

# CAVES

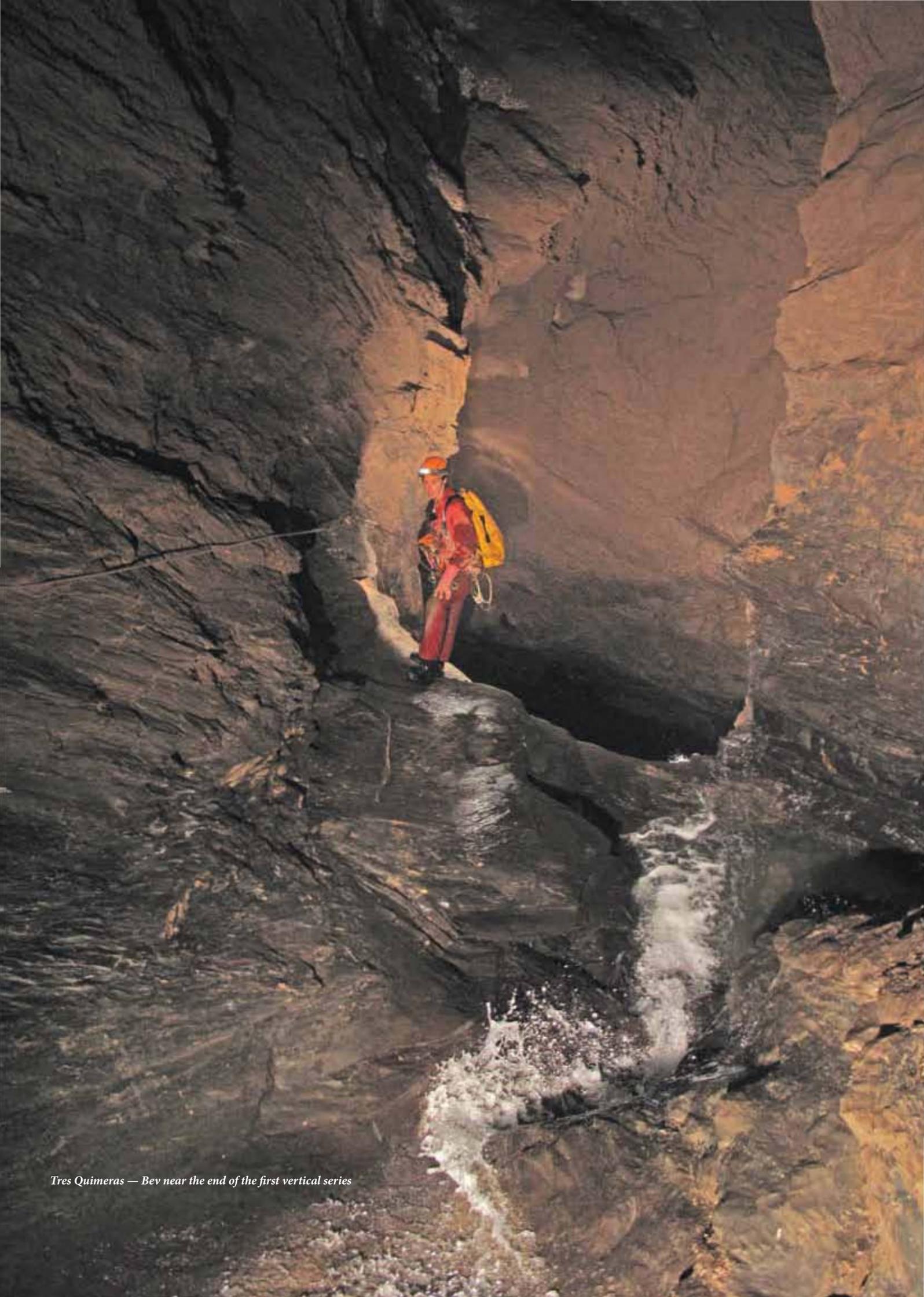
The Journal of the Australian Speleological Federation

# AUSTRALIA



**JENOLAN RESCUE EXERCISE**  
**WHATEVER HAPPENED TO MOLE CREEK?**  
**TIMOR CASE WRAP-UP**  
**SYDNEY'S SEA CAVES**  
**TRES QUIMERAS**

No. 185 • JUNE 2011



*Tres Quimeras — Bev near the end of the first vertical series*

## CAVES AUSTRALIA

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ASF

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Cover and inside front cover: Tres Quimeras — photos by Alan Warild

## ASF Executive

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## ANDREW SKINNER

ASF is saddened to hear of the death of Andrew Skinner on Sunday May 15. Andrew was a long-time supporter of caves and karst and their management, especially in Tasmania. A full obituary is planned for *Caves Australia* 186.

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# ASF GRANTS 2011

## SECOND ROUND – CALL FOR APPLICATIONS

As advised in *Caves Australia* 182, ASF has a range of grants in support of speleological work, including conservation, education, research, exploration and conference attendance. The aims are:

1. To encourage, assist and financially support projects promoting the exploration, study and protection of caves and karst and the dissemination of such knowledge at ASF Conferences and through ASF and kindred publications in a manner consistent with the Aims of the Federation.
2. To cooperate with other ASF programs and with other institutions in the pursuit of these aims.

Three grants were made in the first round in April (see below). Applications are now invited for a second round of Grants in 2011. The closing date is 31 July, 2011. This round does not include conference grants.

### Where to send applications

Applications for all categories should be forwarded via [grants@caves.org.au](mailto:grants@caves.org.au) marked "ATTENTION Fiona Beckwith".

### How to apply

Prospective applicants are strongly advised to read the details on pp. 5-6 of *Caves Australia* 182 or on the ASF website ([www.caves.org.au](http://www.caves.org.au)). In particular, please become acquainted with eligibility criteria, how to get started, in-kind and partner support, selection procedures, and expectations of successful applicants for the specific type of grant that you seek. Note that some of these requirements vary according to the type of grant sought. It is essential that the

information for ALL the criteria (see below) is provided.

There is NO formal application form. Applicants should submit no more than a 3 page proposal describing:

- Name, postal address, e-mail address, telephone number, and (where appropriate) ASF affiliation of the applicant. In the case of a club or group proposal, please provide these details for an identified group leader who can serve as a point of contact.
- Where relevant, the position, qualifications and relevant experience of the proponent individual or group.
- The speleological merit of the project – how the project will benefit ASF and speleology generally.
- Objectives of the project, how it will be conducted, and how the results will be shared.
- Whether the project will be carried out in association with any other club, organisation, institution, university, management authority or other agency. Proposals forming part of a tertiary qualification should include the standard preliminary research plan and name of a course supervisor who supports and can comment on the project. The property owner's agreement to the project should be indicated in the proposal.
- A budget for the amount sought, plus an indication of in-kind assistance to be provided by the proponent or partners and whether funds are being sought or have been obtained from other sources.

An undertaking should be added agreeing to conduct the project in accordance with ASF codes of practice and any conditions imposed by landowners, and con-

firms that the applicant understands the obligations of recipients for acquittal of the specific type of grant sought.

### Give it a go!

Most ASF member clubs and most individual members at various times carry out projects in the five fields in which the Grants Scheme can assist, sometimes in a relatively informal manner. Three member clubs have received grants from the ASF Karst Conservation Fund (KCF) in the last few years for track marking in sensitive caves, purchase of equipment for a conservation project, and construction and installation of a cave gate (we have now incorporated the KCF grants into the overall ASF Grants Scheme). If you have a good proposal, even a modest one that a few hundred dollars could assist, please do not be deterred by a misplaced feeling that your idea may not qualify. New, younger and student members are especially encouraged to consider grants for which they may be eligible. Think it through, consult one of the people below and give it a go!

### Enquiries and advice

E-mail enquiries may be sent to [grants@caves.org.au](mailto:grants@caves.org.au), or contact any of the following: Nicholas White ([nicholaswhite@netspace.net.au](mailto:nicholaswhite@netspace.net.au)) (particularly for conservation and research projects), Susan White ([susanqwhite@netspace.net.au](mailto:susanqwhite@netspace.net.au)) (research proposals), John Dunkley ([jrdunkley@gmail.com](mailto:jrdunkley@gmail.com)) (general enquiries and particularly those likely to involve the ASF Karst Conservation Fund), or Fiona Beckwith ([finitschke@yahoo.com](mailto:finitschke@yahoo.com)) (only for enquiries relating to administration of the Grants Scheme).

## ASF GRANTS – First Round, March 2011

**THIS was the inaugural round of the newly-established ASF Grants Scheme. Three grants were made:**

1. "EXITRAVAGANZA", a project by Southern Tasmania Caverneers, to modernise, complete and extend the survey of Exit Cave. A new map of this important cave in the Tasmanian Wilderness World Heritage Area will greatly aid further exploration and sound management planning. The project was partly financed by the managing authority and additional funding was provided an ASF Expedition Grant and a further grant from the ASF Karst Conservation Fund.
2. Peter Buzzacott, Western Australian

Speleological Group, for installation of data loggers in Nullarbor caves to measure variability in water temperature. The ASF Research Grant was topped up with a contribution from the ASF Karst Conservation Fund. An account of work to date appeared in *Caves Australia* 184.

3. Shannon Burnett, Latrobe University and member of Victorian Speleological Association

Shannon's Honours thesis involves research on the spatial distribution of Nullarbor caves and karst using GPS techniques. The grant enabled Shannon to present a paper at the ASF Conference in Chillagoe and research is continuing.

## ASF AWARDS 2011

**THE following awards were announced at the ASF Conference at Chillagoe:**

Greg Middleton (Edie Smith Award), Jill Rowling (Joe Jennings Award of Distinction for Cave Science), David Wooll-Cobb (Award of Distinction for Cave & Karst Conservation), Alan Cummins & Bruce Welch (Award of Distinction), Glenn Baddeley, Paul Brooker, David Stuckey & Bruce Swain (Certificate of Merit). Our congratulations to these people for their dedicated contributions to Australian speleology. Space prevents greater details in this issue of *Caves Australia* but they will be provided in the September issue.

# FROM THE EDITOR

ONE OF the problems of caving clubs is retaining members and attracting new ones. Possibly this is less of a problem for clubs which are centred in areas of high population, but it is certainly of concern in more remote areas as members age and fewer new members join.

My club, OSS, which is the furthest west caving club in NSW, (our closest club is BMSC in the lower Blue Mountains) is always on the lookout for new members.

Our difficulty is that we get very enthusiastic Juniors, teach them our local caves, and then they sit for their HSC exams and head off to University in the Big Smoke, returning only to cave on their vacation breaks. As our number of Trip Leaders is quite small, this means with every new eager recruit we have to match that eagerness and energy; which can be easily dulled with repetitious 'Tourist Trips' through well-known caves.

As with many clubs our caving demography is changing. Children and grandchildren are being introduced to our caves and life style and many of our trips are now family focused. For those of us who still like to do more serious stuff, we have turned to liaising with other clubs and doing Expedition caving. This is fine as long as partners and families are forgiving and time is not of the essence. The downside is that while our Trip Leaders are away club activities tend to go into hibernation.

Recently, though, a resurgence has come through a local council initiative to run an Expo Day for clubs and groups in our area. It was a lot like a university 'O' Day. We did all the usual things: slide show of caving, magazine display, exhibition of equipment: and manned our booth with us and the kids (who knew everybody in town), and we were surprised at the interest.

Not only did many long-lost former members drop in to say hello but former cavers from elsewhere, kids of all ages and a wide variety of locals, even farmers with 'a hole up in the paddock' if we liked to come and have a look. Two subsequent Fresher Days have seen a number of neophyte (love these words) cavers, and since then two have been on every caving trip. It is wonderful how new members are inspiring slightly jaded and often cynical older cavers.

I look forward to next year's Expo!

# President's Report

IT'S NICE to take a trip and discover new things old and old things new.

My recent attendance at Chillagoe of the ASF Chillicon Conference was a trip back in time for me to previous journeys to that ancient landscape as well as spending time to plan and project a trip into the future. Chillagoe was at the end of a very wet period and not surprisingly a number of caves, including Tourist caves, were flooded. Swim through caves and enjoying tolerably warm water is a local cavers' treat!

The Speleological Federation is in a good place at this time as I see it:

- We have a steadily increasing membership
- We have active projects in the conservation, management and restoration of Karst features
- We have developed the means to support cavers with high class standards and to develop and promote karst data recording and presentation that are of a developing high standard and an increased complexity.
- We have people who are passionate about pushing the boundaries and the landscape of caves in Australia and we well may be given a chance to showcase what has been for so long hidden to the rest of the world ... the Cavers and Caves of Australia . I believe we will win the right and privilege of hosting the 2017 IUS Speleological Conference in Australia. We will work in stages to get to that goal with your support and direction.

Read your reports from ASF council, see the issues we are working on and please make known issues to be discussed at next Council meeting in January 2012 in a timely fashion.

