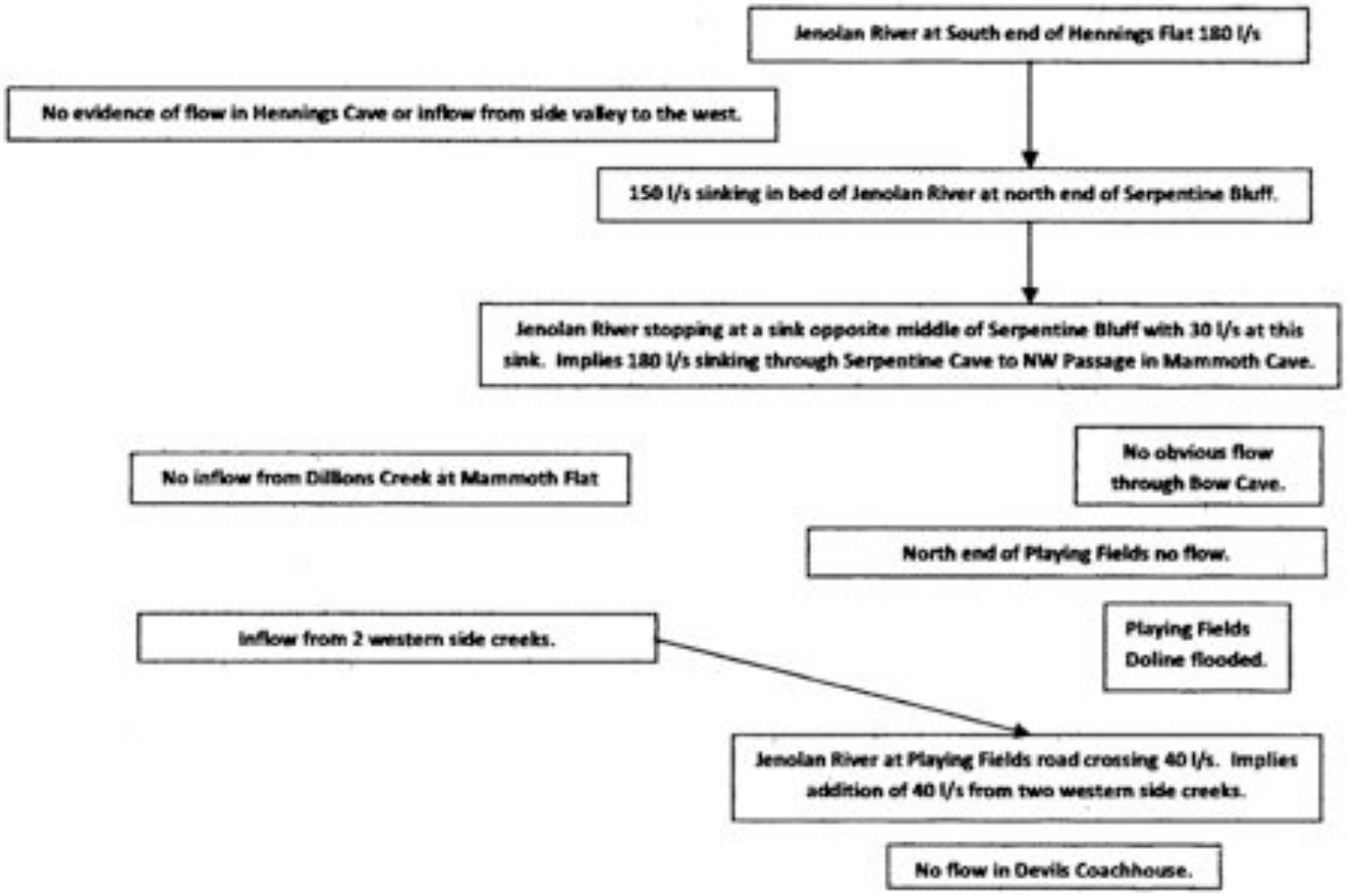

Figure 6: McKeowns Valley flow observations Saturday 11/12/2010

The observed conditions were transitional between Shannon (1976) stage 3 and stage 4 flood events. With less than 300l/s in the river at Serpentine Bluff all flow was sinking and going to the Infinite Crawl area of Mammoth Cave. Dillions Creek had retreated to its normal sink. Playing Fields Doline remained flooded showing that the Playing Fields alluvium remained fully saturated. The two unnamed western side creeks were still supplying water into the Jenolan River. It is assumed that this flow was all sinking into the northern parts of Spider Cave.

Sunday 12/12/2010

On Sunday a group walked up Camp Creek into the Southern Limestone as far as J46 prospecting. Camp Creek was sinking at 15l/s in gravel at its normal spot close to J282. The side creek was sinking close to J46 at 10l/s. Musings A number of general observations can be made about the flood hydrology of McKeowns Valley.

- The Wiburds Lake Cave area has the capacity to take large volumes of flood water into the underground river (up to 3000l/s?). There are at least 3 discrete sinks in the bed of the Jenolan River as it passes Wiburds Bluff.
- Observed flows in the visible parts of Wiburds Lake Cave account for most of the losses seen in the surface stream suggesting that it is unlikely that there are any large stream passages under the known cave.
- Wiburds takes flow from the saturated alluvium of Rowe Flat until the level drops to about -5m in the valley floor. Thence seepage into the JUR would be by a lower level.
- All flow in Wiburds concentrates to either Henrys Dig in the south or the new extensions to NW Passage in the north. These two areas remain prime sites for breakthrough to the JUR.
- A stream sink at the south end of Rowe Flat probably feeds through an unknown system to the JUR somewhere under Century Bluff.
- From Hennings Flat to South Mammoth Bluff all sinks in the Jenolan River appear to pass through parts of Mammoth Cave. In particular the sink on Hennings Flat appears to pass under Kia Ora Bluff and into Central River near Twiddly-Om-Pom; sinks around Serpentine Bluff flow into Infinite Crawl thence Central River; and other sinks flow into Sand Passage, Cold Hole rockpile and The Rockpile. Dillions Creek joins the JUR between Lower River and Slug Lake.
- It is odd that none of the surficial sinks appear to flow west into the JUR between Century Bluff and Spider Cave.

- Where the Jenolan River runs back on to the limestone at Playing Fields it losses a considerable volume (up to 1000l/s) through 2 or 3 sinks into the northern parts of Spider Cave.

