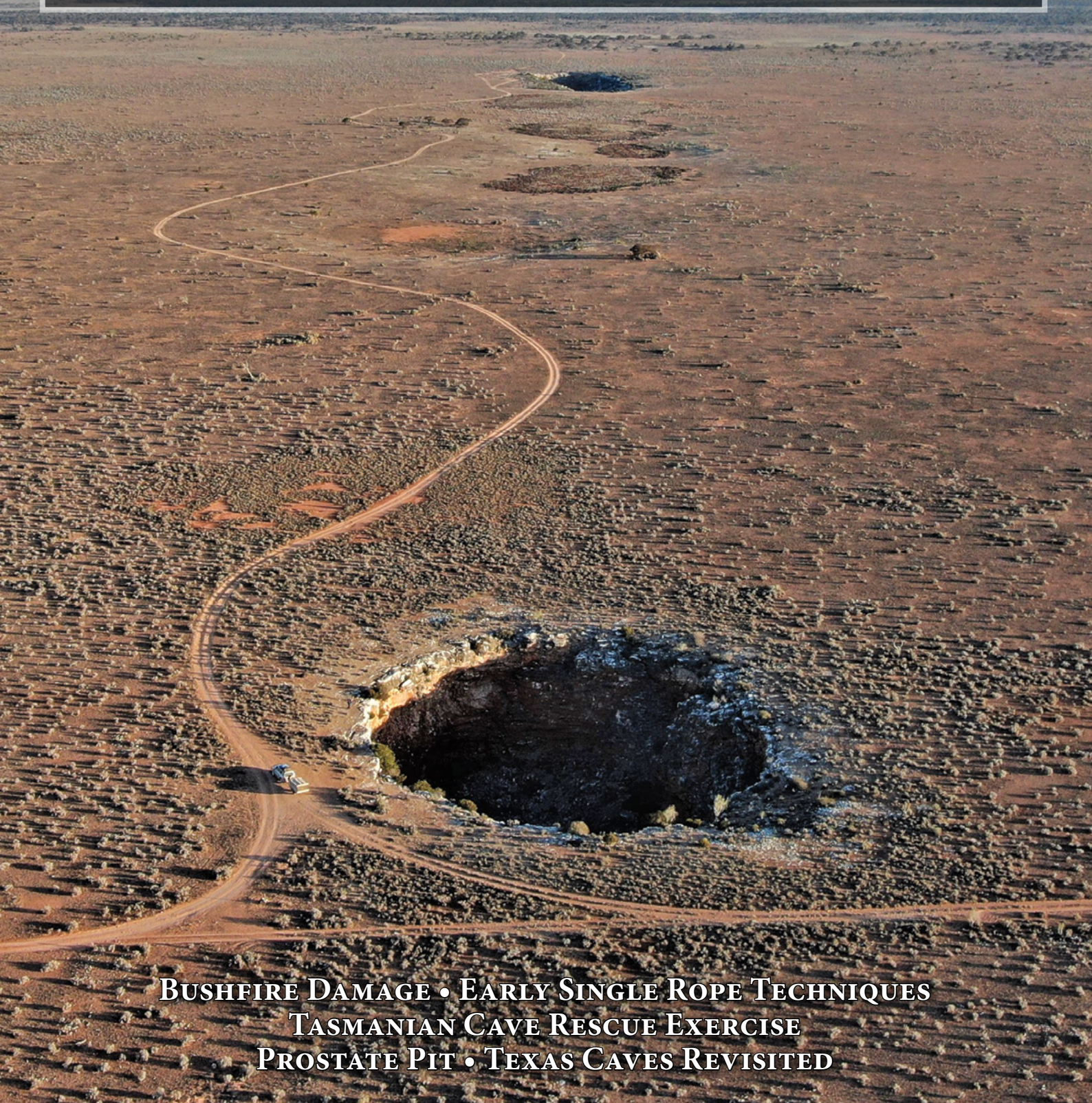


CAVES

The Journal of the Australian Speleological Federation

AUSTRALIA



**BUSHFIRE DAMAGE • EARLY SINGLE ROPE TECHNIQUES
TASMANIAN CAVE RESCUE EXERCISE
PROSTATE PIT • TEXAS CAVES REVISITED**

No. 211 • MARCH 2020

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 <https://www.uis-speleo.org> or on the ASF website <http://www.caves.org.au> For international events, the Chair of International Commission (Tim Moulds) timothy.moulds@yahoo.com.au may have extra information. This calendar comes to us courtesy of Dr George Veni.

2020

20-24 April

16th Multidisciplinary Conference on the Engineering and Environmental Impacts of Karst, (San Juan, Puerto Rico), www.sinkholeconference.com

30 April-3 May

ALCADI : International Symposium on History of Speleology and Karstology (ALps, CARpathians and DInarides), (Gorizia, Italy), seppenhofer@libero.it

2-8 May

23rd Conference of the Australasian Cave & Karst Management Association, (Jenolan Caves, NSW, Australia), scott.melton@jenolancaves.org.au

12-15 May

9th International Workshop on Ice Caves (IWIC-IX) & the 12th Scientific Conference Research, Utilization and Protection of Caves, (Liptovský Mikuláš, Slovakia), <http://tinyurl.com/u5hlo2b>

13-14 May

US Geological Survey Karst Interest Group Meeting, (Nashville, Tennessee), akclark@usgs.gov, <http://tinyurl.com/rsf7jsz>

18-19 May

North-Central Geological Society of America Meeting Karst Session, (Duluth, Minnesota, USA), www.geosociety.org/GSA/Events/Section_Meetings/GSA/...

18-22 May

UNESCOkarst : Conservation of Fragile Karst Resources, (Bowling Green, Kentucky, USA), <https://unescokarst.com/>

20 & 22 May

KARSYS Karst Modelling Course, (Reston, Virginia, USA), register with dhdoctor@usgs.gov; (Bowling Green, Kentucky, USA), register with katarina.kosic@dcr.virginia.gov; general information: <https://www.visualkarsys.com/>

4-7 June

14th International Symposium on Pseudokarst, (Świętokrzyskie [Holy Cross] Mountains, Poland), <https://14pseudokarst.wonders4you.com/>

7 June-10 July

Karst Field Studies Program (4 one-week courses), (Mammoth Cave, Kentucky, USA), www.karstfieldstudies.com

12-20 June

7th International Course: Characterisation and Engineering of Karst Aquifers (CEKA), (Montenegro: Žabljak-Durmitor Mt., Virpazar-Skadar Lake, and Bosnia and Herzegovina: Trebinje), <http://www.karst.edu.rs>

15-19 June

28th International Karstological School "Classical Karst": Regional Karstology — Local and General Aspects, (Postojna, Slovenia), <https://iks.zrc-sazu.si/en/>

24-27 June

1st Karst Science Forum, (Bucharest, Romania), <https://www.eri100.ro>

28 June-4 July

25th International Conference on Subterranean Biology, (Alba Iulia, Romania), <https://www.25icsb.com/>

2-5 July

14th Balkan Cavers' Camp, (Dryanovo Town, Bulgaria), <http://balkancaverscamp.weebly.com/>

12-15 July

Karst Record IX (KR9) Conference, (Innsbruck, Austria), <https://www.uibk.ac.at/congress/kr9/>

27-31 July

US National Speleological Society Annual Convention, (Elkins, West Virginia, USA), <https://caves.regfox.com/nss-convention->

31 July-2 August

14th EuroSpeleo Forum, (Burgos, Spain), <https://congresointernacionalespeleologia.blogspot.com/>

1-15 August

International Training Camp for Young Speleologists: Germany, (Schwäbische Alb [Swabian Jura], South Germany), <https://www.juhoefola.de/english.html>

2-5 August

Carbonate Critical Zone: An NSF-Sponsored Workshop, (Philadelphia and central Pennsylvania, USA), <https://carbonatecriticalzone.research.ufl.edu/>

17-20 August

34th International Geographical Congress karst sessions: Global Karst Critical Zone and Land Use Planning in Karst, (Istanbul, Turkey), <https://www.igc.org/en/KARST%20COMMISSION.html>

29 August-5 September

19th International Symposium on Vulcanospeleology, (Catania, Italy), <http://www.19isvetna.com/>

22-26 September

6th EuroSpeleo Protection Symposium, (Isle of Vilm, Germany), symposium@eurospeleo.org

8-11 October

26th International Cave Bear Symposium, (Reiss-Engelhorn-Museen, Mannheim, Germany), doris.doeppes@mannheim.de

25-28 October

Geological Society of America Convention, (Montréal, Québec, Canada), <http://www.geosociety.org/>
22-24 June 2021

*A very useful international calendar is posted on the Speleogenesis Network website at www.speleogenesis.info/directory/calendar/
Many of the meetings listed above are on it but new ones are posted regularly.*



ASF Members' Satisfaction Survey 2020

Please take a few minutes to fill out this satisfaction survey and let us know how the ASF is doing.

Survey link: <http://tinyurl.com/tmslajd>

CAVES AUSTRALIA

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Change of address

Notify us immediately of any address changes to ensure delivery of your *Caves Australia*.

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ASF

Contents

Coming Events.....	2
ASF Members' Satisfaction Survey 2020.....	2
Editorial.....	4
President's Report.....	4
Bushfire Damage at Karst Sites.....	5
<i>Cathie Plowman and Andy Spate AM</i>	
Cave Landscape Bushfire Rehabilitation Appeal.....	6
The Early Days of Single Rope Techniques.....	7
<i>Tony Culberg OAM</i>	
The Wiki Challenge to Australian Speleological Clubs and the ASF.....	9
<i>Garry K. Smith</i>	
Spotlight on Cave Animals.....	11
<i>Cathie Plowman</i>	
The Australian Cave Cricket Poem.....	12
Australian Rhabdophoridae	
<i>Sil Iannello</i>	
UIS 2019: News and Planning Guide.....	13
for the International Year of Caves and Karst	
<i>Dr. George Veni</i>	
Minimum Impact Cave Rescue Code.....	15
<i>Brian Evans</i>	
Southern Tasmanian Cave Rescue Exercise 2019.....	16
<i>Alan Jackson</i>	
Above the Nullarbor.....	19
<i>Bronwen Prazak and Stefan Eberhard</i>	
Prostate Pit 6N-1369, Nullarbor Plain.....	22
<i>Norman Poulter OAM</i>	
Texas Caves Revisited.....	28
<i>Rod OBrien, Cathi Humphrey-Hood and Peter M. Downes</i>	

Cover: Nullarbor collapse doline N17

Photograph by Bronwen Prazak (drone pilot) and Stefan Eberhard (photo framing)

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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.

EDITORIAL

FIRE has been the pressing matter on the minds of most Australians for the last few months.

Many karst areas have burned and caving-related infrastructure has been lost.

ASF members have watched on in horror and plenty have also been furiously preparing their own properties and defending them against the fire threat.

Recent serious rainfall has quelled the fire risk but presents new challenges, with torrents of soil, ash and debris rushing into caves, water supplies and houses.

The only words I can think of to adequately describe the situation won't make it past the proofreaders, so I'll simply encourage you to insert your own profanity in response to it all.

A preliminary summary of fire damage to karst areas is provided in this issue.

Once the grieving for the lives (human and native animals), property, infrastructure and amenity is complete there is work to be done to restore things.

Information is provided in this issue for ways to donate monetarily to the cause, with a Karst Conservation Fund-aligned fundraising scheme.

Boots on the ground are always good too, so contact your relevant local and state caving organisations to find out how to get involved with working bees to rebuild the lost infrastructure.