The business of the ASF Council was an important time to see how we are going as a Federation and to focus clearly on strengths and weaknesses of our operating framework. Again I saw that ASF as a unified body is in a good place and that the countless hours of voluntary effort put into the ASF over this past year has built on the solid foundation of all past efforts. As an organisation of many different and yet passionately similar



persons we get on well for a common task. In my experience problems and differences in opinion only arise when there has been insufficient two-way communication. The solution often only requires to discuss matters objectively, find the best fit answers for the current and, hopefully, future time and move onwards. This seems to work for ASF.

ASF recognises many levels of achievement in speleology and awards are bestowed and so often to people who receive them with surprise and genuine humility. There are many people who freely give time effort and advice and still seem to get overlooked. We do appreciate you.

We have new people coming on board the ASF Executive to share their expertise and thus several people being released to expand their own development and portfolios. We have a very dynamic executive with lifetimes of experience and brains packed with ideas to serve you in the present. Give us some space to do things right and appropriate. Life is dynamic as is the growth of ASF. People build up and some slow down. No one ever gives away the pursuit of caving with the excuse of being too old or too fragile. This is encouraging as I feel joint aches and the scars of past caving I had forgotten about since last winter!

And so, greetings from the continuing President. Thanks for your past, present and future support and I will endeavour to work towards even better and more substantive goals in the coming years.

*In caving  
Stan Flavel*

## WANTED

## ARTICLES FOR CAVES AUSTRALIA!

Whether caving, cave diving or generally just caving, *Caves Australia* readers are interested in YOUR story.

It is only with YOUR contribution that we can produce a quality magazine for all to enjoy. For writing and style guidelines, contact the Editor or Production Manager for further information.

# Jenolan 2010: Extraction from Home Sweet Home

**Alan Wright and Peter Brady**  
NSW Cave Rescue Squad Inc.

**O**VER the weekend of 30th/31st October 2010 the NSW Cave Rescue Squad, in conjunction with the Jenolan Caves Reserve Trust staff, conducted a training exercise at Jenolan Caves.

The exercise was billed as an excellent opportunity to bring together recent training, provide valuable experience for many newer members and to work with the local staff who would most likely be the first responders in an authentic rescue. This was also the first major exercise since the Squad introduced new vertical cave rescue techniques based on the methods currently in use with many European cave rescue organisations, which seek to minimise the use of equipment while maximising the progression of the casualty. The Squad first trialled a training package based on these skills with ten members of the Squad in early 2010 and it is envisaged that this would form the core of a learning program to meet the requirements of the nationally accredited PUASAR004B Undertake Vertical Rescue (Commonwealth of Australia, 2009) public safety training competency.

Planning for this exercise was undertaken with detailed consultation between the Squad and the National Parks and Wildlife Service's Karst and Geodiversity Unit with the aim of minimising the impact on the cave. It was therefore decided not to conduct a full-scale search in the cave; instead the scenario was constructed such that the location of the casualty was known in advance with the responders required to plan and then extract the casualty to the creek level suitable for a helicopter evacuation. As a further measure to reduce the environmental impact a single route through the cave was developed with Jenolan Caves staff and marked with flagging tape for all to use.

A risk analysis of the activities undertaken at Jenolan Caves indicated that there is a potential for an accident with the popular adventure tours run by Caves Staff in Mammoth Cave. Mammoth Cave is a large and complex cave with over 9 km of pas-



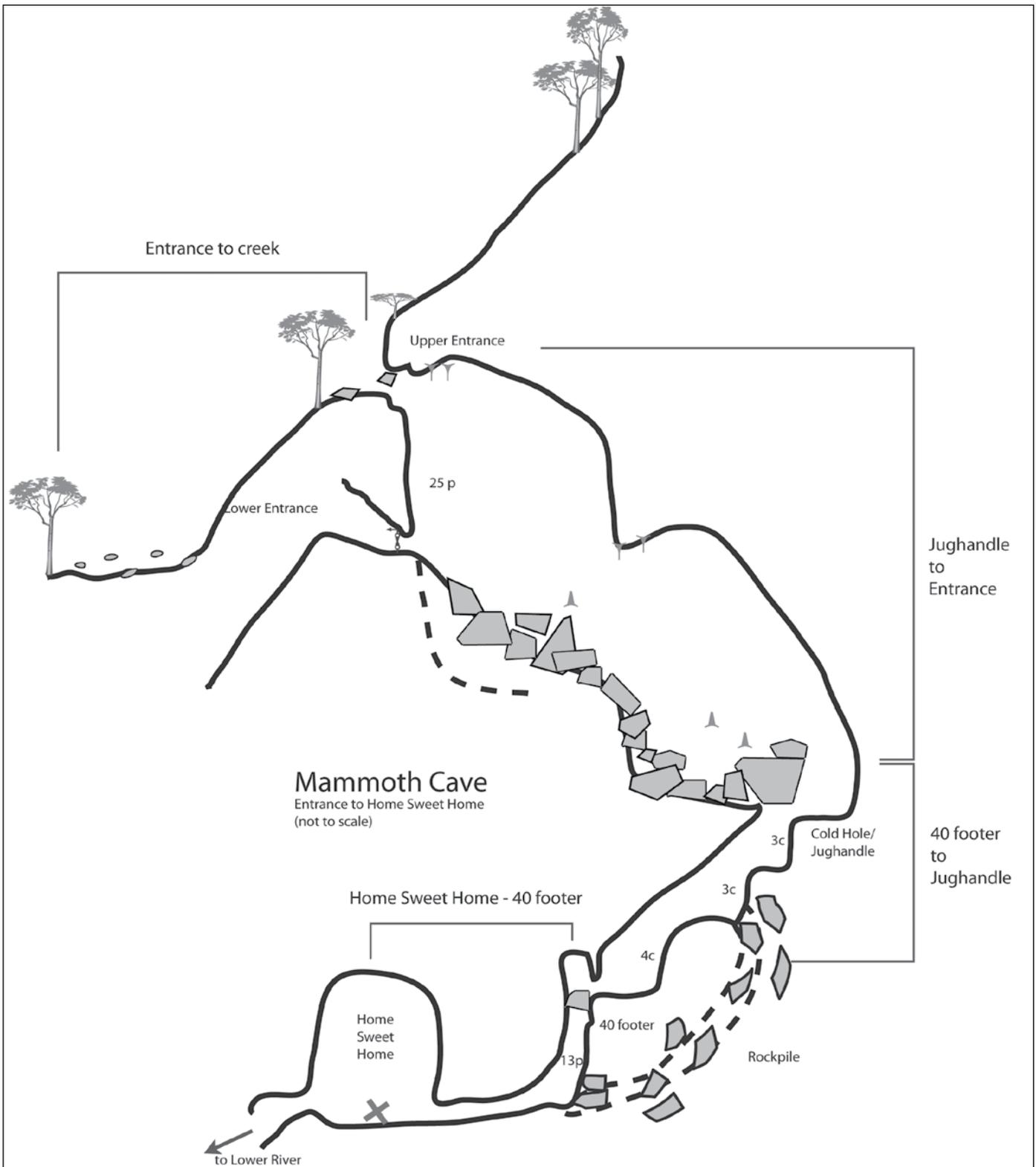
*The entire crew*

sage, although surveying and exploration is continuing, with some 75 m of vertical elevation to water level. Therefore, the scenario for this exercise was developed on the premise that a participant on a Lower River adventure tour in Mammoth Cave had been injured, and was located close to the area known as Home Sweet Home. This area is

a moderate-sized chamber located shortly after the junction of the three routes to the Southern section of Mammoth Cave but before the diversion to Grinning Monster Lake. There appears to be some discrepancy in the naming conventions used by the various caving clubs and Jenolan Caves staff so the locations used in this report favour



*Surface operations*



ALAN WARILD

those described in the *The Exploration and Speleogeography of Mammoth Cave, Jenolan* (Dunkley et al., 1978).

It should be noted that when looking at the cave as a whole this location is not very far into the cave. In fact, this section can be covered by fit, experienced cavers in some 15 minutes. Yet this relatively short section of cave contains some challenging and different sections, ranging from tight crawlways to inclined rock piles and vertical solution tubes, which made it perfect for

this training exercise.

The exercise commenced with all 20 participants meeting for an 8 am briefing at the Fire Shed near the Cavers Cottage. After the briefing the equipment and personnel were consolidated into a minimum of 4WDs and, with the permission of the managers, driven to the Mammoth Flat car park for the exercise proper to begin.

At approximately 9 am a team of Jenolan guides entered the cave to mark the route and 'deliver' the casualty. Closely following

the guides, a first response team with the underground controller entered the cave to start the management of the extraction component of the exercise.

Immediately following the first response team, the communications team was tasked with running Michie phone cable from the entrance to the casualty. (Michie phones are a simple yet effective single-wire telephone system designed for the cave environment where radio communications are not possible beyond short distances.) On the surface

VRA radios were used between the entrance and the playing fields, and a Jenolan Caves radio was available should we have needed urgent assistance.

While these initial response teams were working through the cave, the remaining participants helped to set up the above-ground control area. This was set up as the base of surface operations and as such the Michie phone base station and entrance controls were located there.

The generally accepted principle in cave rescue is that being moved in the stretcher is medically stressful on the casualty, so the extraction should move as smoothly and quickly as possible. This is achieved by initially moving the casualty to a comfortable location then waiting for everything to be ready to move the stretcher as far as possible.

If it is not possible to move the casualty all the way to the entrance in one step (e.g. insufficient equipment), a staging point should be chosen where the casualty can be kept warm and comfortable until the next section of cave is ready.

After an assessment of the cave, the underground controller decided the extraction could be done in one step without a staging point. The location of the casualty was relatively comfortable (albeit very cold due to a strong draught), so it was decided to leave the casualty there to be stabilised, kept warm and observed. Regular patient observations were conducted and these were communicated to the surface controller via Michie phone.

Four small teams were each allocated one section of the cave between Home Sweet Home and a surface location near the creek where the casualty could be transferred to an ambulance or helicopter. The first team had the section between Home Sweet Home and the top of the rock pile/40-footer (a low narrow crawl section followed by a twisting rock pile or a 13 m narrow pitch). The second team was allocated from there to the entrance chamber — a series of 3-4 m climbs to the top of the Jug Handle. The third section was from the top of the jug handle to the surface, and the final section was from the entrance to the creek level. Each team had two operators nominated to be responsible for their section, and they used the extra operators where needed.

The tight crawling section was not overly difficult, with lots of people helping to move the stretcher on its side through the narrow space.

The obvious choice for the next section was to lift the stretcher up the '40-footer' pitch, because it would not be possible to get it through the rock pile. This pitch is narrow, especially at the top, so the team used



*The casualty near the top of the 40-footer*

a counterbalance system to lift the stretcher vertically up the pitch and then used a head-and-foot manoeuvre to transfer the stretcher away from the pitch.

The second team negotiated the series of small pitches with a combination of a counterbalance and a number of people assisting to lift and place the stretcher. The Jug Handle proved particularly tight — a 2 m long semi-rigid stretcher has a way of making a simple cave passage surprisingly difficult to negotiate!

The most obvious route through the Entrance Chamber is over or under giant boulders then up the slope to the main entrance. This would have been labour-intensive and involved either multiple short

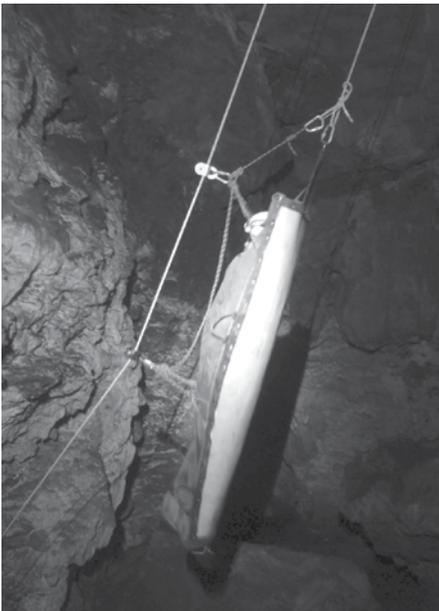
pitches or negotiating some low crawls. While assessing this section of the cave, it was realised that from the top of the Jug Handle there was almost a direct sight to the top entrance, and that an inclined Tyrolean traverse could be set up with only a slight deviation. This Tyrolean was about 40 m long over a steep incline of approximately 60 degrees and shaved the estimated time to traverse this section from several hours to just 10 minutes.

The stretcher was pulled up this Tyrolean using another counterbalance system, with a moveable deviation halfway and a human deviation near the top to prevent the rope rubbing on the rocks.

A combination of two trees about 30 m



*Starting the final lift*



The casualty on the last lift

lowered to the creek level, which was the designated end-point of the extraction.

All in all, the exercise had taken about nine hours since the first team entered the cave, and nearly three hours since the stretcher had started moving from Home Sweet Home.

To reiterate the effort involved, this section of cave would take an able-bodied caver familiar with the route about 15 minutes to traverse.

With the casualty extracted on Saturday afternoon, the cave was left fully rigged so that everyone would have a chance to see the entire route and have it explained. Many people only saw 'their' section of the route during the exercise.

Overall, the exercise was very successful and while not everything went to the original intention, the creative thinking of the operators allowed the progress of the casualty to continue almost unimpeded.