Some general observations about the Camp Creek drainage in the Southern Limestone include:

- The Southern Limestone drainage is about one tenth the size of the JUR. So the Camp Creek underground stream way may be of restricted size. Conversely Baralong Cave is quite spacious where the streamway is seen.
- It is odd that there is a sump at the end of Baralong Cave. The average gradient from Baralong to the Camp Creek main sink is over 14%. This gradient suggests that the stream would be free flowing with waterfalls. (The gradient of the walk along stream way in Spider Cave and Imperial Streamway is 1%). An implication of this is that exploration at the rear of Baralong Cave should be directed at high levels.
- The Southern Limestone is tightly impounded, (i.e. surrounded by non-limestone). This means that there is an abundant supply of gravel into the system. All of the known stream sinks are into gravel choked valley floors.
- Why Camp Creek flows on the surface between Paradox and Bloodsucker Caves is not clear. The limestone forms a series of bluffs entirely to the west of Camp Creek. The eastern margin of the limestone in this area contains a number of degraded dolines that probably represent ancient stream sinks.
- The Paradox area remains poorly understood. Efforts should be made to attempt to locate the stream sink for Paradox Cave.

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JENOLAN WEEKLONG TRIP DECEMBER 2009

The following is a short description of a couple of the more unusual caves we looked at during the Dec 2009 week long trip to Jenolan

Frenchmans

Participants: Rowena Larkins, Michael Bates, Deborah Johnston, Mark Euston, Aidan Lloyd

Mon Dec 7 2009

We were in the mood for some vertical caving and so decided to head off to Frenchmans. While following the fence we came across two NPWS people who were checking for radio tagged rock wallabies with their detector radios. We chatted with them for a bit about how the wallabies were doing after their release.

We found the cave entrances, at the end of the fence. We rigged the upper entrance and headed in. At the base of the pitch we took off our abseil gear, those who were first in headed off checking out the leads in the entrance pitch. Once all were down we proceeded over the flattener and into the body of the lower sections of the cave. We stuck to the tape marked track and some people poked around in the rockpile at the end. This rockpile often has air blowing through it but today it had none.

Mark found an old glove in the cave and rescued it. We took a side trip through the decorated passes on the right side (looking in) and a couple of us checked out some climbs above the main chamber, which looked scary, but when climbed were actually straightforward. These climbs might have some prospects for extending the cave.

Back to the entrance pitch and we exited the cave, Deborah heading out first and I came out last. As someone was climbing out I thought I saw a bat or a bird fly into through the lower entrance. Simultaneously was a cry from Deborah who had exited already. A few milliseconds later I realised that the “bird” was in fact a cave pack, which had rolled down the hill and decided to go caving by itself. I cried out “Below” and people moved to cover. Happily the cave pack came to rest half way down the slope inside the cave entrance. I climbed up to retrieve it and brought it down to the group at the bottom.

One of our party members was having trouble getting the abseil harness on. This is when we found the advantage of using a steel D mallion rather than an aluminium D. The aluminium D had warped and jammed and the gate was not able to be done up. One of the people who was already out lowered down their harness for use.

On the surface while packing up the gear, I headed over to check out the entrance to False Frenchmans which is in the cliff face just near Frenchmans. There are several other cave entrances nearby, all tagged, which I would be keen to check out sometime.

Back at the hut we pondered what to do with the old glove Mark (a NUCC member as well as a SUSS member) had found and left lying around. We decided, over a few beers, that the glove would have increased the gravitational attraction in the area and would potentially cause the cottage to be hit by a meteorite. Fortunately there were several SUSSlings around to avert this disaster.

Removing a dead aluminum D from a cave harness. Photo by Rowena Larkins

Playing Fields Survey

Participants: Rowena Larkins, Michael Bates

Fri December 11 2009

We needed to work on the survey that I had started once last trip when my disto died with flat batteries. This time I had a backup for the disto - a measuring tape.

At the entrance to J133 we inspected the cubic wombat droppings.

We proceeded to the vertical squeeze and I headed through. I got Michael to pass me the survey gear and I back surveyed to the point I had marked last time.

Michael then got through the vertical squeeze, exhaling to get through, and we proceeded to survey the main large room in the cave. This is covered in flowstone with a climb at the back of the room which only Max had entered in recent history. When Max climbed this last time he found Ron Newbould's[1] signature from 1966 and we suspect few people had been there since. I took a survey shot to a stalagmite in the middle of the passage leading off from the climb and headed up there tape in hand.

This was an rather exposed 4 meter climb. Someone previously (Ron Newbould?) had attempted to cut some steps into the flowstone, but these were no use to us.

Once up the climb I attached the tape and Michael ascended. We surveyed on from the stalagmite, up around a corner to the left and found ourselves in an upper room which was sloping perpendicularly to the gradient of the main room below. Like the room we had come from this upper room was higher than wide and went to a small ledge at the top. Care should be taken in this room as there are some loose rocks. To the east side of this ledge was an aven, about 2.4 meters high, with the initials RN on the left side when looking in. After completing the survey and comparing it with a topo map the highest point in this cave seems to be only a short distance from the surface.

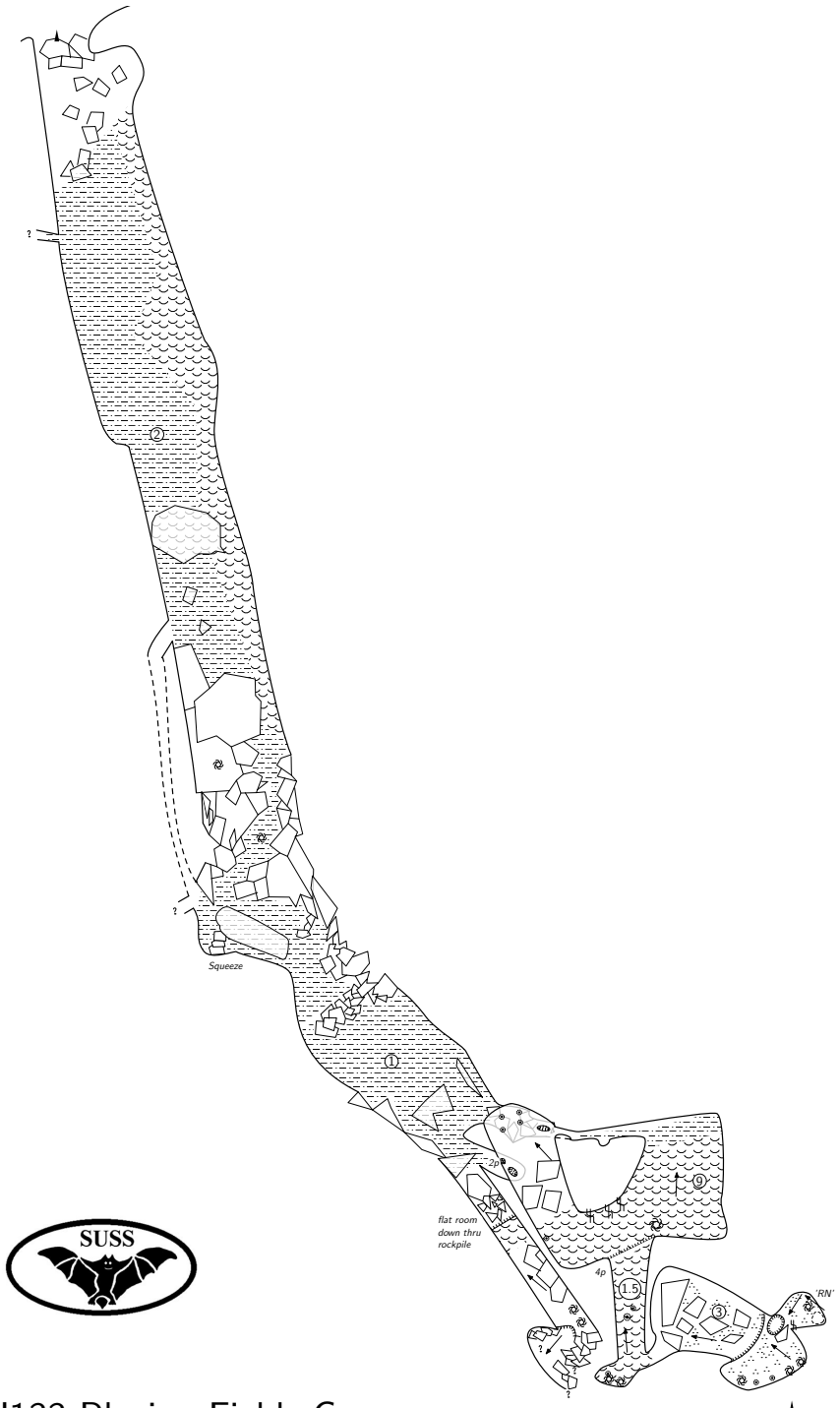
We descended the cave and greatly appreciated the tape on the climb down. Interestingly, Michael seemed to have more difficulty getting down through the vertical squeeze than getting up it.