The opportunity to scientifically assess the damage and recovery process at both cave and karst landscape levels has also been identified and people in ASF and ACKMA are currently working to facilitate the gathering of data. Further information and survey forms are available for download at <http://tinyurl.com/r3xs7tg>

Business as usual otherwise for *Caves Australia*. I hope you enjoy what I think is another full and varied issue.

— Alan Jackson

President's Report

BUSHFIRES have affected caves and karst in various regions in Australia this 2019/20 fire season, but they have also affected many cavers and the ASF community's thoughts are with them.

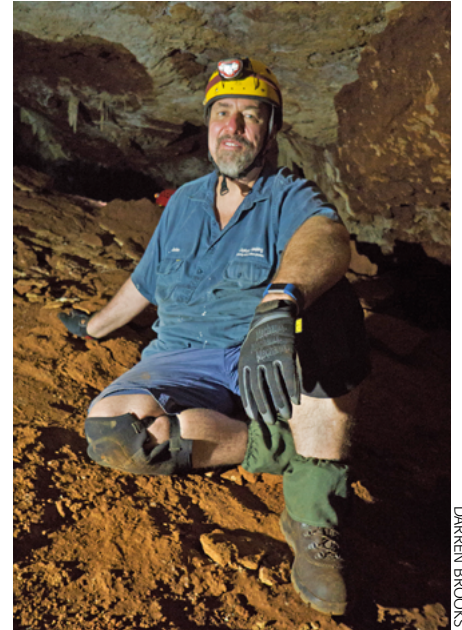
The ASF, through the Karst Conservation Fund, is raising funds for future works for caves and karst areas affected by the bushfires for use in the following ways: initial assessment of the karst areas; projects aimed at cleaning and restoring caves and karst areas; immediate on-ground works to bushfire-affected cave areas; cave entrance stabilisation, fencing and stairway replacements; rehabilitating vegetation in cave landscapes; rehabilitation of critical habitats for microbats and invertebrates; research projects to assess long term bushfire effects on fauna and cave environments; bat population surveys post-fire and replacement of cave entrance identification tags where necessary.

There is a subcommittee with members from ASF and ACKMA working on the best way forward regarding the initial assessment of the caves and karst areas. A pro forma assessment sheet should have been forwarded to your club by the time you read this report. A big 'Thank you' to all who donated money or volunteered time.

The annual ASF Members' satisfaction survey is open at <https://www.surveymonkey.com/r/NYL8S5J>. If you have already completed it, thanks; if not, it will only take about five minutes and your thoughts and comments greatly assist with the direction and running of the ASF for all our members.

From some of the feedback so far, it appears that clubs need to ensure that their members know who their contact is for updating members' details in the ASF Membership Database. Do you advertise in your newsletter who this person is? The ASF is more than happy to walk you through it, but your club needs to make the necessary amendments.

The ASF Council meeting was held on a very hot day in Sydney in January. Several items of business caused robust discussion. We need to be aware when discussing these things that we should respect everyone's right to be heard and we should respect the



DARREN BROOKS

normal meeting practice of putting up your hand and waiting for your turn to make input to the discussion. Remember, we are all passionate about caves and karst and would much rather be underground than dealing with the obligations of being an incorporated body.

The International Year of Caves and Karst is 2021 — the big event for the ASF will be the conference at Ceduna and the post-conference caving trips to the Nullarbor karst area. The UIS will be holding their congress in Lyons in France. It is time for you and your club to start planning for an event or events. It can be as simple as getting underground or conducting a 'meet and greet your local caving club' event. For more information go to <http://iyck2021.org/>. There has already been some good feedback from members.

The ASF Executive has a couple of changes. First a very big 'Thank you' to Grace Matts, who retired at the Council meeting, for her time on the Executive; we are in much better financial position because of her endeavours. Grace has been appointed Non-Executive Vice President – Corporate Knowledge so we can benefit from her knowledge. We welcome a new face from WASG, Valdi Jonsson, on the Executive.

Happy caving — John Cugley

Bushfire Damage at Karst Sites

Cathie Plowman

NC

Andy Spate AM

ACKMA

THE DAMAGE is massive and we will probably never know the full extent of the damage on karst processes and cave ecosystems due to minimal to nil baseline information in most places.

Besides their own close connections to the caves concerned, ASF and ACKMA members have close connections to the staff who manage the caves, guide tours and often have given decades of service and love to the reserves and other karst areas.

We know that this is a difficult time for all concerned and wish you strength.

Here's a summary of information from emails received over recent weeks and examination of fire maps plus a few phone conversations as at 8th February.

However, the fire perimeters indicate just that – in many areas the fires will burn patchily. It will be some time before we fully understand what has happened.

NEW SOUTH WALES

Jenolan

Miraculously, the magnificent Jenolan Caves House was saved, with many of the local staff being part of the local fire brigade.

The fire brigade building was burnt as was the cavers' cottage and two houses. The latter were previously staff houses, but staff had been moved out of the houses in recent years.

The rare brush-tailed rock wallabies are being hand-fed in the caves area, and via aerial food drops.

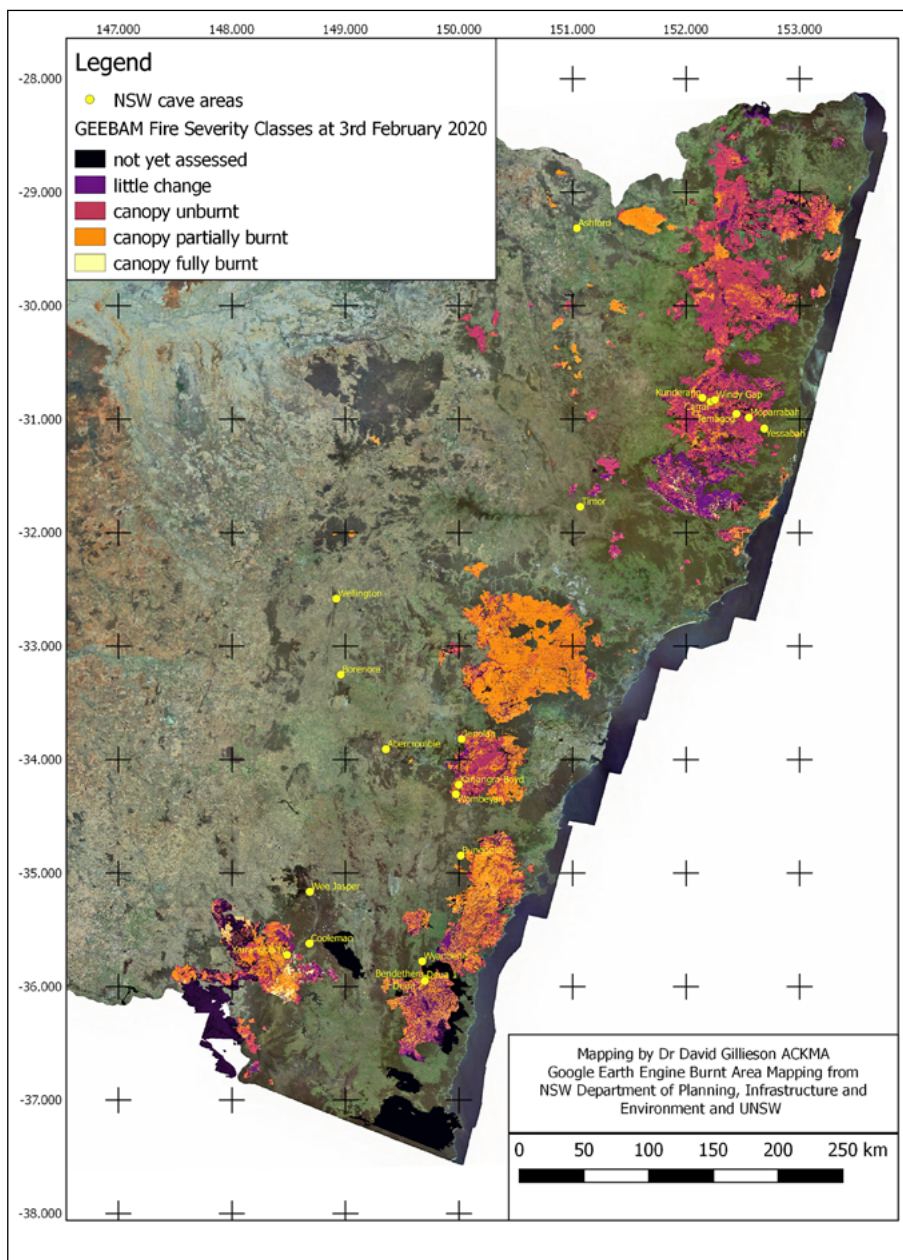
Yarrangobilly Caves

If it was a miracle that Caves House at Jenolan was saved, it was an even bigger one that the historic Caves House at Yarrangobilly was spared.

The area was burnt as recently as 2003 — in an area where a 50-60-year fire interval is expected.

Wombeyan Caves

Significant damage to vegetation, but it seems that infrastructure has been saved.



Map of NSW fires showing the various fires and a few karst areas as at 3 February 2020. The fire intensities can be seen to be highly variable. Map courtesy of Dr David Gillieson.

Elsewhere

Many other cave sites in NSW including Bungonia, Church Creek, Tuglow, some Deua NP areas, southern Kosciuszko NP, Hunter Valley and Macleay Valley and its hinterlands have or may have been

impacted. Plus, many, many other more remote areas. Cooleman Plains has been impacted in part.

Virtually the only major areas not burnt are on the western slopes e.g. Molong-Wellington.



Saved from the fires: Jenolan Caves House

QUEENSLAND

No information. Maybe Texas area?

SOUTH AUSTRALIA

Kelly Hill Caves, Kangaroo Island

The Visitor Centre was lost — the toilets remain. Long-term caves manager Nick Heath lost his self-built home to the blazes while he was away firefighting. We are not sure about Taylors Hill but karst in Flinders Chase National Park has been burnt over.

VICTORIA

Buchan and environs

Dale Calnin from Parks Victoria reported that the Buchan Caves Reserve was directly impacted by the fire event on the evening of Monday 30 December and that the damage was significant and the impact on reserve assets huge.

Assets impacted include:

- Cabin 1 and Cabin 2 have been destroyed.
 - Wilderness Retreats kitchen tent and three accommodation tents were destroyed along with general assets within the retreat area.
 - Two wooden bridges were destroyed: the one between Spring Creek picnic area and the Royal Cave carpark, and the other between the Guide Room and Fairy Cave car park.
 - The Guide Room and the old workshop were destroyed.
 - The Fairy Cave entrance structure will need to be rebuilt.
 - Various light and power poles in the reserve have been damaged.
 - All walking track assets were severely impacted.
 - The power beyond the visitor centre will remain off until further recovery works are completed.
- The reopening of the Buchan Caves

Reserve remains an extremely high priority for Parks Victoria.

Nicholas White from the VSA reports that fire burnt up to the Rimstone Cooperative accommodation Homeleigh fence, but the Country Fire Authority controlled it.

Rimstone also has some private cave reserves and the Scrubby Creek Cave property has been severely burnt. It is expected that boundary fences have been burnt but the condition of the new fencing around the Tufa Terraces is unclear. The Shades of Death property was not touched.

The Potholes Reserve was severely burnt, as were several private cave properties.

Nicholas assures us that the Nowa Nowa bat maternity cave in the Colquhoun Forest South of the Brthen-Nowa Nowa Road was not burnt.