The Squad is currently planning another exercise at Jenolan next year and hopes to have more participants and more people trained in the new vertical cave rescue techniques so that we can plan an even more challenging exercise.

For more information about the Squad please contact Peter Brady via secretary@caverescue.org.au or <http://www.caverescue.org.au>



The lower to the creek

up the hill above the top entrance and a large boulder wedged into the entrance were used as the basis for the upper anchors of the Tyrolean. As a technical note, the rigging of these anchors used over 100 m of rope and due to the difficulty of moving on the steep terrain required nearly two hours.

Finally, with daylight still playing across the top of the ridges outside, the stretcher was transferred to a second Tyrolean and

**REFERENCES**

Commonwealth of Australia 2009, PUASAR004B *Undertake Vertical Rescue PUA00* (in Public Safety Training Package, Government Skills Australia, Adelaide, SA, Australia.)

Dunkley J R, Anderson E G and Winglee P J 1978, *The Exploration and Speleogeography of Mammoth Cave, Jenolan*, 2nd edn, Speleological Research Council Limited.

**ACCESS GEAR**

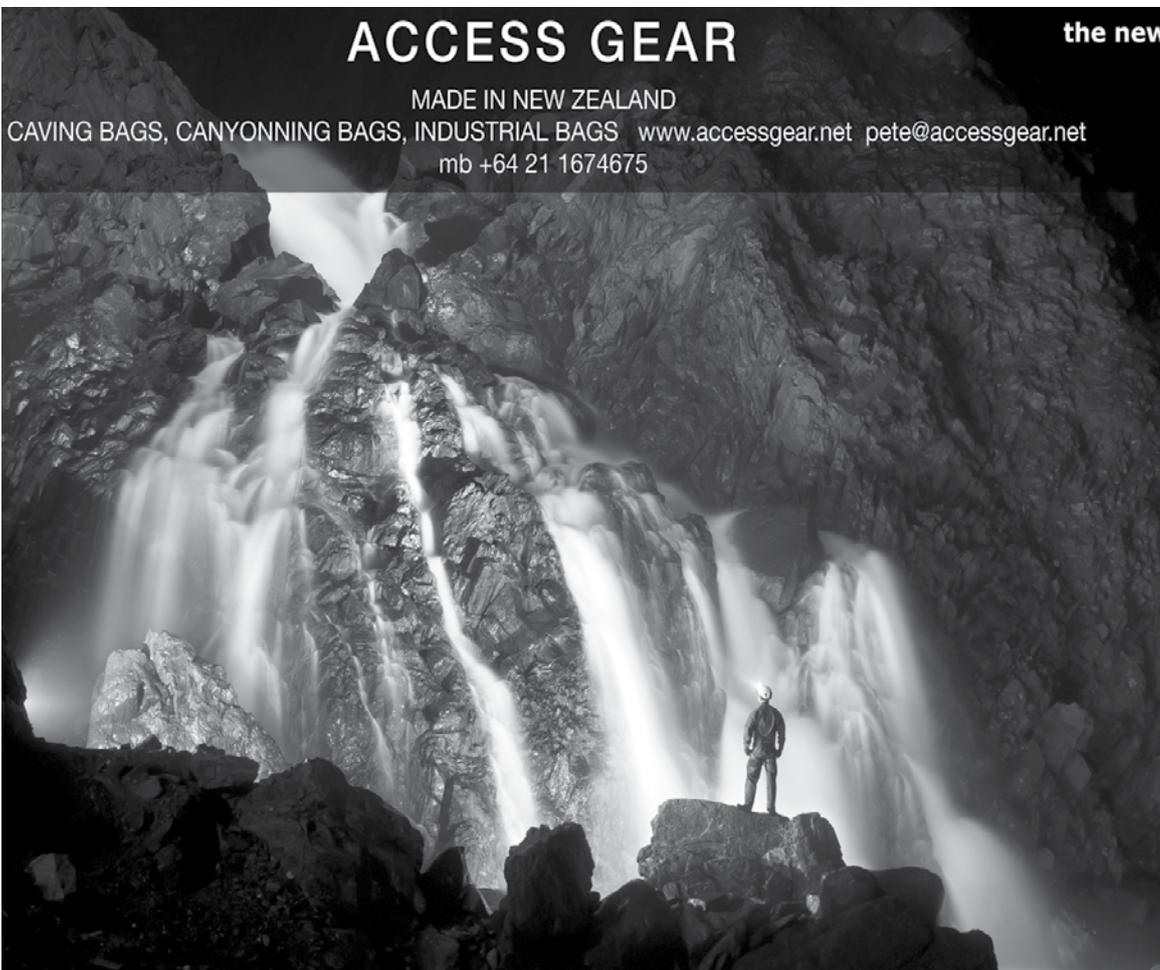
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Picture:

"small" waterfall in the huge Salle de la Verna (F)

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# Whatever Happened to Mole Creek?

## How one of Australia's best caving areas has changed

**Stephen Bunton**  
STC

**A**T A TIME when people rode in horse-drawn carts, caves were discovered at Mole Creek and it became an exciting adventure to visit them, even if you wore a full-length skirt. Eventually Tasmanian tourism took off and most ordinary folk know Mole Creek as a place where you can stop and visit a couple of show caves: King Solomons (MC-119) and Marakoopa (MC-120).

The first cave in the area that was really degraded for tourism was Baldocks Cave (MC-32) and it still contains the remnants of the acetylene lighting system and decaying wooden infrastructure. This has provided good habitat for cave beasties and so Baldocks Cave is well and truly on the bio-

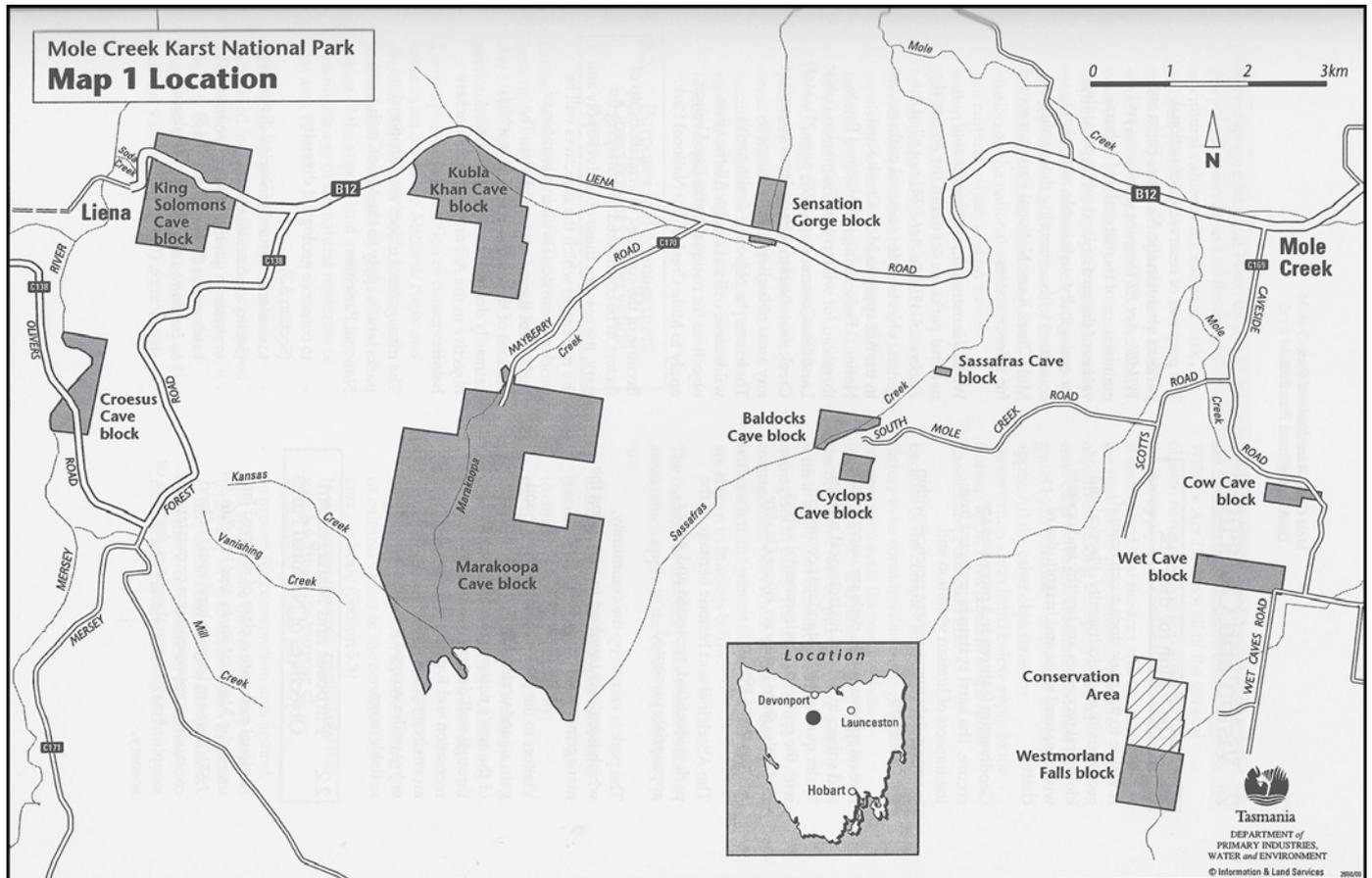
speleologist's hit list. Mole Creek is still an important fauna site with a few type-species described from here.

The caves in the area were long recognised as needing protection and they were given reserve status, which included the land around their entrances (Eberhard & Houshold 2005). Eventually these reserves would be amalgamated into the Mole Creek Karst National Park, possibly Australia's most fragmented national park (See Map -DPIWE, 2001).

The Mole Creek area was cleared for farmland. The township sits in a picturesque valley with lovely green fields and slopes clothed in tall eucalypts leading up to the dolerite columns of the Great Western Tiers.

It is quintessential Tasmanian landscape and the Mole Creek vista has appeared in many Tasmanian tourist brochures. Mole Creek is on the route to Cradle Mountain and was part of the itinerary of many a mainlander's ten-day fly-drive holiday. Tourists tend to stop at caves Australia-wide and Mole Creek was no exception, although there was competition from Hastings in the south of the state and Gunns Plains to the west. Today, in our increasingly hectic lives, longer fly-drives have declined into dirty weekends away and now people like to do something slightly more exciting than a cave tour.

Of the non-tourist caves at Mole Creek explored in the fifties and sixties, the most prominent were Kubla Khan (MC-1) and



## WHATEVER HAPPENED TO MOLE CREEK?

Croesus Cave (MC-13). These were arguably the two most beautifully decorated caves not to be developed for tourism. Kubla Khan is wholly located in what is now the Mole Creek Karst National Park and Croesus Cave is partially within the MCKNP. While there are other caves within the park boundaries, there are quite a number on private land. At this time cavers enjoyed a most cordial relationship with the land-owners. Local farmers had cleared the more user-friendly land for grazing paddocks and left the karstified, seemingly worthless land that contained the caves pretty much untouched.

The first major event to sour relations with the farmers at Mole Creek was the introduction of a woodchip industry, which took off in the early '80s. The idea of woodchipping was that it made use of the slash on the forest floor that was a by-product of the sawlog industry. Over the coming decades the reality of the timber industry was that it often chipped what it should have sawn and burned what it should have chipped. Because of the available volume, woodchips became more valuable and easier to extract than sawlogs and woodchipping became the tail that wagged the dog. There were also the very contentious National Estate listings in the late 1970s and 1980s which constrained woodchip exports.

The problem for cavers was that the farmers realised their otherwise worthless land now had some economic value if it could be cleared for woodchips. Unfortunately, farmers were forbidden to harvest the trees around the caves under the provisions of the *Forest Practices Act 1985*. When the authorities ruled that karst was worth preserving, relations with the cavers and the authorities suddenly soured. All the exploration that resulted in the discovery of caves under a particular farmer's property accounted for nothing. Caves that landowners could formerly boast about owning were suddenly seen as economic liabilities and this changed their perspective on the value of caves.

At the time that relationships with the cavers were deteriorating, Debbie Hunter arrived in Mole Creek and set up Wild Cave Tours. For quite some time the conservation lobby had been advocating tourism as an alternative to exploitation. Forestry Tasmania continually rebutted the value of tourism to the state and yet when it opened its Tahune Airwalk in 2001, the visitor numbers exceeded expectations and the multi-million dollar venture was paid off in a bit over a year. Unfortunately, this development meant a decline in popularity of nearby Hastings Caves. Tourists would only do one day-trip south of Hobart and generally they chose the closer, newer option.

Modern tourists wanted adventure



STEPHEN BUNTON

*The Pleasure Dome in Kubla Khan*

travel and Debbie's guided tours into Wet Cave (MC-203), accompanied by a strong conservation message, seemed a wonderful initiative. Unfortunately, Debbie was seen to profit from the caves at a time when others perceived themselves as going backwards because they had caves on their land. The real crux of the problem was that Mole Creek had never heard of feminism and they weren't quite ready for such a brash woman who wore bib and brace overalls and smoked a pipe. Suddenly they had a face to which they could assign their hatred of "Greenies".