The maps are reproduced on the following pages.

The large room discovered heads due east. When this map is overlaid on other maps of Jenolan, the room is heading directly towards Frenchmans cave, although it is 54 meters away.

In the main part of the cave there are several possibilities for exploration. The cave is almost immediately above Spider cave and it is likely that water has percolated from J133 into spider. Whether there is a human size passage is a matter for exploration. Note that Spider is about 75 meters below.

[1] Ron Newbould was the lead guide and cave explorer at Jenolan from the 1960's



J133 Playing Fields Cave

Jenolan Caves, NSW

Scale of original 1 : 200

0 2 4 6 8 10 m

tr

2009 survey using Bosch DLE50, Suunto KB20/360R and Dijite 810-100 angle gauge to ASF grade 55

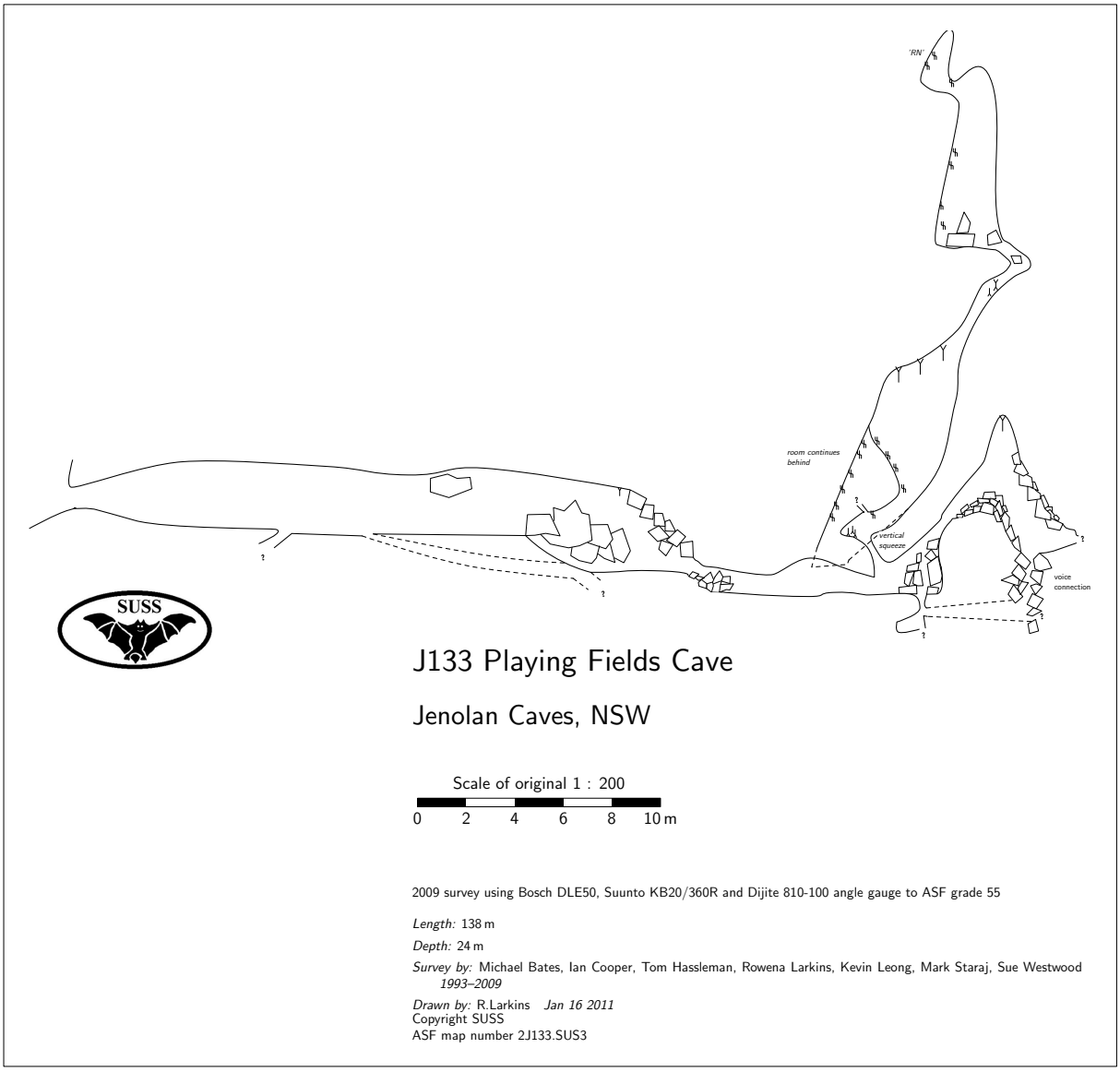
Length: 138 m

Depth: 24 m

Survey by: Michael Bates, Ian Cooper, Tom Hassleman, Rowena Larkins, Kevin Leong, Mark Staraj, Sue Westwood

Drawn by: R.Larkins *Jan 16 2011*

ASF map number 2J133.SUS3



Foz and Casteret

Participants: Rowena Larkins, Stephen Kennedy, Aidan Lloyd

Dec 12 2009

The morning started with a rope being rigged over a tree for people to practice prussicing before heading underground.