Many of the smaller east Victorian karst areas such as Limestone Creek, the Basin, Jacksons Crossing and New Guinea Ridge have almost certainly been burnt over.

WESTERN AUSTRALIA

Yanchep National Park

The reserve has been significantly burnt, but apparently no infrastructure lost. Elsewhere? The fire on the Nullarbor almost certainly burnt over karst. There was fire around Balladonia. But no map available.

RESPONSES

Some research scientists, ASF and ACKMA people have met via teleconference and many emails to discuss future research, monitoring and funding applications to follow up on the fires. Additionally, they are developing a pro forma for cavers to report on fire impacts. Nicholas White has circulated some information regarding this. More to come,

Cave Landscape Bushfire Rehabilitation Appeal

The recent bushfires have severely damaged many cave areas across Australia. Your donation to the Australian Speleological Federation will help to restore cave ecosystems and amenities.

Two ways to give:

- 1) A GoFundMe site has so far raised nearly \$6000. Funds raised are going to the Karst Conservation Fund <http://tinyurl.com/ubgpp7s>
- 2) Donate directly to the Karst Conservation Fund at <http://tinyurl.com/umknae>

Donations via either method are tax deductible.

For more information download the pdf document KCF Cave Landscape Bushfire Rehabilitation Appeal



The Early Days of Single Rope Techniques

Tony Culberg OAM
STC

AT THE END of my article on Church Creek Caves (Culberg 2019) I mentioned meeting some new cavers.

They were from UNSWSS — University of NSW Speleological Society. As I was attending UNSW I joined UNSWSS.

Sadly, that club, like some other university-based clubs, folded but seems to have morphed into UNSW Outdoor Club. It is mainly rock-climbing and canyoning, with occasional caving.

Sometime during 1970, the club received a letter from a soldier serving in Vietnam with the United States Army. As part of the payoff for Australia sending its troops to Vietnam, the US Army sent plane loads of its soldiers to Sydney for five days of rest and recreation (R&R) leave. Many spent their time in Sydney, exploring the joys of Kings Cross and cheap alcohol.

The writer explained that he was a spelunker and a member of a Grotto of the National Speleological Association in the USA and he would like to go caving while in Australia. UNSWSS wrote back saying a trip could be arranged and they would collect him from Sydney airport and drive him wherever. What type of caver was he? Vertical or horizontal?

The prompt reply was he was a vertical caver. UNSWSS decided that the deepest cave on the Australian mainland was the one to show him. At the time that cave was B31 Argyle Hole at Bungonia. Its total depth is 97 m and there are seven separate pitches, 18, 9, 22, 15, 9, 18 and 37 m. I know — that adds up to 127 metres, but there are uphill bits as well. Total length is 274 m. It features an interesting squeeze or flattener just inside the entrance.

At that time, all vertical work was done with flexible ladders, which were made in two standard lengths, 6 m and 9 m. Before metric conversion (1 July 1974), that was 20 feet and 30 feet. Simple arithmetic says we need at least 16 ladders to make the descent of B31. The backs of vehicles could be quite cluttered with gear. A safety rope was always used on every pitch, so the club also



Tony Culberg demonstrating his best ladder technique on some equipment nearly as old as he is

needed seven ropes, each twice the length of the pitch so a belay could be rigged for the return. The quantity of gear was huge.

So early on Saturday we all arrived at the parking space near B31 and started assembling the gear. Our new American friend was open-mouthed: 'What is all that stuff?' 'Ladders. We use them to go up and down.' 'How?'

For a little while we discussed how US cavers tackled vertical caves, what he had done etc. The response was that the longest pitch he had done en rappel was about 1200 ft (about 365 m) and that there had been two prusiks, using prusik knots on the rope on the way out.

We started putting the ladders back in the cars... but he wanted to learn this new-fangled gear, so we rigged a ladder in a tree and gave some basic instruction. Equally, we wanted to learn from him. He duly instructed us on the use of a prusik knot — not that most of us were unaware of rappel/abseil and prusik. The prusik knot was something we all learned about in case we were desperate and needed to ascend a fixed rope. It was an emergency solution and not a part of the standard repertoire of Australian cavers or rock-climbers.

He got to the bottom of B31 and enjoyed himself. We never heard another word from him. The spark kindled an interest. At the time John Bonwick of Sydney Speleological Society (SSS) made caving ladders. Al Warild reports that he only stopped production within the last couple of years.

Two strands of wire had solid aluminium rungs clamped on them, at a spacing of 1 ft (30 cm). Bonwick ladders could be bought at outdoor equipment stores like Paddy Pallin. Having the rungs at 1 ft spacing made for easy estimation of the depth of a cave. Europe used ladders with rungs at 250 mm (10 inch) spacing for the same reason.

Various members of UNSWSS and some of the less hidebound members of SSS explored this abseil and prusik stuff. Names I remember include Ron Allum, Ric Counsell, Julia James, Neil Montgomery and Andrew Pavey.

Abseiling and canyoning were regularly done by all manner of people, particularly Senior and Rover Scouts. Abseiling ranged from classic — no hardware whatsoever — to various mechanical devices. The simplest mechanical assistance was a sling around the waist with a carabiner. The rope went up over the left shoulder, diagonally across



A selection of terrifying-looking period SRT equipment

the back and was controlled with the gloved right hand. The main friction point was your back. Wear a thick shirt.

In canyoning and most rock-climbing, abseiling was always done using two ropes. The ropes were pulled down behind you and used on the next pitch.

The next advance in abseiling was purely mechanical. The crossed piton, crossed carabiners (aka crossed crabs) and the figure of eight were simple. The whaletail, a machined aluminium block, had the single rope threaded through and all the heat was absorbed by the large block of aluminium. The whaletail and figure of eight were the first dedicated abseiling devices used in Australia. The rack found favour in the USA and eventually here as well. It used the same principle as crossed carabiners.

The user made a sling — 3 m of cable laid rope with the ends joined with a double fisherman's knot. A sling could be either manila fibre or nylon, depending on the budget. This was worn in a similar fashion to a modern harness, but the ropes around the thighs tended to cut in after a while.

The compromise with the metalware was always between having enough mass to absorb the heat and being able to actually carry the weight.

To reduce the problem of the sling cutting circulation, we started making tape harnesses. Lots of 50 mm wide seatbelt webbing were obtained and much time was spent adjusting the knots to give a comfortable fit. Off-the-shelf harness at the outdoor equipment shop was a total unknown.

A very early lesson was that the standard climbing ropes we were all using were not suitable. There was a British Standard (BS 3104) for climbing ropes, which included a requirement that the rope have a minimum stretch at breaking of 40 per cent for a shock load — critical if you are the lead

climber and above the belay point. That guaranteed stretch meant that the first minutes of prusiking were wasted, while the guaranteed stretch did its thing.

Some caving clubs were using a polypropylene rope, orange in colour, as the belay rope on ladder pitches. This rope had very little stretch and floated on water. This was better but turned out to be unsuitable for abseiling. The melting point of the rope was too low and all the heat stored in the abseil device could damage the rope.

Cable laid ropes tended to untwist on a free-hanging pitch; nausea sometimes ensued. Long hair needed to be contained, tied back or tucked inside the helmet.

After much research the solution was found at a ship's chandler. Spinnaker cord, a kernmantel-style rope, needs to have very low stretch and to be very strong. It was available in long lengths. Some was purchased and found to be suitable for both abseiling and prusiking.

Other research found that the Swiss had developed jumars, a set of clamps which allowed the user to ascend a single strand of rope. The French had Petzl ascenders, but we did not see them in Australia until later. Jumars had to be imported — the few outdoor equipment shops in Sydney had not heard of stuff like that. One set was brought in during 1970 by Julia James. These were found to be very useful and far more efficient than prusik knots. Jumars were later found to be very fragile — eek!

The next task was to gather some money to buy the specialist gear. UNSWSS got a contract to clear the furniture out of Women's College at Sydney University — thanks, Julia. The college was scheduled to be redeveloped.

With that money we bought lots of spinnaker cord and the serious development of techniques was on its way. Even then

the decision was that abseil devices, slings, jumars, harness and anything else like that was personal gear. Rope could be owned by a group, although some caving clubs refused to have club rope.

As I recall, the first really serious application of SRT was at the Big Hole, near Wyanbene Cave, south of Braidwood in NSW. The whole weekend was set aside for the activity. Both a ladder and an abseil were set up and various people descended one or both and ascended one or both.

One early discovery was that the rhythm of a person smoothly prusiking set up an oscillation which caused the rope to move back and forth over the edge of the cliff, which ruined the outer sheath of kernmantel-style rope. Rope protectors were quickly improvised; second-hand carpet was an early candidate. We also found that alloy carabiners did not last very long for crossed crab abseiling. Andrew Pavey found quite deep grooves in the alloy crab he was using in IB11 Midnight Hole in January 1971. That carabiner was scrapped in the next available rubbish bin. The combination of a long drop and a gritty rope was very dangerous. There was lots of on-the-job learning. Fortunately, we did not learn about safety issues by accident.

At the ASF Conference in Hobart in December 1970 a major paper was delivered on single rope techniques. I think the response was lukewarm. Some clubs had a huge investment in ladders and did not see their way clear to buy a complete new set of gear.

The post-conference field trips in December 1970 and January 1971 all used ladders and belay ropes. MA2 Keller Cellar at Mt Anne was descended using ladders. The party of 15 carried 600 ft (180 m) of caving ladder (20 ladders) and 1000 ft (330 m) of rope up to the campsite. That was in addition to camping gear and food for four days. JF4 Khazad-Dum at Maydena was explored at the same time using ladders and safety ropes. The effort of getting the gear to the entrance of a deep cave in the 1970s is now matched by the cave divers.

There were numerous articles in club magazines and eventually Neil Montgomery wrote and published *Single Rope Techniques*. It sold well, including several copies to POLSAR in Hobart. And eventually a shop dedicated to selling caving gear was established in Sydney. The Vietnam War and R&R leave have a lot to answer for.

REFERENCE

Culberg, T. 2019. The Cave-in at Church Creek, NSW. *Caves Australia* 210: 5-6

The Wiki Challenge to Australian Speleological Clubs and the ASF

Garry K. Smith
NHVSS

WILL your club take on a project to increase the general public's awareness of the good work Australian speleological societies and their members do in discovery, research, documentation and preservation of caves and karst?

Most people searching the internet for information end up looking at the free online encyclopaedia Wikipedia, which in most cases appears at the top of a Google search.

Ideally, a simple Google search relating to Australian caves should lead to the good work that speleological clubs and the ASF have been involved in.

I know the sceptics among our ranks are saying, 'but we have our own club web page with info on it'. However, I put it to you that your club website is not a reference website, where one can necessarily find notable references to your club's achievements. Your club's website can be seen as biased (as it is advertising your club) and it may not necessarily appear at the top of a Google search.

And yes, you can have a link from a Wikipedia page back to your club's web page.

So far on Wikipedia there are pages about just four Australian speleological societies, as well as the Australian Speleological Federation (ASF) and Cave Divers Association of Australia (CDA).

Wouldn't it be great if every Australian speleological society/club had a page and these pages were all linked to the ASF Wikipedia page?

It was with this thought in mind that NHVSS took on the challenge to get a page on Wikipedia.

The easiest way to get started with writing a Wikipedia page about your club is to look at existing pages. The NHVSS Wikipedia page can be found by searching the site for 'NHVSS' or 'Newcastle and Hunter Valley Speleological Society'.