The most contentious issue was the fact that many of the caves at Mole Creek only had small reserved areas around their entrances. Some of the properties in the area have titles that extend to the centre of the Earth. This meant, for example, that only the first 70 m of Wet Cave were publicly owned; the rest belonged to a particularly uncompromising farmer.

In 2004 I represented the caving community on a Legislative Council (Tasmania's Upper House) inquiry into conservation on private land. I advocated that it was only fair that farmers be compensated for conserving caves on their properties. This money should not be in the form of mere handouts but conditional on landowners looking after the caves. In effect, this would provide a second job and a second income stream as they worked as cave and karst managers, and conservationists.

At the time there was talk of compulsory acquisition of properties and many farmers hoped that the Government would take their worthless land from them in return

for a cash windfall. The problems with this were the relatively small amount of State funding available and the difficulty in valuing a property that contains a world-class cave system. The subterranean river of Mole Creek is one of the best textbook examples of its kind. Real estate agents were used to valuing waterfront views and other amenities, but not caves. In general, having caves on your land was seen as a liability and the worth of the land was diminished because of ongoing costs associated with managing them and the loss of revenue for not being able to log the timber.

Whilst working for Forest Practices Board, the toothless tiger that is supposed to police dodgy forest practices, Kevin Kieran undertook a long-term study of the impacts of forestry on Little Trimmer (MC-39). The impact of forestry on caves appears to lie, simplistically, somewhere between the extremes of too little water because of the thirsty eucalypts or inundation with silt from degraded land. The other issue with forestry practices is that the run-off from pesticides and the impact of the burning, which is usual practice after clear-felling, is likely to be toxic to cave invertebrates.

Also, in the 1990s Stefan Eberhard conducted fauna surveys for inclusion in the first State of the Environment Report (Australian Government, 1996). Stefan advocated certain minimum environmental flows to preserve the biota in the caves. At the time the caves were experiencing drought and there was concern that various trogloditic species might be threatened.

As a result of ensuring environmental flows, nowadays the Mersey River is always



*An overview of typical Mole Creek karst scenery — some of Australia's most picturesque*

Another teacher allegedly abused a caving club membership and escorted 23 (!) staff through Kubla Khan on a permit for six! It also forced Debbie Hunter's Mole Creek Caving Club to join ASF.

There is no guarantee that those who were shown Kubla Khan as young people are the ones responsible but over the years the gate to the top entrance to the cave (MC-29) has been removed periodically. An incredibly sturdy but massively ugly gate is located in the second chamber of the bottom entrance. It seems that some people don't respect the Limited Access status of the cave. They believe that the cave is on public land and everyone has the right to go there whenever they please.

The gate on the bottom entrance is designed to restrict access to people with authority to visit the cave. Most cavers visit the cave as through-trips conducted from the top entrance. This prevents the trampling of humic mud from the lower entrance chamber along the Stalactite Shuffle and through to the Pleasure Dome or mud from Cairn Hall being transported further into the cave. The Pleasure Dome is one of the most spectacular cascades of flowstone in Australia and can be explored after exchanging caving boots for soft-soled reef-sandals (see Photo). After visiting the Pleasure Dome all other flowstone will pale into insignificance. This prompted Andrew Pavey's classic, contemptuous and often-quoted comment: "I've walked on better flowstone than that!" He did when he visited Kubla in the 1970s.

The gate to the top entrance was last removed in 2007 (Anon, 2007) and has only just been replaced (McKinnon, 2010). The reason given by the rangers was that they didn't have the money to buy the steel. It was a sad reflection on government funding for national parks that the only way capital works could be done was if us cavers or karst carers held a lamington drive or a chook raffle for them. In fact, the whole notion that national parks should be self-funding is an absurdity: "Work harder, you possums." (Unfortunately, I cannot lay claim to the originality of this quote).

Funding in national parks has over the last few years been directed at the improvement of visitor centres and cafés — places where tourists will spend money. A factoid I gleaned in the USA in 1999 was from a survey that showed that at any one time 95% of visitors in national parks were in the visitor centre, gift shop or café. Perhaps the dilemma for the Mole Creek Karst National Park is that it lacks a single focus; it is fragmented in a number of blocks and deciding where to build the visitor centre may be problematic.

The other problem preventing anything

flowing about a metre deep outside Lynds Cave (MC-14). What was once an easy stroll down the river cobbles to the entrance is now a long wade in cold water. On my first visit to Lynds we met a couple of youths coming out of the cave with handfuls of stalactites. A week later we saw these "crystals" for sale at Salamanca Market and reporting this eventually lead to a prosecution. There have been continuing instances of crystal mining in caves by less enlightened folk.

To protect the more significant caves, a

number of them were gated. These included Croesus Cave (MC-13), Kubla Khan (MC-1/29) and eventually Lynds (MC-14/65). The permit conditions for these Limited Access Caves were eventually tightened and only ASF members were allowed to be included on the permit. This was a good move, since over the years a number of people had used their club membership to take non-club people through various caves. A north-west teacher had taken a whole generation of school students through Kubla Khan.

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of worth being done in the field is that there are only two rangers stationed there. One of them needs to be in the office at all times but occupational health and safety concerns dictate that the other cannot be in the field alone. This means that most cave maintenance work is done with the help of Karstcare volunteers — the cavers.

The sudden declaration of the national park without any input from or consultation with the local cavers, or even from the long-standing rangers, was another bone of contention. Eventually a management plan (DPIWE, 2001) was drafted as a condition of the Regional Forests Agreement; all national parks had to have a management plan (Australian Government, 1997). Most submissions to the Draft Management Plan (DPIWE, 2001) included concerns about land use practices outside the MCKNP, namely farming and forestry. It was obvious that the major impacts on the caves were from land uses over which the Parks Service had no control. Clearly the land parcels that made up the park were too small and too fragmented to protect the caves.

There were some small additions to the national park in 2000 and 2002 (DPIWE, 2004). A further opportunity to remedy this came in 2004 with money allocated by the Howard Government in a last ditch effort to appease the Green voters shortly before the election. In total, \$18 million was allocated statewide, with \$3.6 million (Australian Government, n.d.) allocated exclusively to Mole Creek to buy land in an attempt to stitch the park together.

One iconic cave in the area, Herberts Pot (MC-202), was on land owned by Gavin Linger. In 1980, I was one of the last two cavers to visit Herberts, when a large boulder tumbled from a rockpile and I rode it 10 m down a slope and into the wall. It crushed my foot and I had to crawl out of the cave. I was then given a lift down the hill on the back of the farmer's tractor. As a result of this incident and under legal advice, Gavin refused to allow cavers onto his property for fear of public liability concerns. The days of trust and the great Aussie "She'll be right, mate" or "It's up to you" were long gone.

The other concern was the fact that the map of the caves, prepared by cavers, was used to support the case against logging of his land.

I visited Gavin and Ruth Linger a few years ago just to say thank you. It was something I had neglected to do and after 25 years I thought I had better rectify this situation. Gavin was one of the farmers who were willing to sell portions of their land to the Parks Service and get some of that liability off their hands. Again, this raised the burning issue of the market value of karst.

In order to acquire Herberts Pot, two parcels of land had to be purchased because the cave entrance was on one property but the majority of cave was beneath another. The Herberts Pot block also contains Georgies Hall (MC-201), Dangerous Hole (MC-X8) and Shishkebab (MC-155), which are all real assets to the Park. Shortly after Parks acquired Herberts Pot it was gated — I was not the last person to visit the cave after all. All these caves have been afforded Restricted Access status but at this stage no permits will be issued until the management plans have been drawn up.

Another cave that was discovered in the last decade as result of documenting the assets of the Mole Creek karst was Shooting Star (MC-300). This is a 247 m-deep cave of rare beauty. It contains gypsum crystals so fragile that just the breeze created by a person moving through the cave is sufficient to cause a rain of the finest gypsum dust to fall from the ceiling. Shooting Star is located in State Forest. The cave is gated but as yet there is no management plan. The Tasmanian Speleological Liaison Council has written to Forestry Tasmania on numerous occasions but its replies indicate that it does not have sufficient funds to employ a person to write the management plan (pers. comm. Forestry Tasmania, 2006.)

I am not fussed if nobody goes to Herberts Pot or Shooting Star ever again. Having no cavers visit them is possibly the best conservation measure these caves can have, but that does not preclude the authorities from drafting a management plan. If the caves are going to be locked away as 'reference caves,' then I would like to know the circumstances under which someone might revisit them in the future. It seems that like so many other places in Tasmania the operational paradigm is management by neglect (my phrase). On the other hand, if the cave is to be protected just for its own sake — something I am quite comfortable with — then the authorities need to be open and forthright about this. As cavers we need to break ourselves out of the mindset of needing to see the latest fantastic cave discovery. It is in these first few trips into a new cave that most of the damage is done.

The Federal Government chose the Tasmanian Land Conservancy to administer the funds for land acquisition and to oversee those parcels of land that were to be added to the MCKNP, managed privately by the TLC, or those upon which a conservation covenant would be placed and then sold privately (Tasmanian Land Conservancy, 2006). The Marakoopa Block was one of the blocks to be sold (Tasmanian Land Conservancy, 2008). This block contains the Northern Caverneers' Marakoopa Hut.

Countless cavers who have visited Mole Creek would have stayed at this hut and can no doubt recount many pleasant memories of their stay.

I support the endeavours of the Tasmanian Land Conservancy with regular, albeit meagre, monthly donations. It seems to me that if the State Government does not have the funds to protect its wild places then they must be looked after privately. When TLC announced that it was administering the Federal monies, I offered them the benefit of my local knowledge but it wasn't called upon. It seems to me that the TLC makes its management decisions based mostly on the type of vegetation. In the end, when the Marakoopa Block went up for sale, it still contained an entrance to Snail Space Cave (MC-208/209), which could easily have been included in the adjacent national park. Also, the conservation covenant they proposed covered the entire block except for where the hut stands ([www.tasland.org.au](http://www.tasland.org.au)). This means that, subject to local council approval, a potential buyer would have to knock down the hut to build a dwelling and the Northern Caverneers would lose their hut. There was a place over the creek, out of sight of the hut, where a potential buyer could have built a house. If the future landowner were sympathetic to the activities of cavers, they could continue to visit the hut and this historic structure could be saved. At the moment the property is still under contract and it appears that the proposed house site is away from the hut site and the hut and its use by cavers might continue.

It is a pity that the property was not purchased by a caver, but in reality it would have been a very altruistic act because the hut is rather a liability and the block is not a particularly good financial asset.

The easiest way to improve the MCKNP and address part of the issue of land use in adjacent land tenures would be to incorporate the Great Western Tiers Conservation Area (GWTC) or parts thereof into the national park. This would make the MCKNP a more contiguous unit and potentially easier to manage. In fact, the only public access to some caves is through the GWTC. For example, while Herberts Pot is now part of the MCKNP, the shortest access from the road is still across Gavin Linger's farm, but for the reasons stated above he will not allow the public to cross his land. The cave would have to be accessed by a circuitous route from the Westmoreland Cave (MC-262) car park. At the moment as stated above all these caves: Herberts Pot, Shishkebab, Georgies Hall and Dangerous Hole are closed.

Not all the farmers are hostile to cavers. Initially, access to White Rabbit Cave (MC-166) was problematic but when the

## WHATEVER HAPPENED TO MOLE CREEK?

property changed hands, a few years ago, the new owners — tree changers — were very welcoming (Bunton, 2007).

For quite some time cavers were asking for an updated map showing the true extent of the MCKNP, including the blocks of recently acquired land. They were unaware that this information was publicly available on the web. This development includes all land title information on the Land Information System Tasmania website ([www.thelist.tas.gov.au](http://www.thelist.tas.gov.au)). I must admit I am a bit of a roadkill on the information superhighway and quite unaccustomed to the breadth and depth of the material on the internet — in my job I don't have a lot of time for cyberbludging. The Parks Service is making sure that such information is continually updated and I suppose this is the way of the future but I much preferred the old days of writing a letter and getting a hard copy of the document I wanted.

It seems that the next time we see a paper map of the MCKNP will be when the next draft management plan is published. The management plan was to be reviewed five years after its publication in 2004 (DPIWE, 2004 p. 84) but it seems unlikely that Parks will allocate their limited resources to this endeavour unless they are compelled to by some controversy, a development proposal or pressure from stakeholders like cavers. Optimistic estimates are that it will happen in the next three years but to me this still seems a long way off.

One of the major benefits of the recent land acquisitions has been a partial solution to the problem of access to Sassafras (MC-96) and Baldocks Cave area. At the time the MCKNP was created there was no vehicular access to these caves and the neighbouring landowner was not particularly amenable to allowing any sort of access across the property. There was a crown land road reserve which provided some access but the local farmer just closed the road with a locked gate, and no-one was willing to take her on over the issue.