We had two goals on this day, to check out Foz hole which is supposedly immediately above the entrance chamber to Mammoth, and to survey Casteret cave. In the hut people were reviewing the Blue Book description of Casteret and getting turned off by the description of the vertical squeeze and associated picture. I managed to convince two others to accompany me and we set off.

We headed up the valley towards Mammoth and turned east at the point that we had been directed to by those who know where these caves were. Strangely there was a jumper lying in the valley at the turn off. We headed up the hill and heard voices. Soon we saw the people behind the voices. The guides were getting assessed on their rigging skills and had a nice small pitch just to the side of Casteret cave. We politely greeted them, and proceeded to rig Casteret cave with a ladder. I started surveying in. It was a tight twisty passage and after an hour I was still in daylight and about to survey through the Casteret Squeeze. The cave is a sort of Y shape, with the entrance on one arm, an aven on the other and the squeeze at the start of the Y base. It is a tight cave. My two companions were sitting outside

David Lee practicing rope work. Photo by Rowena Larkins

chatting in the sunlight.

I contemplated surveying through the squeeze, hanging with one hand holding the ladder, the other taking measurements, and someone else above me, also on the ladder, marking the point. The mental image didn't appeal to me both on practicality and for safety reasons. As this stage I decided to call off the survey and re-attempt it with abseil gear, where I could lock myself off and have two hands free. Also having two people on a rope is safer that two people hanging off a ladder.

The Foz in Foz Hole Photo by Rowena Larkins

I sent the other two down to check out the squeeze, one at a time. We then de-rigged the ladder and headed a few meters north east to the Foz Hole.

Foz hole is a straightforward cave, with several chambers connected by climbs. The first climb is chimneyable, but the last two need a ladder or rope. We had a ladder. Rigging points were hard to find and I was glad of a long tape. The belay rope was attached to a separate anchor point to the ladder. The ladder drops down the first pitch, through a small hole in the floor of the second pitch and down to the lowest chamber. This chamber has some nice decorations on the walls, a rockpile in the floor and someone has written the words 'FOZ' with carbide on one of the walls.

We headed back up the ladder, de-rigged and headed back to the hut. On the hill on the way down we saw cave guide testing was still in progress.

THE WOOLLY RHINOCEROS

BY BRUCE WELCH

The fabled Underground River of Jenolan

The Caves of Jenolan 2: The Northern Limestone discusses the Woolly Rhinoceros in the following terms; *This is the Underground River section upstream from its sighting in Mammoth Cave. It could be a vadose stream cave with numerous short drops since there is a 100m height difference between Lower River and the upstream sink* [near Watersend Cave]. *The most likely southern approaches are upstream along the Lower River, (although diving has proved very difficult) or digging to intercept Lower River upstream from Glennzdig and Denzdig in Mammoth Cave. Dwyers Cave (J41) is 85m deep and must be getting very close to stream level in the lower reaches. The Nibicon Dig in Little Canyon Cave (J59), the intermittent lake in Maiden Cave (J79), and Henrys Dig in the Gulches in Wiburds Lake Cave all appear to drain into the Woolly Rhinoceros during floods and so hold prospects for the discovery of 'vast unknowns'.*

Since this was written it has become apparent that upstream diving in Mammoth Cave is probably more difficult that previously thought and no early breakthrough is likely to occur there. Similarly the other digs in Mammoth, Dwyers and Little Canyon caves are all in the 'too hard' basket.

It is my contention that Mammoth Cave was formed by Central River (and Bow Cave) and simply cuts into the Jenolan Underground River. In fact I also contend that an older 'central river' formed the Serpentine/Little Canyon Cave system which then formed the upper levels of the northern sections of Mammoth Cave. Hence there is no direct connection to the Jenolan Underground River by the Serpentine/ Little Canyon Cave system. Dwyers Cave is a different case and may well lead to the Jenolan Underground River, however further digging seems impossible.

What was not mentioned previously was the possibility of Hennings Cave providing a way into the Jenolan Underground River. This was because at the time that the book was written we had only seen one flood in the cave. This was the huge flood of June 1975 when the sink holes in the maze section opened up. Subsequent floods have opened these sinks up even more, so it is obvious that not only does the water go down here but also large amounts of cave fill have gone down here also. This would seem to rule out tight vadose passage below and does suggest a rather more substantial passage. I consider that the large dyke and fault just to the south of Hennings Cave forms a natural weakness which would allow entry to the Jenolan Underground River. On the opposite side of the valley there is a semi-permanent creek which may well make its way underground into the Jenolan Underground River; this would also be following the same weakness. I do not believe that either of these streams would flow into the Serpentine/Central River system - they would be a 'Spider Cave- like' system making its way west into the Jenolan Underground River.

This leaves Wiburds Lake Cave as a possible route to the Jenolan Underground River. Henrys Dig in the Gulches area is very promising in that it has a strong air flow and takes a large amount of water. The only problem is that it is a much more recent section of the cave and is consequently very small and very tight. It most certainly would join up with the Jenolan Underground River but I doubt if and human-sized caver will get in this way. This leaves two possibilities; firstly the end of the Western Passage where the roof and floor dips down suddenly. Some time ago SUSS dug upwards at this point and came to a shatter zone which appeared to be close to the contact of the Ordovician rocks (cherts etc.). It is for this reason that I think that this site provides an excellent prospect of gaining access to the Jenolan Underground River as the very old upper levels of Wiburds Lake Cave have drained downwards following the weakness of the contact. The tunnel may well be filled with mud, however it is just as likely to open up quite quickly into a very steep mud covered rockfall with clean sculpted roof just like the entrance section to the cave. In fact from the J92 entrance of the cave the passage drops about 40m very quickly to the Lake Chamber; a similar drop from the end of the Western Passage would take you to about the same depth in the cave as the present lowest point in the new section of the North West Passage.

In contrast, the new section of the North West Passage is a much smaller passage and is at a low level in the cave. Water used to bank up in Wiburds Lake Cave regularly, in fact when the cave was first discovered by SUSS in 1963 it had a lake in the lake chamber which was explored by rubber dinghy, and then on foot as lake levels permitted. For many years now it has been unusual for any lake to be observed and it can only be surmised that an underground constriction has collapsed. I suspect that this constriction was more in the direction of the North West Passage as the gulches/Henrys Dig area still backs up in wet periods. Recently it has been observed that water does flow west and south through the new section of the North West Passage during wet periods - even into the last vertical section. That this drained fairly quickly seems to indicate that whilst there does not appear to be open passage at this time, a passage must be sufficiently open to allow the water through. Rough calculations place this lowest point at best 5m above the Jenolan Underground River, and at the most 20m above. Fairly exciting stuff!