The link is https://en.wikipedia.org/wiki/Newcastle_and_Hunter_Valley_Speleological_Society.

Other examples are the VSA, SUSS and SSS Wikipedia pages. You can find more examples by searching for overseas speleological groups, clubs and grottos. e.g. 'Grotto (National Speleological Society)', then look for the blue links to Grottos with pages.

HELPFUL HINTS

Here are a few notes for clubs who may like to take up this challenge to submit a draft page about their club/society to Wikipedia. There is an easy guide on how to get started as a Wikipedia contributor at <https://www.wikihow.com/Contribute-to-Wikipedia>.

Use an alias as your registered name and not something like 'Secretary of xxxxxx', as this can be seen as a conflict of interest.

The process of compiling and submitting an article draft can appear a bit daunting at first glance, especially when the author will need to become familiar with the computer script used behind the scenes in Wikipedia.

Take it one step at a time and the process won't be too difficult. There is a bit of a learning curve on how to insert references, however there are shortcut buttons to assist beginners.

The good thing is that an author can work on an unpublished draft page within Wikipedia for months and play around with how it would look when published.

The other thing is not to be disheartened if a submitted draft is rejected — just take on board any comments of the

The screenshot shows the Wikipedia page for the Newcastle and Hunter Valley Speleological Society (NHVSS). The page title is "Newcastle and Hunter Valley Speleological Society". Below the title is a brief description: "Newcastle and Hunter Valley Speleological Society (NHVSS)^[1] is a caving club based in Newcastle, New South Wales (NSW), Australia." The page includes a table of contents with links to History, Activities, Publications, References, and External links. The History section is expanded, showing the society's formation in May 1984 and its affiliation with the Australian Speleological Federation. The sidebar on the left contains various navigation links, and the right sidebar features the NHVSS logo and a table with details about the society's formation, location, affiliations, and website.

administrators and do the best to correct the flaws, then resubmit it. But always keep a backup copy of your working document on your own computer separate from Wikipedia.

Here are a few basic criteria, which must be met in order to get a page accepted.

- All text must be written strictly in a neutral tone consistent with an encyclopaedia e.g. don't include words such as 'I', 'we', or 'our' and if possible avoid the word 'they'.
- The text must be written in the formal tone expected of an encyclopedia article. For more information see, https://en.wikipedia.org/wiki/Wikipedia:Writing_better_articles#Information_style_and_tone
- Avoid 'peacock' terms, as the article will be seen as a promotional article and be rejected outright. Such words to avoid can be found at: https://en.wikipedia.org/wiki/Wikipedia:Manual_of_Style/Words_to_watch#Puffery
- The text must be written from a neutral point of view.
- One of the most important criteria is that every submission to Wikipedia must contain proof of the subject's 'notability' by being referenced in reliable external third-party publications, which are independent of the subject, the subject in this case being the caving club.

If I use the example of the NHVSS submission, this criterion excludes articles published in *Newcaves Chronicles* and *Caves Australia*, as they are not considered independent references to establish 'notability'.

However, references from these two publications can and should be included along with the references from third party sources to 'verify' statements in the article (particularly if they are the only available reference source).

Hence, a draft page about a caving club should not be relying solely on articles published in their own club magazine or in *Caves Australia* to provide evidence of 'notability'.

References linked to YouTube and using other Wikipedia pages as references are unacceptable as reliable sources to justify 'notability' of a subject.

- Another aspect is the level of detail, which can be included or submitted. If there

is too much detail, the article will be rejected. Such is the case with NHVSS's first submitted draft.

For example, the Timor Limestone Quarry court case could not have been contested without the support of the ASF and the dedicated legal team and experts who worked so hard on this case, many of whom are ASF members or have been cavers in the past.

It would be good to acknowledge these people on the Wikipedia page; however, going to this level of detail ultimately results in the draft pages being rejected by the Wikipedia administrators. The saving grace is that within submitted Wikipedia text there is the opportunity to provide references and links to published articles, which have acknowledged the people who worked so hard on this case.

Ultimately Wikipedia is an online encyclopaedia which is continually evolving through the efforts of individuals submitting articles about subjects which they are passionate about. In this light it is good that Wikipedia has such strict guidelines for submissions to be accepted.

I hope this short overview helps ASF members willing to write up a page documenting their club. Hopefully we will see more Australian speleological societies on Wikipedia in the near future.

I put it to everyone to take up the challenge to work toward getting a Wiki page about their own club.

ASF ON WIKIPEDIA

The Australian Speleological Federation, Wikipedia page can be found at https://en.wikipedia.org/wiki/Australian_Speleological_Federation. It currently has the following note at the top of the page, which reads:

'This article needs additional citations for verification. Please help improve this article by adding citations to reliable sources. Unsourced material may be challenged and removed. (July 2009)'

In reality there is a great list of achievements in which ASF has been involved over the years, but very few references to 'verify' the ASF's 'notability'. So, in effect, a Wikipedia administrator could question the notability of ASF, as there are very few

reference sources. Thus the ASF page could be deleted from Wikipedia without 'Verifiable' and 'Notable' references.

Many clubs around Australia have been involved in karst-related court battles, conservation and rehabilitation issues etc., which are mentioned on the current ASF Wikipedia page. If each club could add in references next to the issues in which they were involved, then in no time the ASF Wikipedia page would become a very comprehensive list of achievements. It would also become a place to look for anyone who wants to find out where issues are documented by chasing up the references mentioned on Wikipedia.

But bear in mind that 'references' to things that the ASF has achieved have more credibility if they are from third party reliable sources, e.g. quoted by a government body or another unrelated organisation and in the media (newspapers, magazines).

Suggested items which could be added to the ASF Wikipedia page may include:

- Hosted the UIS 2017 conference in Sydney — The conference being held once every four years in different countries around the world.
- The ASF's Minimal Impact Caving and Safety Standards and Guidelines are recognised by state and federal governments as the benchmark for outdoor recreational industry standards.
- List of speleological societies which are members of the ASF.
- List of the karst conservation battles, where the ASF has supported various speleological societies through the courts.
- Reference and links to various court documents which list the outcomes plus newspaper articles and books which refer to the cases.
- A brief list of the major conservation projects sponsored by ASF. Maybe just one or two sentences.

Bear in mind that if there is too much in-depth detail included in the Wikipedia entry, it will be rejected by the Wikipedia gurus who lurk in the background.

They are very picky with wording, so anything written must not be biased or appear to be promotional — just the bare facts and as short and concise as possible.



Spotlight on Cave Animals

Cathie Plowman
NC

FORTY CAVERS, all refreshed from a rescue exercise that ended after midnight the night before, crowded into a family living room provided a party-like atmosphere to launch the 2020 Australian Cave Animal of the Year.

As you have hopefully learnt by now, Australian cave crickets are our 2020 cave animal.

That's right, not one particular species, but the 22 described species of cave crickets in eight genera within the Australian *Rhaphidophoridae* family (pronounced Rap-hid-o-phor-idea).

This ancient family originated before the break-up of the old super-continent of Gondwana. Take a bow, cave crickets!

Cave ecologist Sil Iannello can rightfully take a bow, as she plied me with published cricket research and assisted me with the preparation of text for our 2020 cave animal website, poster and bookmark.

Sil then turned the story of cave crickets into a poem which she read at the launch. The poem honours pioneer (woman!) entomologist and cave cricket and glow-worm researcher Dr Aola Richards, for whom *Archnocampa richardsae* is named. Yeah, go look that one up.

A good party needs a cake and Penny Pops of Hobart provided a wonderful cake that will be hard to beat.

This effort to promote cave animals is nothing without our promotional materials and joining us for the launch were our illustrator, Sam Lyne, and graphic designer Kelly Eijdenberg.

As reported in the December 2019 issue of *Caves Australia*, our poster, bookmark and sticker have all won awards, including print industry awards in Tasmania and awards at the National Speleological Society convention in the USA last June.

If you can display a 2020 poster in a public place, let me know and I'll post you one.

Likewise, if you haven't got your cave cricket bookmark yet, send an email to hello@caveanimaloftheyear.org.au

Please share our website and like and



GARRY K SMITH

The star of the show — an Australian cave cricket at Jenolan Caves

share on Facebook to help raise the profile for cave animals. Cave animals will have fared poorly with major bushfires in karst areas in NSW, Buchan and Kangaroo

Island. In many cases minimal baseline information means that we will never know exactly what the impacts are.

www.caveanimaloftheyear.org.au



GABRIEL KINZLER

2019 and 2020 Cave Animal of the Year promotional posters

GABRIEL KINZLER



Cathie Plowman, Kelly Eijdenberg, Sam Lyne and Sil Iannello at the launch



KELLY EIJDENBERG

The spectacular cricket cake



GABRIEL KINZLER

Anna and Ben Jackson cut the cake

The Australian Cave Cricket Poem

Australian Raphidophoridae

Sil Iannello
FUSSI

I'm a very special critter you know, and quite ancient too.

I date back in time, to Gondwanaland.

Even without wings, I got from place to place, until those land bridges closed.

Apart from a few relatives in far north Queensland, we don't talk about them.

I'm confined to the southern & south east of the land.

I'm a little like you, I prefer caves too.

In fact, they're my home, lava, granite, limestone, heck even sandstones...

Which all you southerners know.

You may have passed me on the way in.

I'm brown, sparsely hairy, with long and slender drumstick golden spotted legs. My wife who can be bigger than me, may get in your way — watch your step! She carries my future ME's.

She'll bury these eggs in the substrates that you see, so take it easy and let her be.

I don't bite, and I certainly can't chirp, like my ancient acoustic allies do... but I give a mighty fright.

You'll see me jump at you from a height, Get out of the way! I could be endangered or endemic you see... That's something very special about me.

We're often fought about by you, called troglaphiles or troglaxenes.

There doesn't need to be a fuss, it's all the same to us.

We just like to keep cool and come out at night to feed...

Deep in the forest we can be seen munching on leaves, but our favourite piece of dinner is another critter if it happens to be.

After this, it's back in the cave it seems, where we can be found in large clusters making a scene.

This is where we mingle and meet with our relatives from Juneë-Florentine...

See, off the mainland we rule in large numbers from the north to the sea.

I think that's just enough about me, but, we'd like to thank Entomologist Aola Richardee.

I'll leave it at that, but please respect and be kind to me,

I'm the very special 2020 Australian cave animal of the year you see...

UIS 2019 News

and Planning Guide for the International Year of Caves and Karst

Dr. George Veni
UIS President

THIS REPORT is part of an annual series from the International Union of Speleology (UIS) to the newsletters of its member countries.

The purpose of these reports is to reach cavers in the member countries with important news from the Union. For more information about the UIS, visit www.uis-speleo-org, which includes the UIS Bulletin with many more details.

This report covers some recent UIS activities but focuses on preparations for what could be the most important speleological event ever!

2019 IN REVIEW

During the last year of the decade, the UIS made a lot of quiet but important progress. Some work focused on supporting speleological research, events and scholarship through funding and assistance to the following international conferences and expeditions:

- 13th EuroSpeleo Forum, Bulgaria;
- Documentation Project of Caves and Biospeleological Studies in the Karst of the Serra da Bodoquena, Brazil;
- Man and Karst Conference, Italy;
- Resurvey of Cueva de Santo Tomas, Cuba;
- Guardians of the Earth Cave Clean-Up Project, China; and
- 3rd Asian Trans-Disciplinary Karst Conference, Philippines, which included support for 10 students to attend.