This situation was somewhat resolved with the purchase of the property by Great Southern Forests. Most of the farmland was planted out with eucalypts and the small amount of remaining farmland was sub-leased. The sub-lessee allows visitation by prior negotiation. While Baldocks Cave could be accessed circuitously from public land, Sassafras Cave cannot be accessed without crossing private land. Recently Parks has followed the lead of the former landowner and locked the gate on a Crown Land Reserve, much to the disgust of cavers (van Nynanten, 2011).

The initial solution to this problem was a proposed walking track into the Baldocks/

Sassafras area through the Great Western Tiers Conservation Area. This proposal precipitated the formation of the Tasmanian Speleological Liaison Council when it was seen there was need for a united voice for cavers statewide. Originally, the clubs differed in their reactions to this proposal. I would happily have walked 40 minutes through nice forest to a visit a cave, rather than exercising my right of way to be on crown land that was in dispute with a recalcitrant farmer. Ham in the sandwich is always dead meat.

The TSLC has spent a fair bit of time writing letters to politicians, but to little avail. It seems that the intransigence of the bureaucracy is just too great or that the voice of cavers is too quiet and ineffective. There have been some incremental gains, but the basic problem is that there are no votes in national parks compared to other more pressing issues, and that therefore there is no allocation of funds. Meanwhile, the State Government has found the resources to sponsor a football team and a travelling circus bus to promote an unpopular and unsustainable pulp mill. This situation may change now that Tasmania is governed by a Labor-Green coalition.

The issue of forestry is of great significance to Mole Creek because it has the potential to alter the look of this classic Tasmanian vista. As more farmland is converted to forestry the view will change from neat farmhouses in pretty green fields to a monoculture of glaucous-green shining gums. The deal for farmers was explained to me once by Pat Kelly, the former owner of Kelly's Pot (MC-207). If he fenced a particular paddock, the forestry company would plant the trees and manage them for 25 years before they were harvested, when he and the company would share the takings 50/50.

At the time this may have seemed like a good superannuation prospect, but the trouble with this plan is that forestry companies in Tasmania are going broke. If there is no market for the woodchips in a few decades or no viable company to tend them in the interim, I wonder where this will leave the farmers who have embraced such agreements. It would be a shame to have changed the look of the Mole Creek landscape and to have altered the inflows to the caves with no long-term economic gain.

On the other hand, it could be argued that returning the land to a forest would be not unlike restoring the natural conditions. There would be some disturbance during harvesting every 40 or 50 years, but in the meantime the forest resembles that prior to white settlement. The counter-argument is that during harvesting the soil structure is destroyed and this has an impact on its

moisture retention. The exact water requirements of eucalypt plantations as they establish has been a huge matter of conjecture and controversy in the forestry debate in Tasmania with "experts" weighing in on both sides.

Most of the success of the Tasmanian Speleological Liaison Council has been the result of working hand-in-hand with those on the ground. Talking directly to the rangers and involving them in Karstcare projects has had a positive effect. To this end, Dave Wools-Cobb has been an almost solitary hero. After quite some time, the TSLC has even made some progress on the issue of Kubla Khan Leadership Accreditation. Permits require any party visiting this Limited Access Cave to be led by an accredited leader. Unfortunately, the pool of leaders has been diminishing and there was no process for recruiting new leaders.

The TSLC, however, needs to be careful of the manner in which it does its lobbying. It needs to be very sure of its facts before it begins agitating for certain changes. As someone from the south, I can't guarantee that I really have my finger on the pulse of all proceedings and so I must trust that the information I act upon is correct and that I don't endorse drastic letters that turn out to be a bit of a beat-up. There are times when I feel that I am the meat in the sandwich between caving colleagues and bureaucrats who are trying to conserve caves with limited resources at their disposal. Putting pressure on the public service system is all well and good but there is no point in cavers biting the hand that serves us as members of the public.

The primary aim for the TSLC has been to bring cavers together so that they can liaise. Most of its business is concerned with Mole Creek issues and this does get rather tedious and the travel somewhat tiresome. Nevertheless, Mole Creek issues are important and there is a need to keep up with the latest access requirements and land owner attitudes.

In reality, Mole Creek is a difficult place to go caving. You can still visit the Limited Access Caves if you are sufficiently organised and write away for a permit in advance. To visit caves other than these well-known caves, you would need to engage the services of a local, someone who knows the location of the caves, whether or not they are on private land and whether the landholder is sympathetic to the interests of cavers.

The other deficiency is that there is no real, concerted effort at systematic documentation of the caves by cavers. Not much is being done by the undermanned Northern Caverneers and the Mole Creek Caving Club, an even smaller band of cav-

## WHATEVER HAPPENED TO MOLE CREEK?

ers, does not even exchange its publication with other caving clubs. The most significant documentation was Rolan Eberhard's Mole Creek Hydrology map presented to the CaveMania ASF Biennial Conference in 2005 (Eberhard, 2005). The map has subsequently not been published. As Government Karst Officer, Rolan advises the Parks and Wildlife Service and other agencies on cave management strategies. His work on documenting caves at Mole Creek facilitated the land acquisitions in that area and we should all be very grateful for his efforts. As a result of these efforts, the Mole Creek caves are much better managed for conservation outcomes, although arranging visits may be more difficult.

Rolan's other triumph has been the sensitive track marking using fishing line and small pieces of tinsel. In caves like Croesus, the cordoned-off areas are only just noticeable when cavers are close to the string line. This is much more appealing than garish flagging tape.

The one amateur caver who is presently documenting the Mole Creek karst is Steve Blenden. Steve is a farm worker from nearby Gunns Plains and as a bloke from the coun-

try, he has established a good relationship with Mole Creek locals. Consequently he has been able to secure access to many private properties. He has discovered, explored and mapped an incredible number of new caves solo.

The problem with this is that he doesn't publish all his findings and doesn't share his files with other cavers. This secrecy is a condition of his being given access to various properties. The thing the farmers fear is that Steve's discoveries will attract other cavers in future and thus pose all sorts of potential problems. Modern farmers don't want to face the problems the 1960s farmers are now facing. It seems that history is repeating itself.

A number of cavers have talked to Steve about this situation but he is unmoved. The thing I fear is that one day — touch wood it doesn't happen — Steve could easily meet his demise and all his records would be lost, meaning his endeavours would have been in vain. Worse still is the prospect that he could meet his demise in a cave unknown to anybody but himself. It is a search and rescuer's nightmare. As this goes to press, Steve is recovering from a very serious ill-

ness and so, suddenly, our concerns are that much more tangible.

So what happened to those halcyon days when cavers were welcomed like big city cousins? When once they'd chat with the local farmers while sharing cups of coffee? Nowadays, I was told that the most practical piece of equipment for caving at Mole Creek was a bullet-proof vest. Yes, you can still go caving at Mole Creek, the caves are much the same as ever but overall this area has been the victim of changing times; changes in the attitude of farmers, diminished incomes from agriculture, forestry promises, the demand for redneck jobs, wedge politics, government bureaucracy and secrecy, lack of funding and changes in Australian attitudes to litigation, occupational health and safety as well as the economy and the environment. This has meant that there is trouble in that lovely little township, just a few kilometres down the road from Paradise.

### ACKNOWLEDGEMENTS

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### REFERENCES

Anon. (2007) Kubla Khan Gate Vandalism *Speleo Spiel*, 362: 3.

Australian Government (no date) What is the Mole Creek Karst Forest Programme? Mole Creek Fact Sheet 1 – General information.

Australian Government (1996) State of the Environment Report 1996.

Department of Sustainability, Environment, Water, Population and Communities.

Australian Government (1997) Tasmanian Regional Forest Agreement.

Bunton, S. (2007) *Speleo Spiel* 362:15

Department of Primary Industries Water and Environment (2001), *Draft Mole Creek Karst National Park and Conservation Area Management Plan*. Parks and Wildlife Service Tasmania.

Department of Primary Industries Water and Environment (2004), *Mole Creek Karst National Park and Conservation Area Management Plan 2004*. Parks and Wildlife Service Tasmania.

Eberhard, R. (2005) A new hydrogeological map of the Mole Creek karst system. Goede, A. & Bunton, S. (Eds) *CaveMania 2005 Proceedings* (25th ASF Conference, Dover, Tas.) p. 37

Eberhard, R. & Houshold, I. (2005) "Very interesting, very beautiful ... and full of curiosities": some historical material relating to caves at Mole Creek. Goede, A. & Bunton, S. (Eds) *CaveMania 2005 Proceedings* (25th ASF Conference, Dover, Tas.) pp. 81-86

McKinnon, J. (2010) MC-1/MC-29 Kubla Khan thru trip *Speleo Spiel* 381:8

Tasmanian Land Conservancy (2006), *Protecting Karst Forest and Mole Creek. TLC Newsletter*, Issue 11 (Summer 2006).

Tasmanian Land Conservancy (2008), *Marakoopa Creek Reserve Advertisement. 40° South* 49:43.

<http://www.tasland.org.au/revolving/marakoopa/marakoopflyerfinal.pdf> (Accessed 24.11.2010)

Tasmanian Parliament (1985), *Forest Practices Act 1985*.

Van Nynanten, P. (2011) *Troglodyte* 20(2):3-4.

## COMING EVENTS

*This list covers events of interest to anyone seriously interested in caves and karst. The list is just that: if you want further information the contact details for each event are included in the list for you to contact directly. The relevant websites and details of other international and regional events may be listed on the UIS/IUS website <http://www.uis-speleo.org/> or on the ASF website <http://www.caves.org.au>. For international events, the Chair of International Commission (Nicholas White, [nicholaswhite@netspace.net.au](mailto:nicholaswhite@netspace.net.au)) may have extra information. This list only covers events in 2011. The next ASF Conference will be in January 2013 in NSW.*

### Sydney Film Festival June 2011

Australian Premiere of the Werner Herzog documentary, *The Cave of the Forgotten Dreams-3D*. Showings Sat 11 June 2.15 – 3.45 pm & Sat 18 June 10 -11.30 am. Event Cinema (EV4). Details available on the Film Festival website <http://sff.org.au/films-container/cave-of-forgotten-dreams/>

### June 27-30

6th International Conference: Climate Change — The Karst Record, University of Birmingham, UK. Details are available on the website <http://www.kr6conference.org/>

### July 18-22

NSS Convention, Glenwood Springs, Colorado, USA. For details check the NSS website <http://www.caves.org>

### July 31

Applications for Second ASF Grant Round close. See page 3 for details.

### September 1–3

H2Karst, the 9th Conference on Limestone Hydrogeology, Besançon, France. Details of this meeting are via the website <http://sites.google.com/site/h2karst/>

# The Timor Quarry Case

## NHVSS challenges Timor Limestone Quarry approval in the Land and Environment Court

Garry K. Smith and Jodie Rutledge

Newcastle and Hunter Valley Speleological Society (NHVSS)

NHVSS v. Upper Hunter Shire Council and Stoneco. No.2 [2010] NSWLEC 104

### BRIEF BACKGROUND

The Timor limestone quarry, located in the upper Hunter Valley north-west of Newcastle, was first proposed in November 2008, attracting over 30 objections from local residents and other community members concerned about the likely environmental and social impact from the development.

The quarry owners (Stoneco Pty Ltd) were proposing to operate the quarry 6 days a week over a 30-year period, extracting up to 100,000 tonnes per year, removing approximately 2.4 million tonnes of limestone in total.

The extracted material is to be transported by truck over 35 km of narrow winding local roads to a crushing plant located close to the New England Highway. Despite NHVSS raising considerable environmental concerns, the Upper Hunter Shire Council (UHSC) approved the quarry's development, and consequently, in July 2009 NHVSS lodged a class 1 Appeal with the NSW Land and Environment Court (L&EC).

The NSW Environmental Defender's Office (EDO) agreed to act on behalf of NHVSS in appealing the Timor quarry approval on the basis that it was "important public interest litigation". Barristers Patrick Larkin (ASF Fellow) and Chris Norton agreed to act on our behalf on a pro bono basis. A number of experts from various fields also agreed to provide their services to compile reports and provide evidence in court at a very reduced cost.

During a two-day site access trip in mid-September 2009 under a court order, the legal teams, experts and NHVSS cavers Garry Smith and Jodie Rutledge were able to inspect the karst area to be quarried in order to assist with the preparation of evidence required for the proceedings.

L&EC hearings were held during November 2009 and again in May 2010, with



Massive limestone outcrops extensively over the proposed mine site

an initial judgement handed down on March 31 2010 and the final judgement on June 23 2010.

**Note:** The court and most published literature refers to this development as a quarry; however, due to the intended use of the extracted material (limestone), the development is regarded as a mine for the purposes of the *Mining Act 1992*.

### ISSUES IN THE COURT APPEAL

NHVSS had numerous concerns with the quarry development as approved by UHSC and considered that the assessment of karst and other environmental issues in the Environmental Impact Statement (EIS) was grossly inadequate. Some of the issues raised in the L&EC during the appeal are listed below:

■ NHVSS argued that there was inadequate study concerning the likelihood of caves on the project site, even though substantial caves containing significant cave fauna

occur on nearby properties.