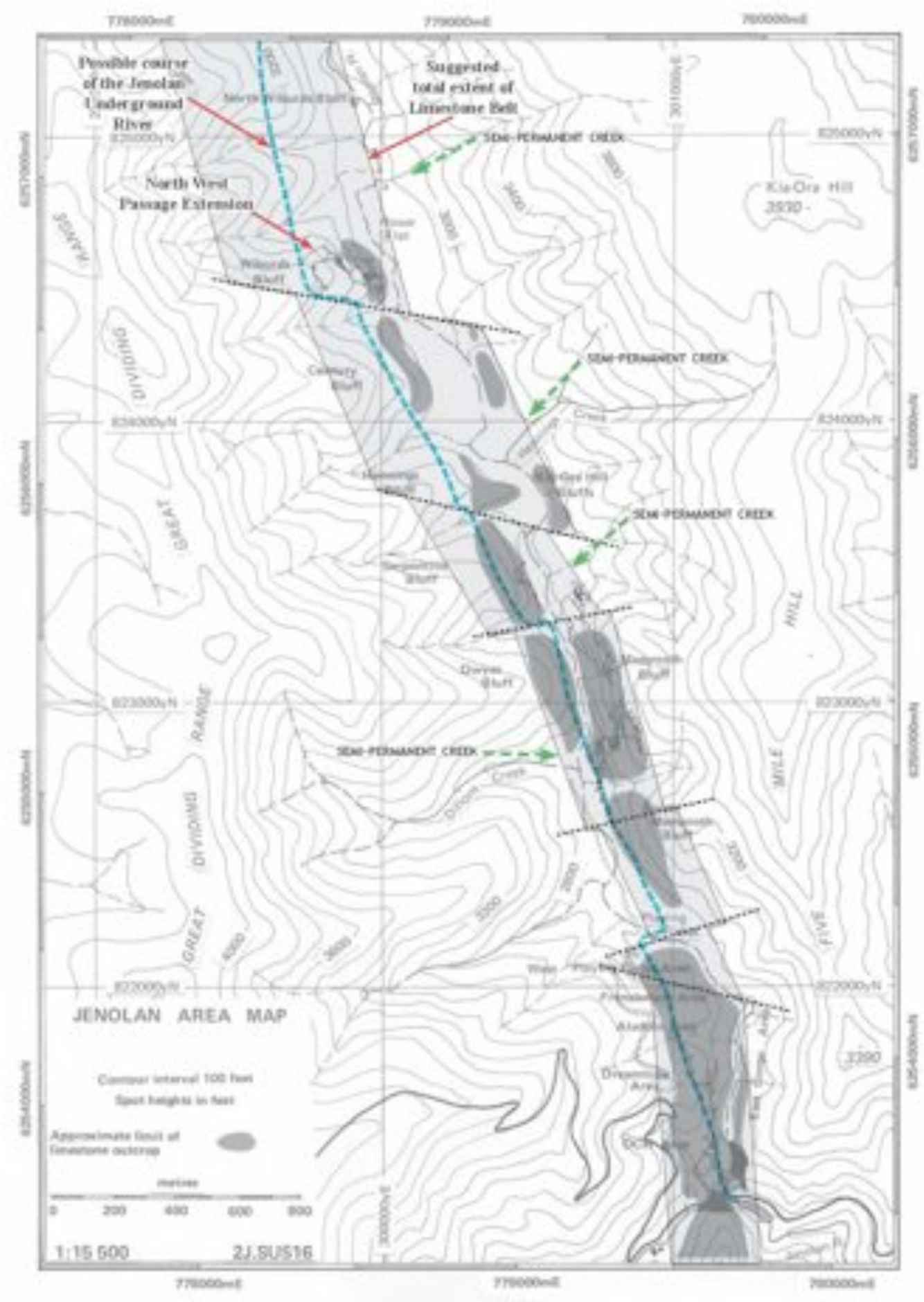
I have included three maps with this article. The first is a combination of two maps which appeared in the Northern Limestone Book to which I have added the probable total extent of the limestone. This is calculated on a thickness of between 250-300m, which at the Grand Arch is almost vertical gradually overturning to 20° at Wiburds Lake Cave. Hence the band of limestone is 'wider' at Wiburds Lake Cave. I have also added the location of the semi- permanent creeks and possible faults. The faults I have shown are indicative only and no doubt will be challenged by a geologist, however I consider that they give at least some indication of what is happening in the northern limestone area. I have indicated where I think the Jenolan Underground River runs and you will notice that I have put a distinct bend in the river at almost every point where it hits a fault. These are guesswork, however I believe that the one at Wiburds Lake Cave actually does exist.