Our commissions have been productive. The Artificial Cavities, Glacier, Firn and Ice Caves, Pseudokarst and Volcanic Caves commissions either hosted a symposium or planned one in 2020, while the other commissions worked on a variety of other projects. The *International Journal of Speleology* continued to publish an impressive series of scientific studies.

Our members in France worked to prepare the next International Congress of Speleology (ICS). Their work became



harder when circumstances beyond their control forced them to change venues toward the end of the year. The 18th ICS will now be held in Le Bourget-du-Lac, Savoie, France, from 25 July to 1 August 2021. It is only about 90 km east of Lyon and 70 km south of Geneva, Switzerland, both of which have major international airports.

The location is gorgeous. Spectacular caves abound. By all indications, this will be a well-attended and enormously successful ICS. For the latest details, follow the 2021 ICS website: <https://uis2021.speleos.fr/>.

Each ICS has published proceedings which contain a tremendous amount of valuable information, but few people have complete collections.

The first 12 proceedings were printed on paper and are now lost to time and difficult to find.

Through the efforts of UIS members around the world, those volumes are now scanned and all 17 proceedings are freely available on the UIS website and the Karst Information Portal (www.karstportal.org). They total 18,893 pages!

The majority of UIS work in 2019 was in preparation for the International Year of Caves and Karst (IYCK).

The IYCK will be celebrated in 2021, with the ICS in France being its largest single event. The IYCK will be the most significant event to advance speleology, but only if you participate.

The rest of this report is a planning guide

to help you and your organisations make it a success.

AN INTRODUCTION TO THE INTERNATIONAL YEAR

International years are typically organised under the auspices of the United Nations (UN) or the UN Educational, Scientific and Cultural Organisation (UNESCO).

Their primary purpose is to educate the public and celebrate important aspects of life and the world around us. They are a series of events by international teams that include partners from non-governmental organisations, government agencies, businesses and interested individuals. When the year is over, there is a great worldwide increase in appreciation for the year's topic, which often appears as increases in funding, better regulations and protection of peoples and important areas.

The IYCK will not be a UN or UNESCO event. Currently, the UN and UNESCO are not supporting most international years and we have been advised to organise the IYCK on our own. This makes sense because even with UN or UNESCO support, most of the IYCK work will still fall on the UIS and its partners.

The IYCK Planning Guide below will give you the information you need to organise events in your countries and raise the level of understanding and respect for caves and karst as globally important physical, ecological and cultural systems. A successful IYCK will lead to new caves opened for exploration, and more funds and support for exploration, research, management and protection at levels we've never seen before.

SEVEN SIMPLE STEPS TO A SUCCESSFUL IYCK

'Do what you can.' This is the simple guidance we give to everyone as they begin their involvement with the IYCK.

The UIS will not make your participa-

tion in the IYCK difficult or beyond your abilities. We recognise our partners represent diverse cultures, skills and resources. Therefore, as you read the following steps, please remember that we ask you to do what will be most successful for your culture, appropriate to your skills and within the limits of your resources. No single person or group can do everything, but together we will reach people across the world.

While the following steps are written for organisations, from international associations to local clubs, they also apply to people who are not members of organisations but who want to contribute as individuals.

Step 1: Start Planning Now!

As you read this, you may think that you have a year or several months before the IYCK, and that you have a lot of time to plan.

For many activities, you will need to coordinate now to work effectively with partners and reserve dates on people's calendars, plus reserve places to meet for your events.

One year is not much time! By the end of 2020, you will want your activities well planned and announced to maximise the number of the people who will attend.

Step 2: Get Organised.

Create a committee or team that is committed to arrange events and activities from your organisation.

Discuss in general what you would like to do for the IYCK and assign people to work on whatever is needed. That could be a website, social media or fund raising. Other jobs can be assigned later when more detailed plans are known.

Step 3: Create a List of IYCK Activities.

Think about your area and the people you want to reach. Remember that the IYCK is to educate the general public, including educators, politicians, scientists, businesses and land managers who need to know about the importance of caves and karst.

- What will interest those people?
- How can you get them involved?
- What physical resources are available to you, such as caves, parks and lecture halls, and community events you can join, such as festivals, meetings and parades?
- Can you organise one event or several? Ideally, it would be good to have an event every month of 2021 and in different locations and on different topics. If that is not possible, then maybe an event every two or three months. The IYCK is a year-long celebration of caves and karst, so activities that occur throughout the year



UIS President Dr George Veni

are best. If this is not possible, do what you can. It will all help.

- What types of events and activities should you organise? There are many possibilities. Here are a few examples:
- Lectures for the public and school groups.
- Educational caving trips and walks through karst areas.
- Demonstrations of caving techniques.
- Interviews on television and other media.
- Public cave art projects.
- Meetings with politicians and other decision makers.
- Exhibitions of cave photography.
- Cave film festivals.
- Community clean-ups of trash in sinkholes or graffiti in caves.
- Public conferences, symposia or other meetings on important cave and karst issues in your area.

Your events should be fun, but also teach the importance of caves and karst and the threats they are facing.

If you are organising a caving convention or a karst science conference in 2021, you can still include the public. For example, for a caving meeting you may be able to invite the public to participate in rope climbing, SpeleOlympics and photo exhibition activities. For science meetings, perhaps you can plan to give away a few free registrations to influential non-caving scientists, managers and educators who would benefit from attending.

You are limited only by your imagination, resources and partners. Speaking of which...

Step 4: Develop Partnerships.

The world is a big place and we need your help to reach everyone. As you think about partners, don't just think about people who explore or study caves, but people

and organisations who don't realise they are affected by caves and karst.

Making them partners in the IYCK is a huge step in making the IYCK a success. Here are some examples of potential partnerships:

- Museums for exhibits on caves and karst.
- Parks and show caves to assist with special 'cave days' with educational activities.
- Local or regional governments to recognise the IYCK at special events and pass laws needed to better protect caves and karst.
- Environmental and business organisations, to teach them how caves and karst are important parts of our physical and business environments.
- Schools and universities to plan educational events for students of all ages.
- News media for increased publicity on the IYCK.

Step 5: Create and Announce your Schedule of Events.

Promote your events in your area through direct advertising, news and social media, email lists and through your partners. It is also important to announce your events on the IYCK website: www.iyck2021.org. In addition, if you see that your national or international organisation is not listed as a partner on the IYCK website, send your logo and website address so they can be posted.

While you may work on the IYCK entirely in your area with little or no participation from other regions, listing your events and partnership on the IYCK website will encourage participation from outside your region. It will also grow and increase enthusiasm and support for the IYCK and demonstrate the truly international reach of speleology.

With your announcement, make sure to prepare information to distribute at your events:

- Send people to the IYCK website to learn about caves and karst.
- Download the IYCK logo and leaflet from the website. Use the logo in your promotions and print as many copies of the leaflet as you can for public distribution.
- Find and distribute other information too, especially if it is important to caves and karst in your area.

Step 6: Host your Events.

Make sure to plan the details of your events well in advance. The only things that should be done at the last minute are the things that can only be done at the last



minute. You are trying to impress the world about caves and karst, and to succeed you need to impress everyone that you are prepared, organised and professional.

Make everyone feel that you are giving them special attention and support. Make it easy for the public to attend and participate in fun and interesting ways. The IYCK should educate, impress and engage people. If possible, make sure everyone gets a gift or some information they can take home to remember the IYCK. Emphasise the motto of the IYCK: Explore, Understand and Protect.

Step 7: Record and Post your Events.

During your events, assign someone to take photos, video and collect other information to record the number of people, activities and fun. Afterwards, post them on your website and social media. It is also critically important to also post or link them to the IYCK website. In early 2022,

we hope to have records of all IYCK events around the world on the IYCK website. This is vital to prove the IYCK was a success, and that caves, karst and their explorers and scientists should be taken seriously.

SUMMARY

The UIS is the International Union of Speleology:

International—everyone in the world!

Union—working together, and for what?

Speleology.

For the IYCK to succeed, I ask everyone who enjoys and cares for caves to join the UIS in creating IYCK events for your town, region, and country.

The UIS, its member countries, organisational partners, individual cave explorers, scientists, managers and educators have done tremendous work over many decades to improve the world's understanding and appreciation of caves and karst.

However, despite all of our combined

accomplishments, caves continue to be destroyed. Trash is still dumped underground. Karst aquifers are polluted. Many rare cave ecosystems are now endangered. Precious archaeological and paleontological materials in caves are still commonly lost and looted. And sadly, many government officials, educators, and even scientists and environmental managers do not understand caves and karst enough to prevent these tragedies, or even recognise that they are tragedies.

With your help, together we will educate the world through the IYCK about our precious caves and karst areas. Together, we can save the world's caves and karst for the future.

Please watch the IYCK website for news, send ideas and information to improve the website and IYCK, and feel free to contact me (gveni@nckri.org) or other members of the UIS Bureau at any time if you need assistance or have questions.

Minimum Impact Cave Rescue Code

Approved by ASF Council January 2020

Brian Evans
ACRC

SUMMARY

Council approved the draft Minimal Impact Cave Rescue Code in January.

The full text of the code is at: <https://www.caves.org.au/administration/codes-and-standards>. The aim of the code is to reduce impact to caves in the event of rescues, or from training for rescues.

It is acknowledged that rescue from caves is typically difficult and complex, and that successful rescue outcomes depend on rescuers that train in, and know cave environments, and that cavers are best placed to both protect caves from unnecessary damage and assist emergency services in doing the same.

All cavers should be encouraging relationships with emergency services and this code provides a way to do so and supports the building of relationships between cavers and those that might be involved in a rescue.

Keep our caves in the best condition by avoiding the need for rescue (!) and seeking opportunities to train with emergency services, so that they know the ways to cave softly, and build trust in cavers to be effective allies in the case of a rescue. Both of those things should result in lower impacts to caves in the event of an authentic rescue and training should result in no more impact than an ordinary caving trip.

It's also worth thanking the many people who worked their way through the revision of this code.

Some of the big contributors were: Deb Hunter, Andreas Klocker, Andrew Baker, Janice March, Alan Jackson, Al Warild, Stefan Eberhard, Ian Collette, Paul Osborne and all of those cave rescuers who attended the workshop in Adelaide in September.

Finally, visit the link and at least skim the code — it's a good reminder of minimal impact caving techniques in general, and adds to the Code of Ethics and Minimal Impact Caving Code that we already have in place.



Southern Tasmanian Cave Rescue Exercise 2019

Alan Jackson
STC



RICHARD BUGG

Up and away on a high angle tyrolean

SOUTHERN Tasmanian Caverneers (STC) have made a habit of running an annual cave rescue exercise for several years now.

The 2019 exercise was run on the last weekend of November and was easily one of the most ambitious to my knowledge. In the true spirit of a genuine Tasmanian cave rescue it was wet, cold, miserable, arduous and long.

I don't think there were any tears but there were certainly some wrecked individuals traipsing through the rainforest in the wee hours of Sunday 1st December.

The exercise was attended by 51 individuals from a variety of clubs and agencies (STC, Northern Caverneers, Flinders University Speleological Society Inc. (FUSI),

Victorian Speleological Association, RMIT Outdoor Club, Cave Rescue Squad New South Wales (CRS NSW), Ambulance Tasmania, Ambulance Victoria, Tasmania Police, State Emergency Services (Tasmania and South Australia) and even a visiting Polish caver.

The venue was the entrance streamway section of Growling Swallet — a robust and large cave capable of absorbing such large numbers without compromising on scenario authenticity or unnecessary cave impacts (this section of the cave floods violently multiple times each year).