- Any caves present on the project site, and the fauna they might contain, were likely to be significantly impacted upon by the quarry and as such, a precautionary approach should be adopted.
- The potential for damage to groundwater dependent ecosystems due to quarry runoff into the karst aquifer below and impact on vegetation communities was not properly considered in the EIS or dealt with adequately by the conditions of consent approved by UHSC.
- NHVSS argued that the vegetation communities covering the project area were in fact an endangered community protected by both NSW and Federal legislation (the 'White Box–Yellow Box–Blakely's Red Gum Grassy Woodland' which is listed as an 'Endangered Ecological Community' at Commonwealth and State level).
- The site comprised habitat for the Squirrel Glider (*Petaurus norfolcensis*), a State-

listed threatened species which could be adversely impacted by damage to its habitat as a result of quarrying.

**OUTCOME OF THE COURT'S JUDGMENT**

In March 2010 the L&EC handed down an interim judgment in which it was held that the proposal was appropriate for approval only if appropriate conditions could be drafted that addressed issues raised by the court — namely, issues surrounding a protocol to be followed in the event of intersection of caves during quarrying, the impact on cave fauna, impact on the endangered ecological communities and Squirrel Gliders, roads and bridges infrastructure needs and a plan for rehabilitation of the site.

The resumed hearing in May 2010 dealt with these conditions and ultimately the Court granted consent to the quarry in June 2010. However, the decision allowed mining to proceed only after many prerequisite conditions are satisfied. The court also imposed many additional restrictions and monitoring protocols which were not considered in the original UHSC approval. Many of the court's newly imposed conditions focused on the protection of Timor karst values and biodiversity covering the project site during the life of the mine. The conditions of the resulting approval are far more stringent than those originally imposed by the UHSC. The overwhelming majority of imposed restrictions and ongoing monitoring would not have been in place had NHVSS not filed the appeal with the L&EC with the assistance of the NSW EDO. Our legal team has also indicated that the conditions imposed by the court will provide an important precedent for the types of conditions which may be imposed on similar quarries and mines in the future.

Presiding over the L&EC challenge was Hon. Justice Brian J Preston assisted by Acting Commissioner P. Adam. The final 85-page judgment was handed down by Justice Preston on June 23, 2010. Key conclusions in the judgment include:

- Agreement had been reached concerning a pre-blasting assessment protocol in which the recommendations of NHVSS's experts were adopted; and also in respect of a biodiversity management plan.
- The final conditions would ensure adequate offset was provided for the loss of the EEC.
- NHVSS's appeal should be upheld, as the Court was granting consent on a different basis to that on which UHSC had granted it.
- Among the stringent conditions, the quarry will not be able to start blasting for at least a year, as it is required to monitor



At the Land and Environment Court:  
Garry Smith, Neva Collings, Jodie Rutledge, Chris Norton and Patrick Larkin

for caves, voids, fissures and geodiversity of significance, and to sample for underground fauna species on and outside the site for at least one year before the first blast takes place.

**SPECIFIC OUTCOMES OF THE COURT'S JUDGEMENT**

In recognition of the value of the biodiversity on the site and the endangered ecological communities which will be affected by quarrying, the operator/owner is required to conserve in perpetuity 66 hectares of land as a "biodiversity offset". This includes 6 ha of prime vegetation containing the Endangered Ecological Community (EEC) White Box-Yellow Box-Blakely's Red Gum Woodland, which the quarry owner is now required to purchase as an offset to compensate for the area to be destroyed by quarrying.

During the first five years of operation, the quarry is required to plant and establish additional trees to compensate for destruction of portion of the endangered Squirrel Glider habitat. During the Court proceedings Stoneco also reduced the size of its proposed stockpile area to lessen impact on the Squirrel Glider habitat and karst. The court imposed restrictions on the project site so that stands of *Xanthorrhoea glauca* (grass trees) and *Ficus ribiginosa* will be protected.

The quarry owner is required to submit a site Rehabilitation Plan which is to be agreed upon by the experts. Rehabilitation must be completed once mining ceases in 30 years. Once rehabilitated, the 5.85 hectare quarry site is to be added to the conserved 66 hectares of offset land conserved in perpetuity.

Eight individual management plans must be submitted to UHSC and approved before development commences. These include Soil and Water, Air Quality, Biodiversity—Environmental, Landscape, Vegetation,

Rehabilitation and the Lower Chert Band. As part of the ongoing monitoring, boreholes are to be drilled into the alluvial and limestone aquifers and monitored on a regular basis for the presence of Groundwater-Dependent Ecosystems (GDE) including stygofauna which, if discovered, must be identified to species level. Additionally, any new species found are to be described to species level.

An independent panel of five experts must be established before quarrying commences and they will monitor the development over the life of the quarry. The nominated experts must between them have expertise in geology, geomorphology, hydrology, vertebrate palaeontology, cave biota and ecosystems.

The court's conditions stipulate that if any voids or caves larger than 0.5 m in diameter are discovered during the mining operation it must trigger the Cave Discovery Protocol, which addresses many of NHVSS' primary concerns. Under the protocol, quarrying must cease whilst the cave's values are assessed and a decision is made as to whether the cave, or some of its contents, should be conserved. This is a very good outcome for NHVSS and the caving community at large, who are very concerned about the impact of quarrying on any limestone caves which may be present.

"A number of significant caves exist in similar limestone in the area, indicating that there may be caves on the site. The Court took a precautionary approach in this case and held that adaptive management principles must be applied. The result is that the quarry must monitor extensively for limestone caves and for any subterranean fauna species that might be living in the limestone for a year before it can commence blasting," said Ms Natasha Hammond-Deakin, a solicitor at the Environmental Defender's Office.

The Court allowed evidence from local



At the edge of Crawney Road, court and experts discuss the flora and fauna covering an area similar to the mine site

GARRY K SMITH

have so many outstanding experts in such diverse fields pooling their knowledge and resources for a common goal.

The panel of experts who took up the cause included

- Patrick Larkin: barrister and ASF Fellow;
- Chris Norton: barrister and ASF member;
- Dr Armstrong Osborne: karst geology and hydrology;
- Dr Anne Marie Clements, Tony Rodd, Rebecca Burley, Lucy Jewell, all from Anne Clements & Associates: ecology and botany;
- Dr Andrew Smith: ecology — flora and fauna;
- Dr Peter Hancock: cave invertebrates;
- Dr Pam Hazelton: soil expert; and
- Neva Collings and Natasha Hammond-Deakin of the Environmental Defender's Office: our solicitors.

Representing NHVSS were Jodie Rutledge and Garry K Smith, plus many others who assisted throughout the appeal.

Thank you also to Chris Norton for final review of this article before going to print.

NHVSS has in the past and continues to receive the full support of Timor residents, which we very much appreciate. Without the support of the Vaughans, Moores, Eagles and Mr J McIntyre, to name just a few, it would have been very difficult to gain an overall picture of the Timor Karst and vegetation to mount a case for the L&EC appeal.

In closing, NHVSS would especially like to thank our extremely professional legal team and expert consultants for their dedication in bringing about a suitable outcome. Words can not express NHVSS's appreciation and gratitude for all the hard work leading up to and during the court appeal. We certainly learnt a lot along the way and gained a much greater appreciation of the legal system.

What really impressed us was the meticulous methodology with which each of the experts applied their science over the study area to arrive at their findings. A special thank you must go to Patrick, Chris and members of the EDO for their tireless work and outstanding professional approach leading up to and during the court proceedings. We found it rather demanding just to keep on top of what was happening in the courtroom each day and we cannot imagine the constant mental strain on both Patrick and Chris during these proceedings.

Further information on the timeline of events leading up to and during the court appeal can be found in *Newcaves Chronicles* nos 31-34, the official publication of NHVSS Inc. <http://tinyurl.com/4xnq9d7>

See page 22 — *L&EC Judicial Newsletter*

residents during a one-day sitting at Scone court. This opportunity allowed those who had objected to the proposed mine during the UHSC public exhibition period to air their concerns and present evidence in court without the need to take on the responsibility of becoming a party to the proceedings with legal representation.

In handing down its conditions of approval, the court took into consideration the concerns of local residents by imposing restrictions which require the transport roads, passing lanes and bridges to be appropriately upgraded before quarrying commences. Hence, for the project to commence requires construction of two new bridges to replace old structures and a bridge bypass. Numerous other concerns of the residents were addressed in the conditions, including strict guidelines to mitigate environmental disturbance and included the monitoring of ground water, blasting, stormwater runoff, dust and noise for the duration of the mine.

You are probably wondering by now why I have not mentioned caves on the quarry site.

The answer is rather complex. It all stems back to the fact that prior to this court appeal members of NHVSS had never been granted access to the property, save for a few hours while the Council was assessing the development application. Most of the known caves on neighboring properties have been found over many years of searching and a considerable amount of digging due to how they were created.

Renowned karst geomorphologist Dr. Armstrong Osborne investigated the Timor geology as a result of this court appeal. He determined that the caves on the west side of the Isis River are hypogene caves — that is, caves formed by groundwater rising up through cracks in rocks under the influence of heat and pressure, dissolving out mazes and rounded chambers, rather than through direct passage of water from the surface.

Therefore, the cave entrances at Timor generally only occur when a chamber or passage collapses to form a soil-filled doline which, after digging, allowed entry to the caves. This means that a significant cave can form with no direct entrance on the surface. As a result of a several-hour site visit permitted by the quarry operator and a later two-day inspection permitted under a Court order, we identified several small caves only a few metres in depth and a number of potential digs which could lead to caves. Despite this we had no concrete evidence without digging as to whether or not there are substantial caves in the massive limestone covering the project site.

#### ACKNOWLEDGEMENTS FOR OUTSTANDING SUPPORT

Now that the dust has settled on the Court challenge against the approval of the Timor Limestone Mine, it is time to reflect on what has been achieved. Also to thank all the people who have been involved and given so freely of their time, knowledge and expertise, and also to thank the ASF executive, affiliated clubs and individual members for their support, including those who provided financial donations toward this landmark court appeal.

We are also very much indebted to the following experts in their respective fields who toiled tirelessly, studying the area to mount a case and then follow it through with lengthy submissions and cross-examination in the court.

Our experts worked on a pro bono basis or at minimal cost which made it possible for NHVSS and the ASF to mount the challenge. It was noted during one of the roundtable discussions that many of the experts involved had been cavers at some stage of their lives or were still active cavers. It is an outstanding achievement for ASF and the speleological community as a whole to

# Land and Environment Court of NSW Judicial Newsletter

27 April 2010, Volume 2 Issue 2, 20-21 – Threatened Species

Newcastle & Hunter Valley Speleological Society Inc v Upper Hunter Shire Council and Stoneco Pty Ltd [2010] NSWLEC 48 (Preston CJ and Adam AC)

s 98(1) of the *Environmental Planning and Assessment Act 1979*. Facts: the first respondent, Upper Hunter Shire Council ('the Council'), granted development consent to the second respondent, Stoneco Pty Ltd ('Stoneco') to establish a limestone quarry at Timor Creek, in the Isis River Valley. The applicant, Newcastle and Hunter Valley Speleological Society Inc (NHVSS), lodged an objection to the grant of consent during the exhibition period. Following the grant of consent, NHVSS appealed to this Court under Issues: there were three broad sets of issues raised in the appeal by NHVSS:

(1) surface ecology issues:

(a) whether the vegetation over the whole of the project site comprised the endangered ecological community ('EEC') of the White Box Yellow Box Blakely's Red Gum Woodland ('the White Box EEC') and the habitat of the threatened species *Petaurus norfolcensis* ('Squirrel Glider'); and

(b) whether the proposal was likely to have a significant effect on the White Box EEC and the Squirrel Glider so as to require a species impact statement ('SIS') to accompany the development application by reason of s 78A(8)(b) of the *Environmental Planning and Assessment Act 1979*.

(2) impacts on caves, other karst features and cave dwelling fauna:

(a) whether the limestone on the Project Site was likely to contain caves and other karst features; and

(b) whether the proposal was likely to cause serious or irreversible damage to these karst features and fauna.

(3) other issues raised by resident objectors:

(a) whether the proposal was consistent with the current zoning of the site and compatible with other land uses; and

(b) whether the conditions of consent could adequately address concerns relating to the provision of adequate road infrastructure and natural resource management requirements.