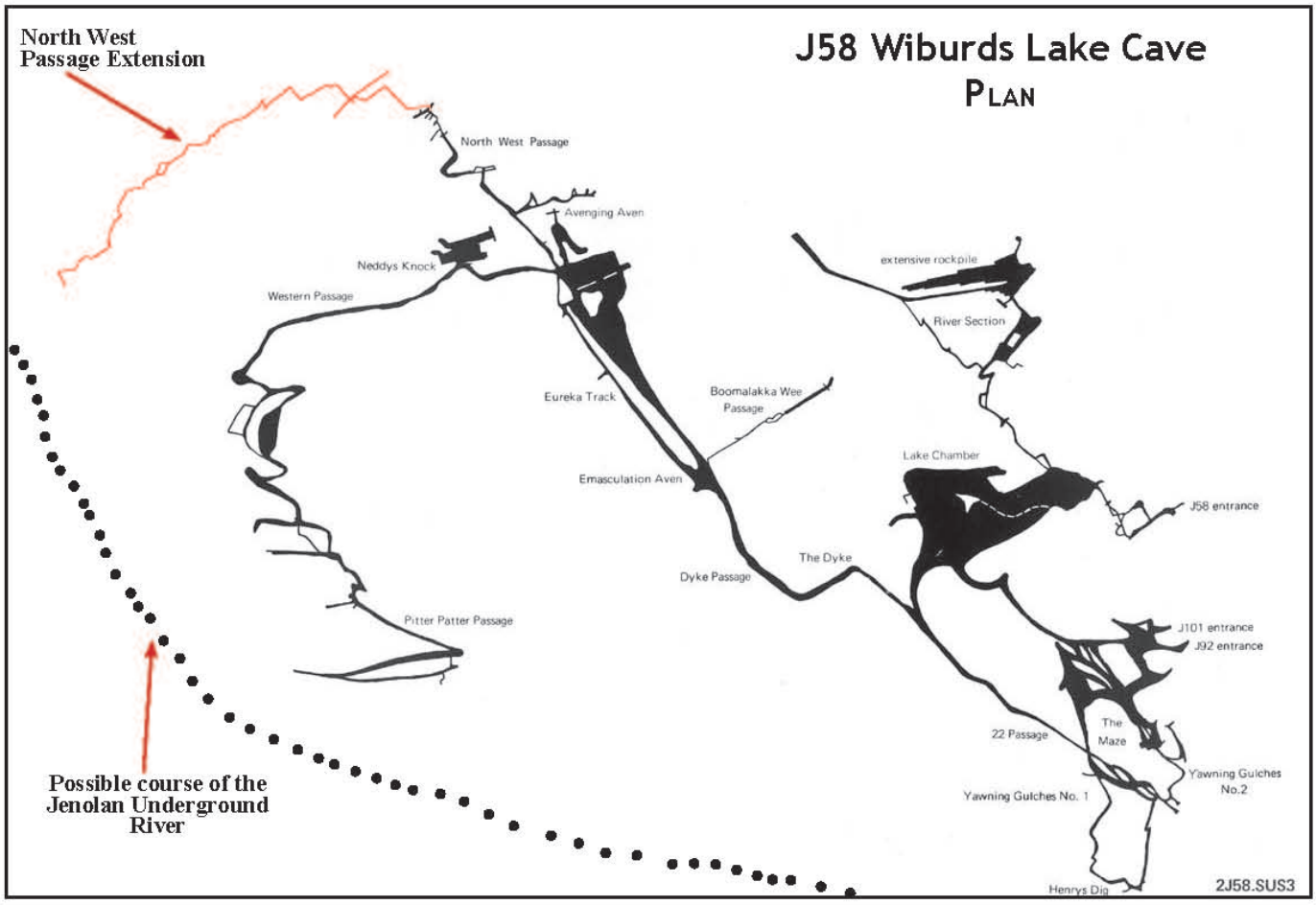
The other two maps show a plan and a cross section of Wiburds Lake Cave (not to the same scale). Again on these I have added a possible course of the Jenolan Underground River. Further, in the cross section I have indicated the limestone belt which dips at the entrance to the cave at 20° overturned, however I consider that this dip changes to a much steeper angle hence the tendency of the inner (western) sections of both the Western Passage and the North West Passage to have roofs (and floors) which are very steeply dipping.

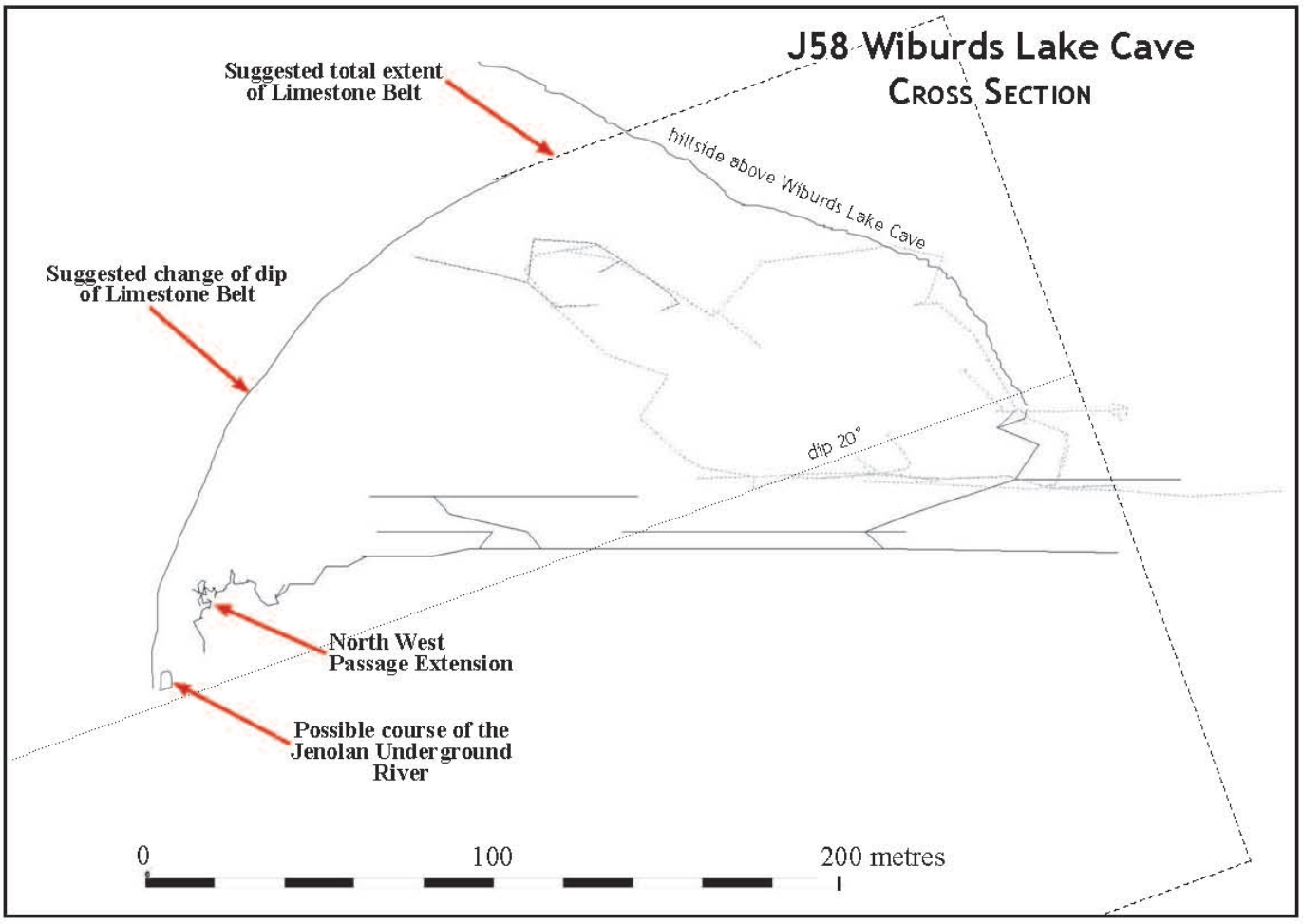
So how big is the Jenolan Underground River? Based on our experience with Spider Cave, it could be very large, however this will only be where we get mixed water corrosion. This occurs where two (or more) bodies of water come together which have different temperatures and/or different saturations. I would expect that in the vicinity of Wiburds Lake Cave that the passage would be large until the fault is crossed. At this point I would expect a rockpile somewhat like the downstream rockpile in Spider Cave. Once this is passed (probably by a microbod) the passage would be large again due to the proximity of inlets from caves on Century Bluff. Whether this continues all the way down past Hennings Cave to the Hennings fault would be hard to predict, however I would suspect that there would be another nasty rockpile once this fault was crossed. From here on down to Lower River in Mammoth Cave the Jenolan Underground River could well be water-filled.