The large numbers resulted in many valuable lessons in logistics and managing unwieldy groups in a cave rescue situation (and yes, some of them were learnt the

hard way). While it got messy at times, the numbers (of both individuals, agencies and clubs represented) was the major win on the day, with the development of new relationships and appreciation of others' skills a significant planned and achieved objective: mutually respectful friends perform better in teams than strangers.

Seven underground rigging teams pieced together an elaborate network of rigging totalling ten tyroleans, six hauls and one lower, punctuated by multiple lengthy stretcher carries in quite challenging conditions (80 per cent of the 'course' had loud cascading water rendering inter- and intra-team communications difficult).

Four individuals savoured the delights of the surface, running comms, personnel



RICHARD BUGG

The patient, Chris, loaded and ready to roll on the first tyrolean



RICHARD BUGG

Brian Evans using a Rod Burton/CRS NSW Michie phone base station



RICHARD BUGG

A precarious tyrolean transition

RICHARD BUGG

Negotiating 'The Cascades' via tyrolean

logs and the teapot. Michie phones and FUSSI's brand new CaveLink comms were used, both to good effect. The unfortunate Chris Sharples suffered a long and arduous journey in the stretcher as patient and was remarkably calm and (mostly) happy throughout.

Many thanks to all who attended, particularly those who travelled not inconsequential distances and at considerable personal expense. Some names need singling out:

- Serena Benjamin (STC) for assisting with pre-exercise organisation.
- Al Warild (CRS NSW) for yet another application of immense cave rescue knowledge in the comprehensive, no fuss manner that has become typical of his efforts across the country in recent years.
- Brian Evans (ACRC Co-ordinator/Supreme Leader) for not only gracing us with his presence but for helping secure funds to subsidise the attendance of FUSSI personnel and the CaveLink system as well as demonstrating his amazing ability to strip the cave of all underground comms systems before the patient extraction was even half completed ... genius (the force is strong with this one).
- ASF for providing travel subsidies for FUSSI/Cave Link.

■ Richard Bugg for arriving as an Ambulance Tas paramedic but leaving as official preferred cave rescue exercise photographer — there's no point rescuing someone if you don't have exceptional photos to prove it!

We certainly ticked some boxes on the ACRC's aims and priorities list with this exercise but we're not good enough yet though and more practice is required.

There will certainly be a 2020 Southern Tasmanian cave rescue exercise later in the year but hopefully, for the sake of the author's blood pressure and mental health, it will be a slightly lower-key scenario than in 2019.



Above the Nullarbor

**Bronwen Prazak (drone pilot)
and Stefan Eberhard (photo framing)**

DURING 2019 we enjoyed several weeks on the Nullarbor Plain with a drone camera. Initially we assisted the Bannunga Cavers with locating and recording caves in the Bunda Cliffs as part of a permitted scientific research project.

After this we travelled inland to capture images and video of the spectacular collapse dolines and caves for which the Nullarbor karst is renowned.

We were enchanted and enthralled with how well the drone captured the beauty of the Nullarbor landscape and its dramatic karst features.

COVER PHOTO

The massive collapse doline N17 (right) is 80 m in diameter and 30 m deep. The base of the doline is completely plugged with collapsed rocks and there appears to be no way into the massive flooded conduit that probably lies another 50 m or so below the doline base. The vehicle track follows a line of shallow depressions suggestive of the subsurface flow path leading 1.5 km to the next collapse doline N3.

BRONWEN PRAZAK & STEFAN EBERHARD



BRONWEN PRAZAK & STEFAN EBERHARD

The Bunda Cliffs extend continuously for nearly 200 kilometres from the Head of Bight at the eastern edge of the Nullarbor Plain to this point just east of the South Australia-Western Australia border. The cliffs are 80 to 90 metres high. The prominent white band is the Wilson Bluff Limestone (~43-36 million years old) and the upper dark coloured layers are mostly Abrakurrie Limestone (~26-23 million years old) with a thin capping of Nullarbor Limestone (~16-14 million years old). The ocean is actively eroding the soft Wilson Bluff Limestone and undercutting the cliffs causing massive chunks of Abrakurrie and Nullarbor Limestone to break off and collapse into the ocean.

BRONWEN PRAZAK



The edge. A bird's eye view of the Bunda Cliffs where the surging Southern Ocean and the Nullarbor Plain abruptly meet each other. Aerial surveys by cavers have identified many cave entrances exposed in the cliffs. In this wildly exposed setting the Banunga Cavers have been systematically exploring and surveying these unusual cliff face caves over the last 20 years. The group has developed techniques to safely deal with the sharp friable edges, loose rock, strong winds and gripping exposure. In this shot the ocean is 80 to 90 m below the cliff edge.

BRONWEN PRAZAK & STEFAN EBERHARD



Red planet. Like a Martian crater, the beautiful symmetrical entrance of N40 is cast in dark shadow at sunset. The doline entrance is 40 m in diameter and about 25 m deep. The vehicle on the right gives scale.



BRONWEN PRAZAK & STEFAN EBERHARD



Cave entrances such as N37 are formed by gradual upwards collapse of the roof of an underlying passage/conduit. In some cases a saddle of rock remains in the centre of the collapse with entrances at each end of the doline.

BRONWEN PRAZAK & STEFAN EBERHARD



Scarred. The impact of vehicles and erosion on the fragile Nullarbor soils have become increasingly evident at the entrance to Cocklebidy Cave (N48). Between the individual bushes (salt bush or blue bush) the darker surface is a delicate wafer-thin crust of cryptogams (fungi, mosses, algae) which binds the soil surface and inhibits erosion by wind and water. Once the cryptogam crust is broken by repeated vehicle, foot or animal traffic (kangaroo tracks are visible in this photo) it is very slow to recover. If this process continues, by repeated vehicle traffic and camping for example, the clayey soil becomes strongly compacted and no cryptogams or other plants seem able to grow on it. The evident damage and scarring at Cocklebidy has developed over the last 37 years since 1983 when the cave became famous for the world's longest cave dive (6.4 km). Over the years it has been visited by many curious road travellers who take the dirt track leading 10 km north of the Eyre Highway, situated just west of its namesake, Cocklebidy Roadhouse. After rain the dirt track becomes very slippery with bog holes, and the track tends to become ever wider as drivers seek to avoid getting bogged. The extra wide track on the right has been closed off and ripped by the WA Parks and Wildlife Service in an attempt to rehabilitate it.



Prostate Pit 6N-1369

Nullarbor Plain

Norman Poulter OAM
NC, SRGWA

NESTLED to one side of a large, gently sloping limestone pavement on the Hampton Tableland section of Mundrabilla Station, Western Australia, lies the entrance to Prostate Pit, 6N-1369.

Unlike some of the more spectacular Nullarbor cave entrances, such as Weebubbie (6N-2) or Mullamullang (6N-37), Prostate is quite small and unobtrusive.

As one might imagine for a cave named after such a sensitive area of the human body, one doesn't walk, clamber or abseil into Prostate — one steps, squats, ducks and waddles a few metres into the low, dusty chamber beyond, all the time hoping that there are no resident snakes lurking amongst the numerous rocks which make up part of the entrance.

Though dusty, the entrance chamber is quite spacious and makes a welcome retreat from prevailing weather extremes, whether they be cyclonic, wintery or broiling.

Although this author has not noticed any artifacts or wall markings, the entrance zone would have provided easy shelter for the Mirning Aborigines who still inhabit the Plain.

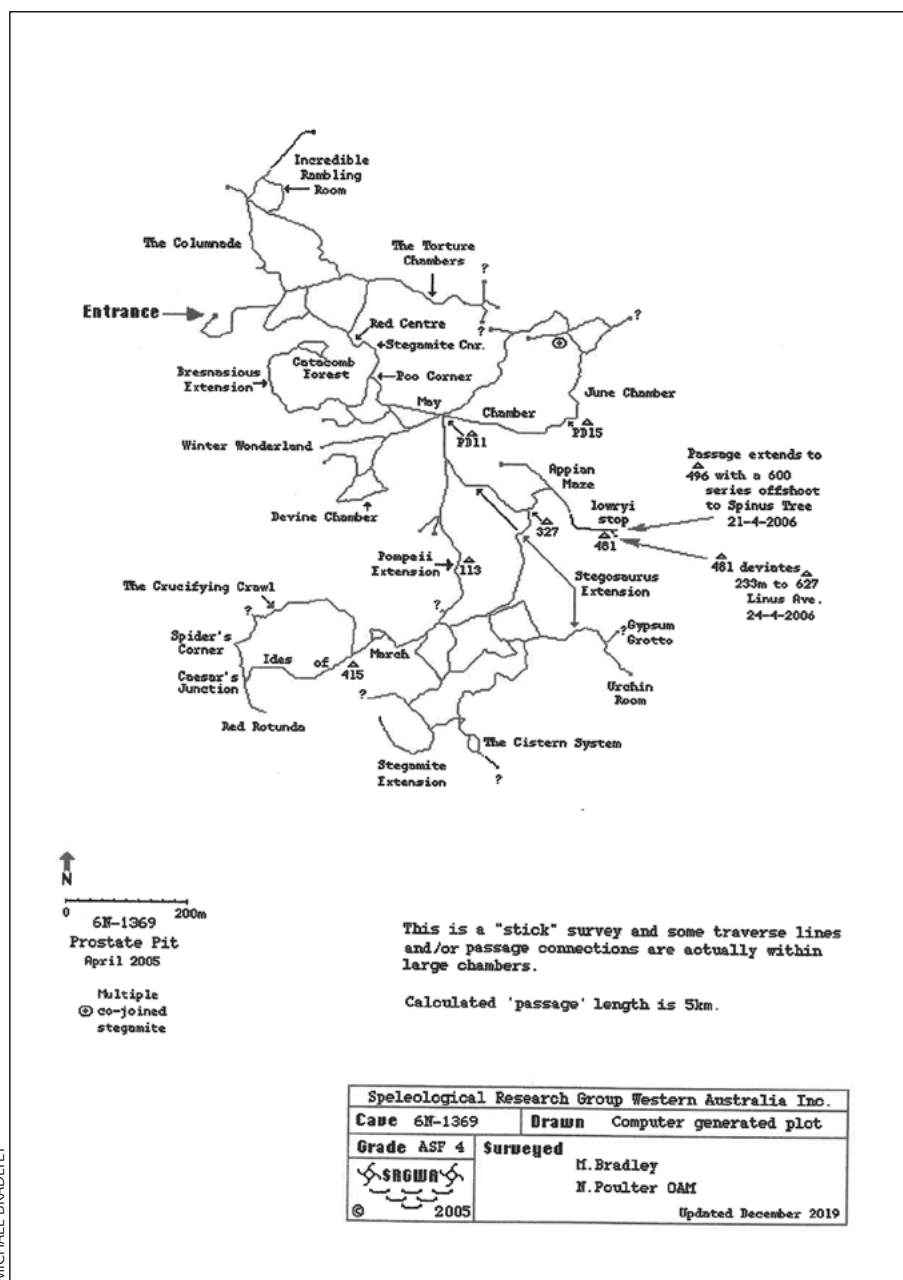
Evidence does exist that European settlers may have found the cave after brothers Tom and John Kennedy arrived with Bill and Annie McGill to establish Mundrabilla Station in 1871 (Collins 2008).

From a speleological point of view, Prostate Pit was discovered during aerial searching by ultra-light aircraft belonging to members of the Western Australian group, Plane Caving, in April 1995 and tagged accordingly.