Held: upholding the appeal and granting consent:

(1) surface ecology issues:

(a) the vegetation on the Project Site comprised the White Box EEC and the habitat of the Squirrel Glider: at [78] and [119]-[121];

(b) in assessing whether there was likely to be a significant affect on the White Box EEC in this case, only three of the factors in the seven-part test in s 5A(2) of the EPA Act 1979 were applicable: ss 5A(2)(c), 5A(2)(d), and 5A(2)(g): at [87];

(c) the current formulation of s 5A(2)(c) differed materially to the previous formulation of the section (s 5A(c)) and the evaluative conclusions reached in cases considering the former section may not assist in making the evaluative judgment required under the current section: at [90], [100] – [101]. Section 5A(2)(c) required evaluation of the likelihood of removal or modification of an area of an EEC placing a "local occurrence" of the EEC at risk of extinction. The local occurrence of the White Box EEC included the whole of the 60 ha Project Site, however only 6 ha of vegetation would be cleared within that area. Hence the Court must evaluate whether the clearing of 6 ha within the 60 ha local occurrence of the White Box EEC was likely to place the whole of that local occurrence at risk of extinction: at [98];

(d) a mere quantitative comparison of the EEC to be removed or modified with the area of the local occurrence of the EEC, may not be sufficient by itself to evaluate the likelihood of removal or modification of the area of the EEC placing the local occurrence of the EEC at risk of extinction: at [104]. Other factors may need to be considered and a qualitative analysis undertaken;

(e) the proposed action would not result in the Project Site becoming fragmented or isolated from other areas of the White Box EEC habitat for the purposes of s 5A(2)(d). There was no evidence to suggest that the 6 ha "hole" in the local occurrence of the White Box EEC would result in adverse effects such as to place at risk the long term survival of the EEC: at [109]-[110];

(f) the modest scale of the clearing required by the proposal relative to the extent and distribution of the White Box EEC, would not be a basis for an overall assessment of significant impact such as to require completion of a SIS. The test in s 5A(2)(g) was therefore not triggered: at [112];

(g) the proposal was not likely to significantly affect the White Box EEC and a SIS was not required: at [118]; and

(h) with the reduction and modification of the stockpile and handling area, and the conditions that would apply to a consent, the impact on the Squirrel Glider population was not likely to be significant. A SIS was therefore not required: at [127].

(2) impacts on caves, other karst features and cave dwelling fauna:

(a) it was likely that there were small, interconnected voids and fissures in the limestone to be quarried: at [152]. The presence of large caves was unlikely;

(b) although there was an absence of site-specific information on biota in the limestone, the presence of biota in caves and groundwater in the near vicinity of the site and the increasing number of studies elsewhere that established the presence of biota in the limestone and made it scientifically likely that some form of biota would be found within the limestone on site: at [177]; and

(c) it was beyond mere possibility that biota would be present and the scientific likelihood was sufficient to engage the precautionary principle. A step-wise or adaptive management approach was an appropriate response to the threat of environmental damage. This would involve the imposition of conditions of consent requiring monitoring linked to adaptive management: at [183]; and

(3) other issues:

(a) the proposal was consistent with the applicable zone objectives of the Rural "A" zone in Murrurundi Local Environmental Plan 2003: at [191]-[193]; and

(b) the proposed conditions of consent would sufficiently minimise and mitigate the adverse impacts of the proposal on surrounding land uses: at [192], [197]-[198].

# NSW cavers visit The Ovens and St Michaels sea caves

Joe Sydney  
HCG

**T**HOUSANDS of years ago when the Australian sea level was much higher, a patch of large sea caves was formed in sandstone cliffs along the Avalon/Whale Beach area of Sydney, NSW. Today, with lower sea levels, these sea caves are accessible.

Sydney is blessed with a majestic coastline surrounded by magnificent high cliffs with spectacular vantage points and views. Often one can see many natural and man-made features along the coastline such as the World War II concrete gun and observer emplacements, Aboriginal sites and wonderful geological features. Two such are The Ovens and St Michaels sea caves along Sydney's northern beaches.

## THE OVENS SEA CAVES

There was no NSW cavers' dinner this year, so the Highland Caving Group decided to organise an exciting visit to these sea caves. A date was set —23 October 2010 — with invitations extended to all ASF clubs.

Club members met early at a small Whale Beach café to take advantage of an early outgoing tide and get their last fix of caffeine before the day's trip.

Earlier that morning, trip organiser Joe Sydney visited the proposed clifftop entry point to see how difficult it was to access. To his surprise, the council had blocked the path way with 'No entry' signs, while vigilant neighbours questioned him as to his intentions.

Some asked if he was a fisherman as locals were often upset at fishermen's disregard of limited street parking and council no-entry signs.

While chatting to the locals, Joe received a text from a caver who had arrived early, informing him that whales could be seen frolicking off the coast. Being higher up on the cliff line, Joe had a magnificent view of four whales blowing in the distance.



Our first obstacle

MEGAN PRYKE

## Pumped with coffee and ready to go

By 9:30am, all the cavers had arrived and were eager to get going as they were pumped with caffeine. Joe informed them that the original clifftop access was now not possible and that we had to revert to Plan B, a longer coastal walk of about 1.2 km. After a quick gear check at around 10am to ensure that we had paddles for our flotilla of small boats, wetsuits, ropes, krabs, pulleys, first aid kit etc, we were off. Joe stopped at the lifesaving station to let them know of our intentions and they were pleased with the contact. They were so interested in this trip that they arranged for a jetski and a boat to sail past from time to time to keep an eye on us, just in case.

While all this was happening, members of SUSS had brought along their sea kayaks and decided to head off around to the other side of the spit at Careel Bay to launch their boats and paddle around Barrenjoey Heads, a distance of about 9 km one way!

## Dead mutton-birds

A few of us started the walk along the sandy beach and noted the many mutton-

birds washed up dead all along the shore — very strange indeed. The walk along the cliff line was quite easy and with an outgoing tide, which made the tricky bits easier.

About halfway along the rock shelves, we hit our first obstacle, a small cleft that needed either a long jump or a scramble at the back of the cleft over some boulders. Moving along another hundred metres, we hit a daunting, a 4-5 metre sea channel/cleft. We stood there for some time looking at each other, quite stunned, and thought to ourselves that, well, this is the end of the trip as there was no way around. When the panic settled, we started looking at the higher platforms but we found no safe passage.

## Kayaking cavers arrive

At this time the kayakers had arrived and, using mobile phones, they indicated that there was no visible access unless we went back a way and looked up high, but the problem would then be in getting down the cliff face. It was only when Roslyn and David from Hills had a go at climbing the rock face up and over the sea channel that they managed to cross it to applause from

the cavers. This now meant that we could set up a Tyrolean to ferry cavers across. During the set-up, a lifesaver arrived on a jetski and chatted to our intrepid kayakers, who told him we were proceeding to the sea caves.

**How do we cross this sea channel?**

It was not long before the Tyrolean system was in place and the first caver was across, then the second, third and ninth. This was even more exciting with the odd big wave washing up and occasionally soaking us. When those who chose to cross were safely across, we moved on to find the sea caves. Those who decided not to cross made their way slowly back to the main beach area or guarded the Tyrolean.

**Is this the big sea cave?**

Moving on a little further over the boulders and just around the corner, we found our first huge sea cave, which is part of a series of sea caves called The Ovens. By now, the tide was well out and this cave had large boulders protecting the entrance from the wave wash, so it was quite safe to enter. Entering the cave was easy as there are many rock shelves to walk along and go deep into the cave. The more intrepid cavers donned wetsuits and took lights to venture further into this strange geological feature.

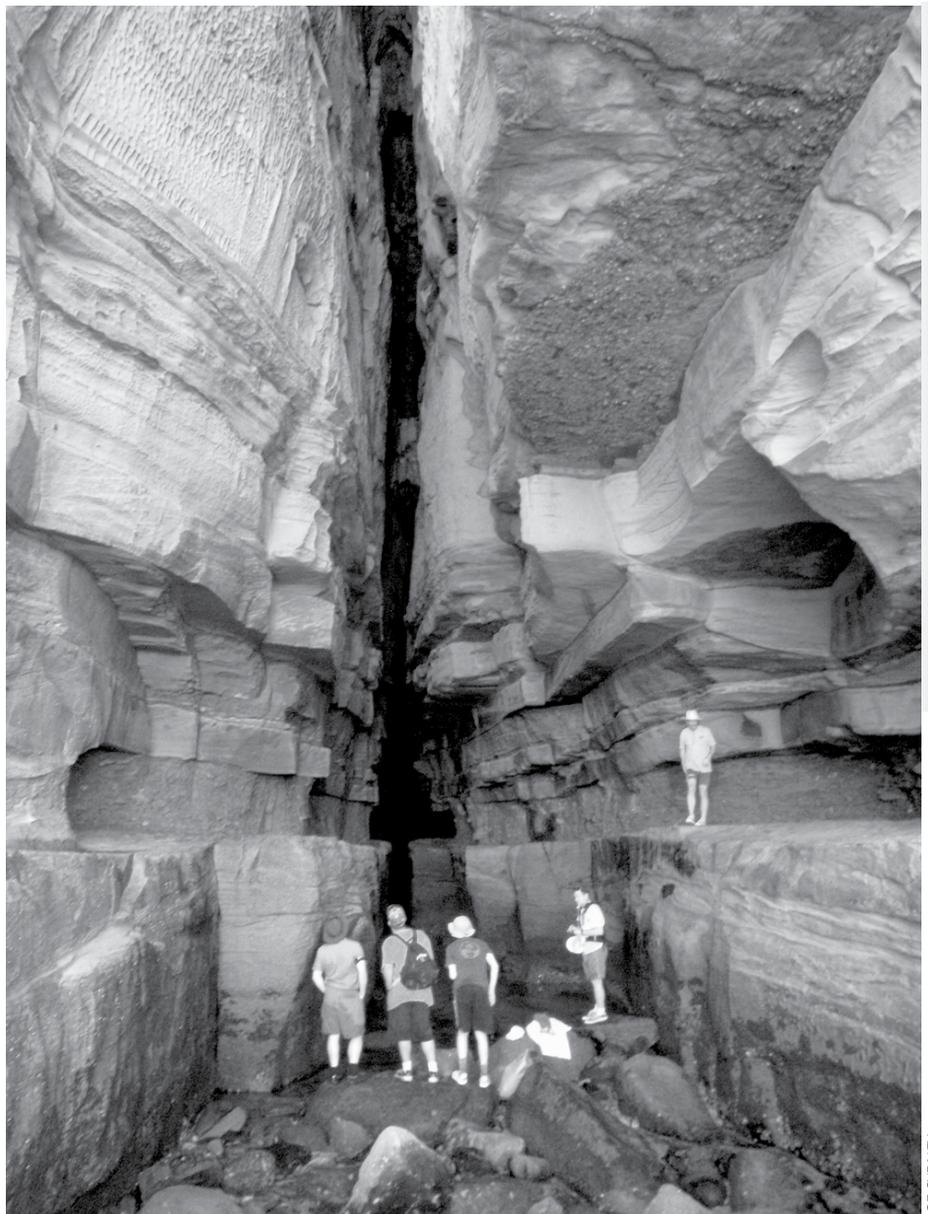
The cave itself is quite large and we questioned if this was the huge cave as seen on Google Maps. The cave is about 10 m across at the entrance, 2 m across in the wet section, 10 m high and approximately 100 m deep. We spent about 45 minutes looking and swimming around this cave before deciding to have a look around the corner.

**OMG! This is the big one!**

Walking along the rock shelves for another 100 m, we could hear the roar of surf. A little further on and up a rock shelf scramble, we stood in awe of what we had found. What we originally thought was the main sea cave was, in fact, the baby. This one is... huge. The dimensions dwarfed the first sea cave, being about 30 m across at entrance, 30-40 m high and who knows how deep, as we could not see any further than 50-80 m.

We looked at each other and said there was no way that we were going in there with small plastic boats. Even with the tide out and relatively calm seas, the wave and wash was funnelling up fiercely and making big waves. I am sure that the waves were so big that they could be surfed if they were anywhere else — but any attempt would be suicidal, so we backtracked and hightailed it back to the Tyrolean point after taking a few photos.

By now, the tide was well and truly out



JOE SYDNEY

*Should we go in the small sea cave?*



JOE SYDNEY

*Rock fishermen climbing down using handholds cut into rock and polypropylene rope.*

and this brought out a few adventurous rock fishermen who disregarded the signs at the original higher entry point and used handholds cut into the rock face to descend to the platform. What was even more astounding was their faith in their blue and white polypropylene rope as a safety handline.

Once we were all safely across we moseyed back to the cars to find the other cavers and unpacked the gear. By now we were all pumped, yet there was still time to visit St Michaels cave.

**ST MICHAELS CAVE AND ITS LOCAL INHABITANTS**

Research into The Ovens and St Michaels sea caves proved fruitful, offering explanations of its naming, geology and habitation. Three locations in the reserve demonstrate prior use of the area by Aboriginal people. It is known that there is at least one shelter site, one art site and at least one midden. These show that the area played an important part



The small sea cave

JOE SYDNEY

in the lives of the local Guringai people, who lived in the area for several thousand years prior to 1788. Govett, an employee of Surveyor-General Mitchell, recorded local Aborigines fishing successfully for snapper using starfish for bait from rock platforms along the northern beaches coastline, as explained in S & G Champion, 1997.

### **How did St Michaels Cave get its name?**

The Pittwater Council Plan of Management document explains that during the 19th century what is now Bangalley Reserve and North Avalon Headland Reserve was part of a 1400 acre (560 ha) grant made in 1833 to Father John Therry, an early Catholic chaplain. Father Therry had plans at one time to deliver lectures in St Michaels Cave and even to build a church above it. A number of early accounts describe excursions to the cave and the nearby 'Hole in the Wall,' a natural arch which collapsed in 1867. The adjacent land was subdivided in 1914 as part of Careel Ocean Beach Estate. It is presumed that the three large blocks of land that comprise the bulk of the reserve's bushland were dedicated as open space during this subdivision.