The last matter to be considered is the source of all the water in the Jenolan Underground River. In the Northern Limestone Book, Henry Shannon gives some figures but these pre-dated the discovery of the river in Spider Cave. He states that upstream of Watersend Cave the flow is 30 millicumecs (in normal conditions) with this gradually sinking until the last of it sinks near Watersend Cave. He states that the most commonly observed flow at Lower River in Mammoth Cave is 140 millicumecs and he suggests that the difference can be partly accounted for by tributary stream sinks which could account for another 15 millicumecs or so. He suggests that a lot of the Lower River water may be drawn from storage in alluvial deposits and goes on to calculate that if Rowe Flat is taken as being 15ha in area and 30m thick, this would be sufficient to supply 60 millicumecs for 6 months (see page 7 of the Northern Limestone Book). He states that Central River is quite small at only 1.5 millicumecs (base flow). He makes an interesting comment that Lower River tends to remain at base flow until the surface creek flows as far as Wiburds Bluff. This leads me to believe that Wiburds Lake Cave provides a very quick way for water to enter the Jenolan Underground River, bypassing some sort of underground constriction to the north (probably just north of Wiburds Bluff). We have seen the water making its way almost instantly into Lake Chamber and it is quite possible that there are lower levels which take considerable flows. Thus it would seem that a very quick increase could be delivered to Lower River once the surface creek reaches Wiburds Lake Cave - this would indicate a relatively unrestricted passage to the Lower River body of water. As I stated above, I suspect that this body of water would be somewhere below Hennings Cave, remembering that Lower River comes up under considerable pressure so there must be quite a head of water upstream of where we see it in Mammoth Cave.

In summary, I believe that there must be a large open Woolly Rhinoceros passage in the vicinity of Wiburds Lake Cave because of the huge amounts of water that used to (and probably still does) flow through Wiburds Lake Cave into the Jenolan Underground River causing massive mixed water corrosion - something like Horseshoe Cavern-Railway Tunnel in Mammoth Cave only longer and with the river in it! And it is just there waiting for us . . .


Possible course of the Jenolan Underground River
Suggested total extent of Limestone Belt
North West Passage Extension
SEMI-PERMANENT CREEK
SEMI-PERMANENT CREEK
SEMI-PERMANENT CREEK
SEMI-PERMANENT CREEK
Kia-Ora Hill
3330
DIVIDING RANGE
GREAT DIVIDING RANGE
GREAT MILE
MILE
FIVE
JENOLAN AREA MAP
Contour interval 100 feet
Spot heights in feet
Approximate limit of limestone outcrop
metres
0 200 400 600 800
1:15 500
2J.SUS16


North West
Passage Extension
J58 Wiburds Lake Cave
PLAN
North West Passage
Avenging Aven
Neddys Knock
Western Passage
extensive rockpile
River Section
Eureka Track
Boomalakka Wee
Passage
Lake Chamber
Emasculation Aven
J58 entrance
The Dyke
Dyke Passage
Pitter Patter Passage
J101 entrance
J92 entrance
The
Maze
22 Passage
Yawning Gulches
No.2
Yawning Gulches No. 1
Henrys Dig
2J58.SUS3
Possible course of the
Jenolan Underground
River


J58 Wiburds Lake Cave
CROSS SECTION
Suggested total extent
of Limestone Belt
hillside above Wiburds Lake Cave
Suggested change of dip
of Limestone Belt
dip 20°
North West
Passage Extension
Possible course of the
Jenolan Underground
River
0
100
200 metres

JANUARY JENOLAN TRIP

BY ROWENA LARKINS

January 8/9 2011

Participants: Rowena Larkins, Ian Cooper, Nat Brennan, Chau Huynh, Alan Pryke, Megan Pryke

As we drove around the last corner before the Grand Arch I said to Chau, a SUSS member from O-week on her first trip, "And now we see the Grand Arch all lit up". But for some reason it wasn't! At the cabin I got out of the car, switched on the circuit breakers, opened the door and flicked the light switch. No illumination!

I switched the circuit breakers on and off and again no light.

I checked the bathroom switch and no light, and then headed to the garage; again the switch did nothing. Hmm.....

I looked down below at the guide's cabins and the lights were all off. It was only 10pm and usually there would be a light on somewhere.

So it was out with the candles which were sitting on the cabin mantelpiece. We put one was on the lounge room table, the other in the bathroom, while we organised ourselves to bed.

Saturday

At 7:20 we heard the noise of motors as the power came on and the fridge started up. Hooray! Power! No cold breakfast this morning.

Ian Cooper turned up just after Nat and we geared up do some caves that neither Nat nor Chau had done before. We headed up the valley to Hennings with the aim to get out of the cave before the guided tour started at 1pm. After some oohs and ahhs at seeing the stalactites on the ceiling and admiring the signatures from Voss Wiburd on the wall we headed out of the cave and wandered down the valley to check out Playing Fields Cave. We dodged the leeches on the way down the valley and arrived at the entrance to playing fields. Chau was intrigued by the countryside and the smell of the air out in the bush.

We entered J133, watching for wombats. There was plenty of evidence of their scats around the entrance. I showed Nat the vertical squeeze and she climbed through without problems. I offered Chau the opportunity to go though and she declined. That was fine. We needed someone on each side of the squeeze to confirm a voice connection at one part of the large chamber past the squeeze.

After Nat admired the formations in the chamber we moved to one side of the voice connection and called to Chau. We heard her response clearly through the tight passage.

While in the chamber we noted that there was a large amount of sand on the flowstone that had washed down the aven from the room above.

Nat and I returned to Chau where Nat determined to crawl through the voice connection. We were stunned when she succeeded. Maybe this was the way that Ron Newbold entered the large room where he left his initials.

Chau asked us where the breeze was coming from. I was amazed that a first time caver could feel a breeze in this part of the cave where there were several possible leads.

On the way out, Nat again demonstrated her flexibility by checking out some other leads and suggesting that there was a possibility of them continuing. We decided to postpone any further pushing these leads as it was getting close to time that Nat needed to be picked up.

Before dinner, while there was still daylight, I showed Chau the sights of Jenolan, the Devils Coach House, the Carlotta Arch, and the view from the lookout. Just after we went to bed we heard the sound of a car pulling up. Megan and Alan had dropped in after a day of canyoning in Rocky Creek.