Plane Caving was made up of ultra-light enthusiasts and members of the Western Australian Speleological Group Inc. (WASG) and the Speleological Research Group Western Australia Inc. (SRGWA).

The 'Nullarbor Legend' David 'Max' Hall was a member of the discovery team, as were future SRGWA members Judy Shaw and Phil McGuigan.

Apparently another Plane Caving member, the late Lindsay Hatcher (WASG)



MICHAEL BRADLEY

Survey of the Prostate Pit system, 2005-2019

named the cave in honour of a friend who was suffering prostate problems at the time. Only minimal exploration seems to have been carried out at this time.

When speleologists first entered the cave in 1995, a salt-encrusted length of string —

cave-string — was found in the Dark Zone tied to a piece of ceiling decoration and trailed a short distance into the cave.

This string has since been attributed to long-term Nullarbor residents Denis Nash or Charlie Goringe, who may have explored



Knobby halite forest, Devine Chamber, Prostate Pit

the cave, among others, in the 1960s-1970s or even earlier (see OzKarst summary 2019).

A large SRGWA expedition to the Nullarbor, led by Heather Jefferies and Wayne Tyson, took place during June 1998. This included such Nullarbor luminaries as Max Meth, David Hall and the late Paul Devine. Several other participants had never been to the Nullarbor before.

Among other speleological diversions, they also visited Prostate Pit. The late Ric Brown, Heather and Wayne began a survey a short distance into the cave but failed to find continuing passages (Anon. 1998)

Later in the day, while the survey of the cave's entrance area continued, a 'tourist' party consisting of Max Meth, David Hall, Pat Richardson, Vicki Bresnan, Karen Morley and Paul Devine actually found a continuing passage that did not appear on the subsequently published map and may have penetrated almost as far as what later became known as Stegamite Corner.

Almost two years later, SRGWA launched another large expedition with many of the previous participants (Brown R. 2000). Prostate Pit was visited on two occasions.

Pat Richardson led Vicki Bresnan along and through a crawlway into a large chamber, later named the May Chamber. They were joined soon after by Paul Devine, who

promptly discovered another heavily decorated section 20 m long.

Two days later they returned to survey the new extension. Paul then discovered another highly decorated chamber some 40 m long which was initially called the B Chamber, but later changed to the Devine Chamber — a play on words, really, as the mainly halite decoration was indeed divine,



Halite stalactite on calcite, Devine Chamber, Prostate Pit

but also as a tribute to Paul's exploratory skills.

Beginning from a point on the original 1998 survey, a traverse line and rough unpublished sketch map was completed into the May Chamber with lots of enticing question marks appearing at the entrances to possible leads. Several of the survey stations were incorporated into the subsequent and continuing unpublished 'stick surveys' of the cave, appearing with a 'PD' prefix.

My involvement with Prostate Pit began during a drive across Australia, in company with my son Robert and Vicki Bresnan at the end of 2000, in order to attend the Cave Odyssey ASF Conference in Bathurst, NSW (Poulter 2001).

Vicki, still excited by the discoveries she had shared in months earlier, was keen to show me the magnificent halite decorations that so few had seen. She was even more pleased when she successfully navigated our way into the May and Devine Chambers. It was also at this point that she suggested that this cave really needed to be mapped.

And so the survey saga began. In April 2003, a combined SRGWA-WASG trip took place (Poulter 2003) tying in with, but bypassing, the earlier work of Ric Brown and others (Anon.1998). The party included Judy Shaw and Phil McGuigan, members of the original 1995 discovery team. Although



The Stegosaurus

some wall detailing initially took place, a decision was ultimately made to only conduct a 'stick survey' until such time as the cave's extent could be determined.

During this excursion, the Bresnascious and Pompeii Extensions were discovered and mapped. Route marking was also carried out using the reflective track marking system developed by me during the late 1980s. Numbered reflective blue survey markers were also employed and left in position. These reflective innovations have proved crucial as the complexities of the cave became apparent. It was not unusual while trying to examine a seemingly solid 'wall' of rock or decoration to walk through it into another chamber or passage. A series of continually updated, annotated 'stick maps' (2003-2005) were printed from the computerised survey program but with the exception of the 2003 version, never published.

Any long-term undertaking depends entirely on the availability of participants. In relation to the Nullarbor, reliance is on participants who regularly have the time to be away from home for more than a week and the expertise to undertake particular tasks. Thus, it quickly fell to Vicki Bresnan, Michael Bradley and me, all retirees, to carry on the survey.

Although not part of the initial survey trip of early 2003, SRGWA's resident lead surveyor and cartographer, the late Michael Bradley, quickly became involved, making his first foray into Prostate Pit during the October-November trip of 2003.

Michael's expertise had earlier been recognised, tutored and nurtured by WA's ace surveyor, Barry Loveday. Michael subsequently participated in the surveying and drawing of maps from such diverse areas of Wanneroo, the Leeuwin-Naturaliste Ridge

as well as the Nullarbor Plain.

During a follow-up survey trip in March-April 2004, where the previously discovered June Chamber was plotted, a multiple co-joined stegamite was encountered and mapped. More stegamites of all shapes and sizes were later encountered in a new extension leading off from the Pompeii Extension that was aptly named the Stegamite Extension. A later extension containing a large stegamite with multiple heligmites and stalagmites along its ridge was named the Stegosaurus Extension due to its resemblance to the profile of that particular dinosaur.

STEGAMITES? WHAT ARE THEY?

During the late 1980s or early 1990s, a member of WASG, Rauleigh Webb began promoting his discovery of a new type of Nullarbor decoration similar to cave shields which are mainly described from the USA.



Fossil lake levels in the Cistern system

Cave shields can form on a cave floor, wall or ceiling by the calcite solution 'being forced from the medial capillary crack at the rim of the shield' (Webb 1991).

Stegamites, on the other hand, had only been discovered as a floor decoration, usually associated with 'black' calcite, and Webb postulated that calcite-rich water was being forced up through micro-cracks, creating a ridge that slowly grew higher. One newly discovered cave in particular was found to contain 30 of the features, prompting him to name the cave (6N-149) Stegamite. He came in for much sceptical criticism until other caving parties found stegamites in numerous other caves.

Michael Bradley's first trip into Prostate Pit took place during an excursion in October-November 2003 and by the end of the March-April 2004 trip passage length had grown to almost 3 km, with the discovery of the Stegamite and Stegosaurus Extensions in addition to the June Chamber.

Constant crawl sections had taken its toll on Vicki's enthusiasm and, although she was still interested in future discoveries, she withdrew from active participation at this point.

Prior to 2005, the only fauna seen in the cave were blind cockroaches associated with tree root tufts, cave beetles, crickets and occasionally bats. There were no predators as such.

This was about to change. Michael and I moved out of the 'Pompeii Extension' into new territory that we called the 'Ides of March'. Shortly after passing 'Caesar's Corner' we entered a red soil area that we dubbed the 'Red Rotunda'. It was here that Michael encountered a mature female *Tartarus* spider, near to tufts of tree roots. The web structure appeared different from others what we had found in other caves but still belonged to the southern variety of the species.

Two days later we returned to this area, and shortly after, named 'Spider's Corner' with the discovery of not only several more *Tartarus* spiders, but also the as yet un-described Icona spider. This spider was discovered by myself in two caves on the Roe Plain during the 1980s more than 70 km away. The discovery on the Hampton Tableland would seem to greatly increase the likelihood of finding it residing in other caves of the region.

From here, we painfully worked our way into and through the 'Crucifying Crawl', a passage of relatively 'fresh' and sharp breakdown blocks, not looking forward to the possibility of having to retrace our steps if the passage terminated. We were extremely grateful when we popped back into the 'Ides of March' passage.

Passage length was now tantalisingly close to the 4 km mark, but Michael was dissatisfied; he wanted to exceed it. At the time we were discussing this point, we were in part of the 'Stegosaurus Extension'. Noticing a nearby void, I suggested that we look down there. Thus we entered the 'Cistern System', an area, like most of the cave, that has not yet been fully and carefully explored. The 'Cistern System' seems to be full of ancient calcite decoration, largely unaffected by salt exudation. We accidentally found another way into the extension from another direction at a later date.

On the final day of the 2005 trip, after conducting a quick tour of some of the decorated sections of the cave for the benefit of newly arrived David Hall, Bob Kershaw and others, Michael and I branched off into a new passage off the 'Stegosaurus Extension' at Station 327, the 'Appian Maze'.

We were short of survey tags. Our first lead terminated, so we chose another, which halted when Michael called out that he had come across 'a large spider' at the newly established Station 481. This spider belonged to the *Trogloidiplura* genus. Exploration ceased at this point as we collected the spider for museum identification, confirmed by Dr. Mike Gray of the Australian Museum in Sydney as a late-juvenile male.

Our Nullarbor trip of December 27 2007 to January 11, 2008 turned out to be the last for both Michael Bradley and me. It was a most notable trip in that on arriving at Prostate's entrance on Day 1, Michael discovered that a death adder had taken up residence under a flake of rock about 2 m from the cave's entrance. As we would need to pass close by the snake up to four times a day, we had to be careful of its whereabouts each time. Fortunately for us, it was quite happy to stay where it was — as were we.



Stegamite, gypsum and halite columns amongst calcite decoration

At the end of our stay, Michael was very happy, as he was able to say that the cave had now reached a projected passage length of 5 km.

WHAT NOW?

At the end of 2008 I relocated to Tasmania and although I have spent short periods of time on the Nullarbor Plain since, and been relatively close to Prostate Pit, frequently referring to the cave, I have never been back. That is a pity, as it is a lovely spot to camp and a remarkable cave.

Michael Bradley moved on to other things, completing maps of other caves as his declining health permitted. He began work on the map of Prostate Pit, as evidenced by the 1200 x 850 mm sheet with the stick layout showing some of the wall detail that he and I had plotted.

However, there are no marked place names, title block, scale, or indication of

north; only survey stations. It was very much a work in progress. The choice of sheet size was unfortunate, as it is incompatible with most modern copying machines. The scale he used was also unfortunate in that the map ultimately exceeded the width of the sheet. Michael Bradley had not completed the map before he died during November 2017.

WHAT OF THE MAP?

At first glance it is little more than a jumble of lines, numbers and a vague outline of some sections of the cave. However, reference to the various published and unpublished A4 computer generated 'stick maps' (2003, 2004, 2005) and the updated 2019 version of the 2005 map, all of which included several names and marked survey points, began to give it life.

Perusal of my various trip reports and the survey data sheets, where additional names and information are mentioned, will undoubtedly breathe more life and understanding into it. But the story should not end here. This brief description of the cave's recent history does not do justice to its complexity and beauty. The survey should continue.

Undoubtedly, there is more cave to be found. There is even the possibility, however remote, that Prostate may connect with another cave discovered by Plane Caving, 6N-1439, the entrance of which is some 800 m SSW from Prostate's entrance.