### **The geology of The Ovens and St Michaels sea caves**

The escarpment has vertical cliffs and the foreshore has slopes of varying degrees. Within the escarpment are a number of vertical dolerite dykes, including St Mi-



Our first Tyrolean user

chael's Cave. These were probably formed during the Jurassic era. St Michaels Cave is a significant geological feature that extends approximately 110 m into the cliff face. The dolerite is evident in a band approximately 1 m in width at the roof of the cave. The cave has a maximum height and width of 15 m and 10 m respectively. The ridge crest geology is Hawkesbury sandstone of medium to coarse-grained quartz sandstone, with very minor shale and laminite lenses. A short distance down slope, the Narrabeen shales and sandstones of the Newport Formation outcrop. These sediments underlie most of the reserves.

### **St Michael's cave trip**

The weather forecast was for a thunderstorm and we could see the change was on its way. Some decided to depart, while a few drove to St Michaels Cave a short distance away at Bangalley Head Reserve, Avalon

Dropping down from Bangalley Head to the rock shelf, we headed south to St Michaels Cave. All along the route, rock fishermen were trying their luck with some success. One family had caught

JOE SYDNEY



*Entrance to the 'BIG' sea cave*

half-a-dozen good-sized blackfish, which they started to cook. The smell of freshly fried fish wafted up the coast, making us feel quite peckish as most of us had missed lunch in all the excitement.

Along the way, we noted evidence of fossils, mostly small ferns and, interestingly, many ripples from slow-flowing streambeds. The cave is a short distance from the lookout but higher up the cliff face, which suggests that this cave was formed much longer ago than The Ovens sea caves.

It is gated with razor wire for the protection of two species of bats resident to this cave, the common bentwing bat (*Miniopterus schreibersii*) and the large-eared pied bat (*Chalinolobus dwyeri*), according to a council report.

That the cave can be entered is evident by the amount of vandalism so we had a look around, took our photos and soon departed.

Passing the fishermen who were now seriously cooking their catch made us very hungry.

Back at the lookout, we said our farewells, with a few of us heading to Avalon Beach for a tasty fish and chip dinner.

The day's event was a total success with



*Intrepid sea cave swimmers at the back of the cave*

21 cavers from seven clubs attending. HCG thanks those who chose to share this unusual outing in place of the annual cavers' dinner.

## REFERENCES

Pittwater Council: Bangalley Head Reserve and Avalon Headland Plan of Management, 21 October 2002.

# Tres Quimeras

Alan Warild

*Quimera: a horrible or unreal creature of the imagination; a vain or idle fancy.*  
—Synonyms: dream, fantasy, delusion, chimaera.

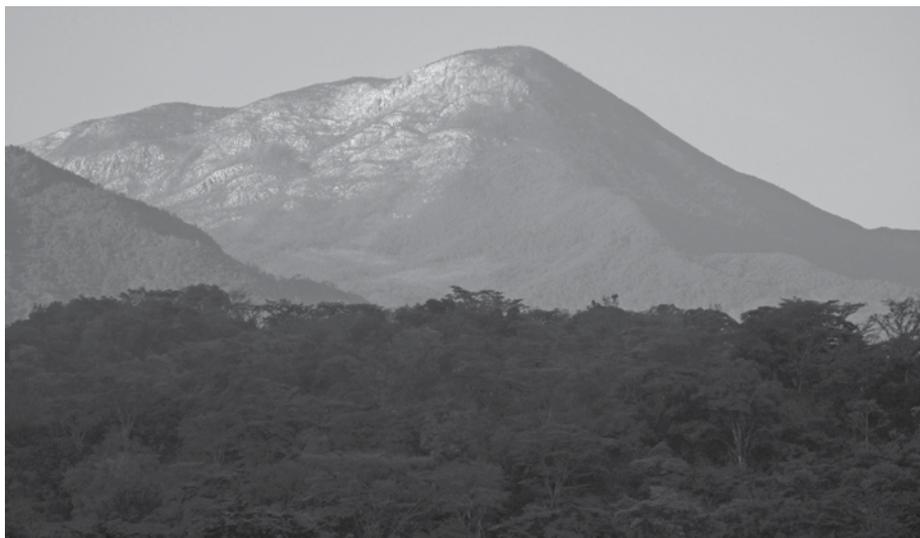
**I**T'S NOT OFTEN that a cave this good shows up, let alone one right beside the road that is right beside an area that has seen an annual expedition since 1987.

In 2006 a couple of Quebec cavers on their 'Mexpe' expedition took time off from caving to check out where the most upstream parts of their cave system were coming from. Instead of more jungle they found a ranch, a pleasant grassy valley and stream that fell into a 100 m hole. Three holes really. The sort of fantastic, delusional thing that cavers dream of and normal people run away from in horror.

Next season the Québécois were back, along with a few foreign and local mercenaries. But the expedition was really focussed on another area and the long commute each day through the jungle and back again at the end of a long day down a wet cave was a bit much for most people. Still, the news came back of a deep, sporting, wet cave with 'interesting' rigging. We packed our gear over the hill for a lightweight camp and took a look.

The previous push trip had stopped at a huge boulder jammed at the top of a pitch at approximately -250 m. What we didn't fully realise before we got there was that Tres Quimeras was no ordinary cave. A big pit entrance is a good start, but it just keeps going the same way: the crash of falling water, plunge pools, smooth and polished, the most unbelievably soft rock that you could imagine. A raging wet canyon underground.

The giant boulder wasn't so bad. We teetered across the wall and dropped back down to the stream. The best bit, though, was that the walls were solid. We rigged fearlessly downwards following the water and the breeze, and had lunch with a tiny white scorpion. As usual, the expedition was nearing its end with time for one last push. The soft rock rigging was holding up surprisingly well. Still, it seemed as if every anchor had backups to its backed-up backup. One pitch, the biggest and wettest

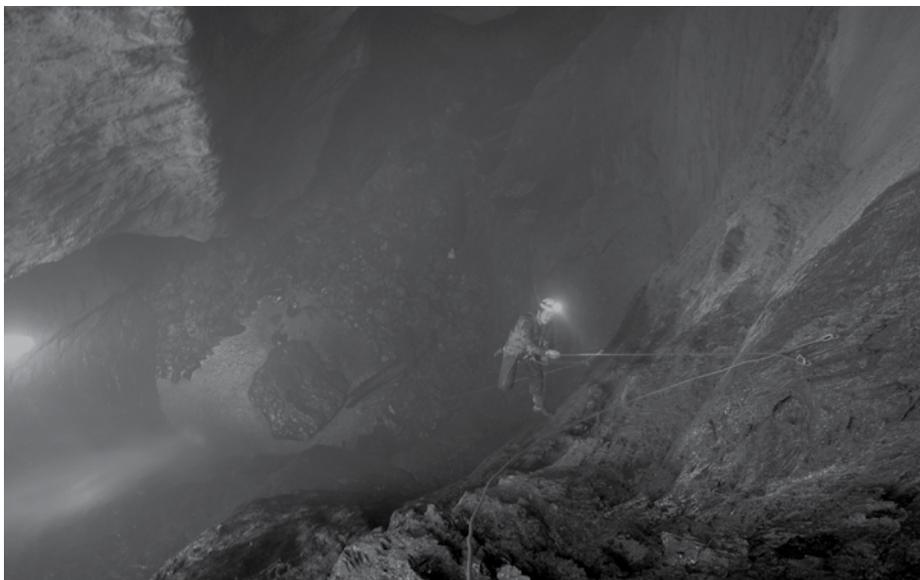


*Zinzetepetl, the 3200 m high limestone mountain that must have a cave or two in it*

one of course, had a rebelay composed of five bolts. All of them were bad, so we tied them with a tight line back to the previous anchor. Everything else looked pretty good. Descending towards this spot I reached the first and possibly our wettest rebelay. The only 'good' rock was where it was washed. Descended, clipped-in and hung there with

my right leg getting soaked and my left leg dry. Swapped my descender to the lower rope, stand to cinch it a little higher, and I was flying. Only three metres and ended up hanging upside down in the waterfall. Wow! These rebelay things actually work! And I hadn't even reached the 'bad' one yet.

Some more waterfalls landed us in a



*Eric from France starts down*



*The entrance that takes the water*

GUSTAVO VEILA



*Solid as a rock!*

ALAN WARILD

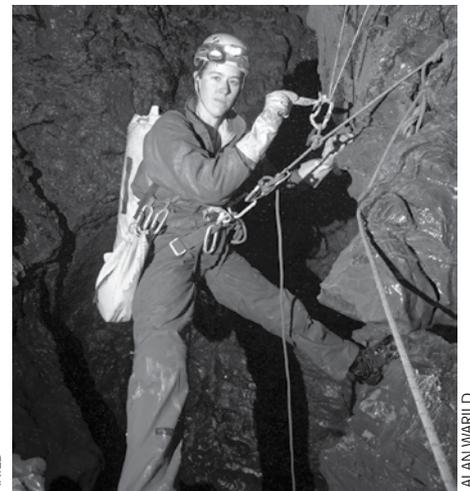
shallow canal at -500 m and we began wading, walking and clambering. Everything except losing elevation. There was some competition to be the one in front. The first person had clear water and could see the scorpions walking on the bottom of the pools — they're heavy and sink like stones, but if you came second your wellies got sand and sticks and all sorts of things washed into them. I fastened my overalls to my wellie tops really well.

We abandoned the pack of rope, then the bolt kit, then a last small rope. At last we hit a three-metre pitch, but had no gear to descend it. A good turn-around spot and way too much to survey in one day — er, night. At least the cave was still going strong so we had a good excuse to stash the rope on high ledges as we survey/derigged out.

In 2009 we were back with a Tres Quimeras expedition. Camped in the green fields five minutes' walk from the entrance with no distracting other caves to divide our efforts, our first job was to put in real bolts. Hilti in Quebec had loaned us a drill and donated hundreds of tie-down studs: 10 cm and 15 cm lengths of threaded stainless steel with handy glue packs to hold them in. Drill a hole, push in one or two glue packs, then spin the stud in with the drill, wait five minutes and go. Works great until the super-expensive battery gets wet and dies. We just managed to get to the good rock zone at the right time to change to more normal bolts.

The three-metre drop that stopped us two years before was so insignificant that the push team didn't even see it and after three kilometres of horizontal, they hit a small drop into a big pool. At last things had begun to change: the water was flowing once again, the cave had turned towards the presumed resurgence, and the rock was approaching rotten.

Push trips began in earnest but it was already some four hours travel to the lead,



ALAN WARILD

*Bev at the junction where Eric from Quebec and Jeff climbed up to find the tag left there just hours before by Guillaume, Gustavo and Christian*

so it was a good 10+ hour trip before doing anything.

Not everyone was happy with the technical rigging and one team got to the lead so knackered that they just left their gear and returned to the surface. Not so much fun for them, but it meant that the next team could take in bivvy gear and do a full push without having to surface without sleep. This we did, rigged everything we had and expended every joule of battery we carried. Calculating the topo as we went on Auriga, we could see how much further we had to go — not much, only one or two more pushes. In the meantime we took a drive and short walk to the presumed resurgence that was found in 2007. A push up stopped at the foot of an approximately 15 m waterfall.

The next trip from the top was another full cojones effort through some great cave. Great pitches, delicate traverses on rotten rock and one spot where the entire airflow passed through a small hole with the water. As you went through, you blocked most of the hole and the wind velocity increased so that you slipped through in a wild mist of wind-blown spray. The topo showed that they were almost there, but they were stopped with no more rope at the top of an approximately 15 m waterfall.

A day later Eric returned from a resurgence climbing trip clutching a fluoro tape survey marker. The connection had been made: 815 m deep and wild and sporting the whole way — not the deepest through trip, but one of the best!

The prospect of derigging all that rope and the bivvy through the long horizontal 'walk' wasn't pretty, so we double-roped it out of the bottom, then in between photo trips dragged the rest out the top and found a grotty higher entrance. I suppose the only real challenge that remains is to double-rope the whole lot. Don't get your rope stuck on that first pitch...



ALAN WARILD

*Now it's Gustavo's turn*



ALAN WARILD

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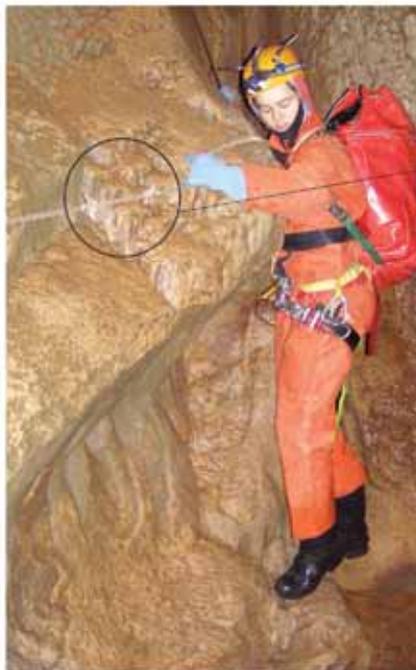
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