Sunday

Ian and I headed up Camp Creek in the South Limestone valley to the area around bloodsucker and J281 to start on a surface survey.

At the southern carpark I realised I had left my cavesuit back at the cabin. Ian obligingly drove back to the cabin where, feeling like a goose I grabbed my cave suit and we head back to the carpark.

We were keen to plot the locations of the tagged entrances. Ian had found an old SUSS Bull from the 80's which indicated that J281, which I was interested in, was in fact Chomp cave and J280 was Interference cave. The article also mentioned several other caves in this bluff. We surveyed between several entrances and when the time got to about 4pm we decided to call it a day and carry on with the survey next time.

Chau Huynh coming out of Hennings, Jenolan Photo by Rowena Larkins

SUSS NEW HEADLAMPS

BY TOM SHORT

In the recent months SUSS has bought some new Princeton Tec Apex head lamps. Something to remember when using these lights are that you need to bring your own batteries, take care not to damage them and to clean them before returning it to the gear officer or trip supervisor that is on your trip. When cleaning the lights, please make sure the battery case is locked closed so water doesn't get inside.

Some of the spec's include: a 200 Lumens LAMP, 4 Ultra bright LEDs, Max bright LED BURN TIME 150 Hours, BATTERIES 4 AA Alkaline or Lithium or NiHM, WEIGHT 279 Grams.

To operate the Apex there are two switches on the underside of the lamp, the left switch is to operate the spot light which has two settings a high and low. The right hand switch is to operate the spreader beam which has three settings high, low and flash. To turn the light off hold the switch until the light goes out. The light will flash when you first put the high setting on to let you know that it is the high setting so you don't run out of light quickly. On the front of the light which your buddies will be able to see there is a small blinking green light which indicates the batteries have charge or a red light when they are low on charge. When the light is turned off, you can also swivel it down to see the blinking light yourself.

These lamps should be used for beginners or if you have forgotten your own lamp, please try to avoid using them all the time as it would be nice if we can try to make them last as long as the older FX lights already in use.

Helctites, Cliefden. Photo by Rhonda Lum

Will Slee coming through a squeeze, Jenolan. Photo by Alan Pryke

Gary Pate in North West Passage, Jenolan. Photo by Tim Abbot

Decoration in Foz Hole, Jenolan. Photo by Rowena Larkins

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

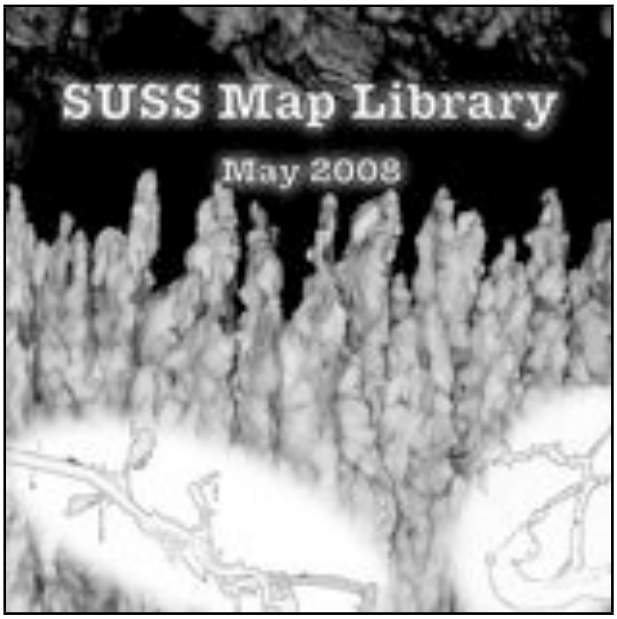
The entire SUSS cave map library of over 300 maps is on DVD and available for purchase. Out map library was scanned to provide wider access to the maps for SUSS and other ASF Caving Clubs and to ensure that many copies exist in the event of the loss or damage of the originals.

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).

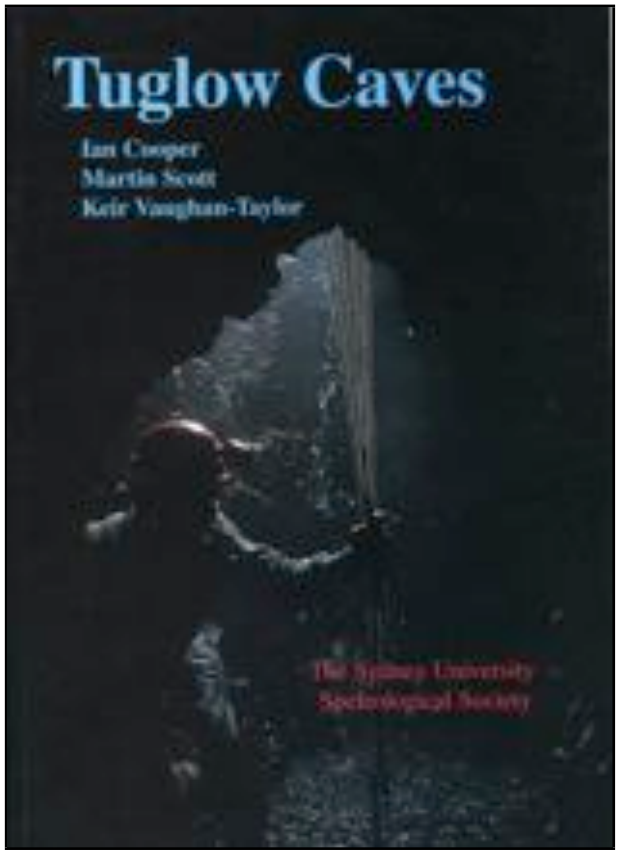
Price is $25.00 + PH. Pick one up at the next SUSS meeting or if you can't make that then contact the treasurer and they can supply you with the SUSS publications fund bank BSB and account number for a direct deposit.

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: JULY 2011 – AUGUST 2011

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.

July

30 – 31 Wellington. Much warmer than Jenolan. Contact Keir: keirvt@optusnet.com.au

August

4 General Meeting 7.30pm, Holme Building, Parramatta Rd. Slides are a distinct possibility!

6 Saturday Gear Audit. One of the less exciting sides of caving but none the less and important one. Relax afterwards with a BBQ.
Contact Tom: tomshort9@gmail.com

17 – 18 Wombeyan. Learn to abseil down a rope and prussic back up
Contact Tom: tomshort9@gmail.com

13-14 Jenolan. Our favourite area, lots of caving available at all standards. Stay at the Cavers' Cottage.
Contact Jack: jack.wachsmann@gmail.com

27-28 Wombeyan.. Great campsite with beautiful marble caves, down in the southern highlands.
Contact Kat: kbad2052@uni.sydney.edu.au