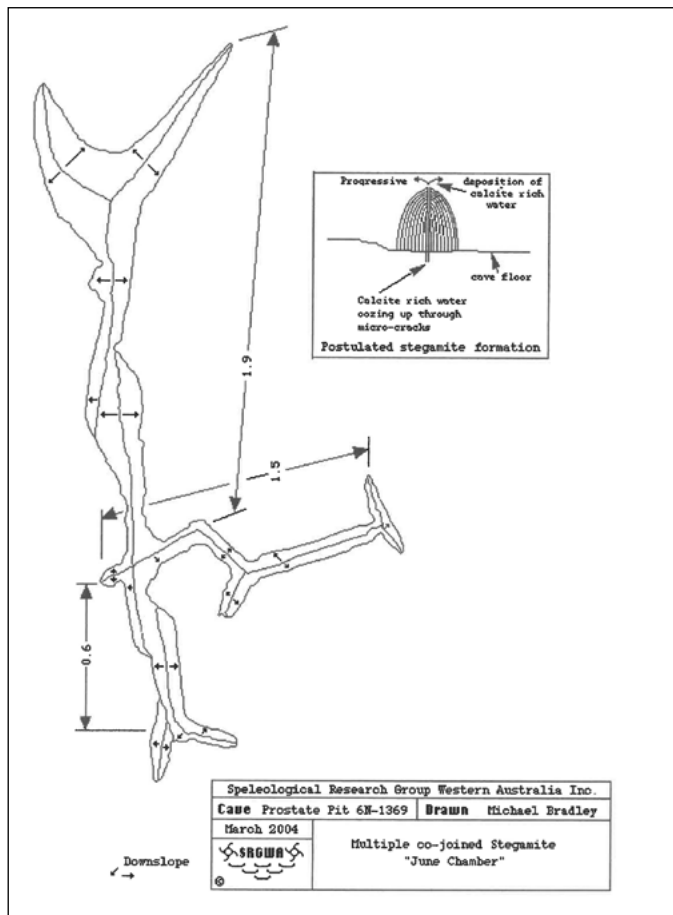
The data sheets are stored in SRGWA's library along with Michael's working drawing. Teams of competent cartographers with modern skills and equipment need to ultimately produce a suitable map while the cave itself continues to be explored for additional data. That's the challenge. Who is prepared to take it on?



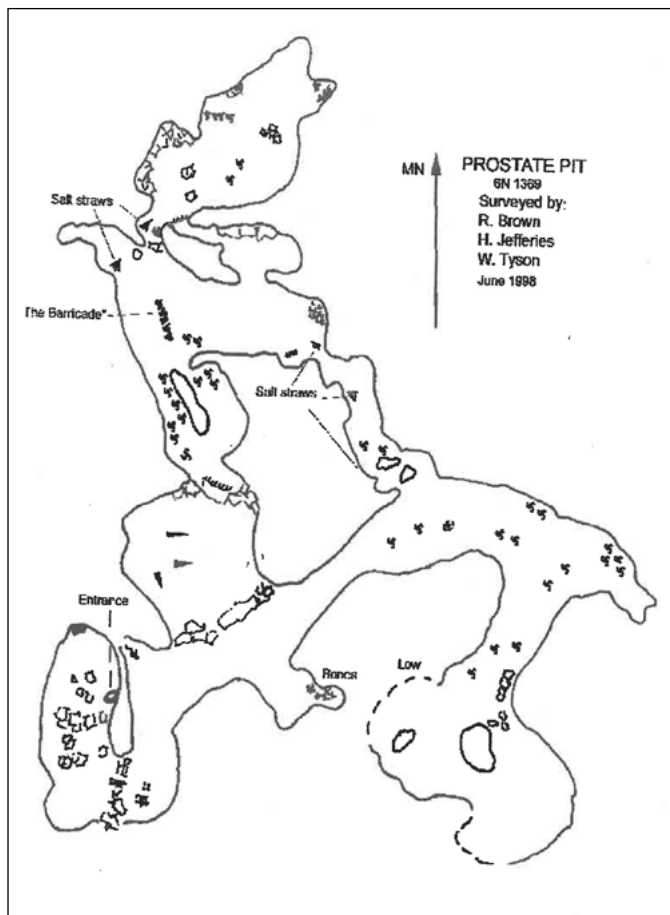
Halite extrusion, Devine Chamber, Prostate Pit



PROSTATE PIT 6N-1369 NULLARBOR PLAIN



Multiple co-joined stegamite, June Chamber



Original SRGWA-Brown map of Prostate 1998



Halite-gypsum column Devine Chamber, Prostate Pit



The Hook — halite extrusion, Devine Chamber, Prostate Pit

NORMAN POULTER OAM



The Parthenon, May Chamber, Prostate Pit — a fine example of salt-degraded calcite decoration along a joint

NORMAN POULTER OAM



Holey calcite ceiling decoration

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Texas Caves Revisited

Rod OBrien

SUSS

Cathi Humphrey-Hood

MSS, NHVSS

Peter M. Downes

NHVSS

OVER the weekend of 23rd-24th November 2019, thirteen cavers from four ASF clubs set off in search of the fabled drowned caves of Texas, just north of the Queensland border.

The caves of Viator Hill and Glenlyon were submerged in 1976 following the completion of the Glenlyon Dam (formerly known as the Pike Creek Dam) on Pike Creek.

There have been several periods of drought since then and some of the highest caves on Viator Hill have been out of the water a number of times in the past 43 years.

When this happens they are often visited by fishermen (and presumably also by fisherwomen) and other tourists to the area. Rod OBrien had long expressed an interest in visiting an area he hadn't been to before and he also wanted to assess the area's cave diving potential.

So Rod slotted in a visit while en route to Bullita in July 2019 and found the water level in the dam was extremely low. On hearing a final water release from the dam was slated for October 2019 and that the dam level would then drop below 3.5 per cent, we decided we should schedule a reconnaissance trip to the area sooner rather than later to see how the caves had fared after their cyclical inundation since the dam was built.

The team consisted of Rod OBrien, Phil Maynard and Keir Vaughn-Taylor (from SUSS); Cathi Humphrey-Hood, Rod Smith, Anna Ossig-Bonanno, Penny Sze and Marcia Kaye (from MSS), Garry Smith, Peter Downes, Murray Dalton and Brian Reeves (from NHVSS) and Lachlan Bailey (from NUCC).

A flood event in February 1976 prior to the dam being completed resulted in a sump forming in Main Viator Cave, which then partially drained and allowed access to a lower level that had never been seen before (see Shannon 1976 for a description of this event).

Henry Shannon observed large dinner



GARRY K SMITH

Marcia Kaye in a sinkhole

plate-sized current scallops in this newly revealed section and surmised that a lot of water had been flowing through it for some time.

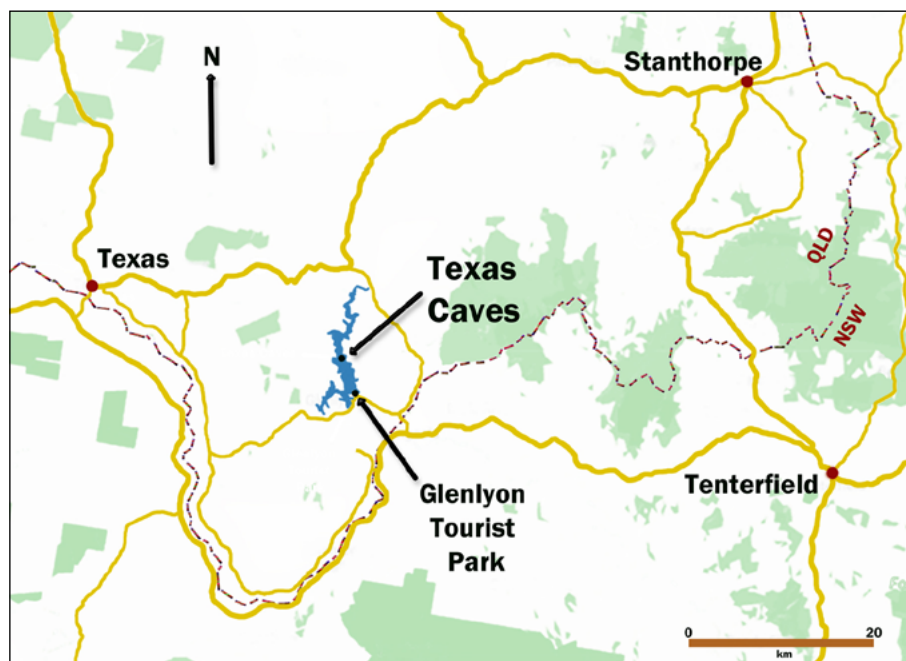
These scallops and their level suggested that there was active stream passage running underneath Viator Hill.

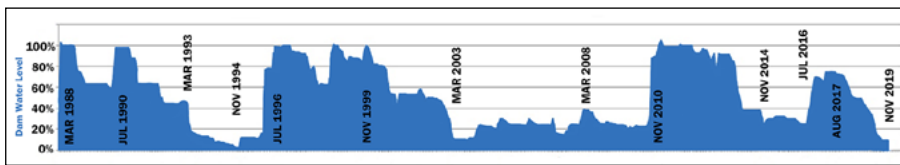
When we told him of our proposed trip, Henry asked if we could access this lower

level and, if possible, take photos of the scallops.

LOCATION AND HISTORY

Glenlyon Dam is located between Tenterfield NSW, Stanthorpe QLD and Texas QLD, about an hour's drive north of the Ashford Caves in Kwiambal National Park, NSW.





The water level plot. Graph by Rod OBrien and Cathi Humphrey-Hood

The dam waters are stocked with fish and the Glenlyon Tourist Park operates as a successful fishing and accommodation business on the shore of the lake. Ken Grimes described the geology and geomorphology of the caves, with entrance location information and maps of the larger caves, in an issue of the *Memoirs of the Queensland Museum* (1978) which focused entirely on the Glenlyon Dam site area (Grimes 1978).

Much of this data came from exploration undertaken by the University of Queensland Speleological Society (UQSS). The caves lie within the Texas beds, described as 'a thick sequence of regularly bedded lithic sandstone and mudstone with minor chert, jasper, intraformational conglomerate, intermediate volcanics and limestone lenses', with ages ranging from Devonian to Early Carboniferous (Grimes 1978, pp. 18-19).

Between 1969 and 1976, UQSS spent a lot of time discovering and describing the majority of the caves in the area (see references for UQSS *Down Under*). They also made submissions to the Queensland government in 1968 outlining a case against construction of the Pike Creek Dam and inundation of the caves.

However, the Pike Creek Dam Environmental Study (1973), undertaken by the Irrigation and Water Supply Commission of Queensland (who may perhaps have had a slightly vested interest) did not support arguments that the dam was uneconomic and said 'the major value of the caves is in their use by the University of Queensland Spelæological Society', that they were not vital to bat conservation and were not considered to have any value as a general tourist attraction (p.19)... and so the dam was built. Oddly enough Ashford Cave in NSW, which contained less decoration than Russenden and had already been partly wrecked by guano mining and vandalism but was more easily accessible, went on to be developed into a 'casual' day-use tourist destination, complete with signs, brochures, parking area and picnic tables.

Glenlyon Dam filled quickly during the wet 1970s. Shannon (1977) reported that by March 1977 they were floating lilos over the Glenlyon Caves and swimming in Russenden's main chamber. However, two dry spells since then have seen the water level fall low enough for the majority of the caves to be exposed each time.

Lachlan Bailey from NUCC has calculated that the top of the highest caves (such as Mikes Pot on Viator Hill) would be accessible at around 50 per cent to 65 per cent dam capacity and Russenden Cave when the water level reached 35 per cent (meaning it has been accessible for about 40 per cent of the time since the dam was built). At 3.5 per cent (roughly the level at the time of our visit) all the known caves should be accessible, though some water remains in the Glenlyon system.

There are two cave areas at Texas: Viator Hill and Glenlyon. The top of Viator Hill peaks above the normal high water level and still retains vegetation, including some impressively large cactus trees. Across the now exposed creek which bisects the two cave systems in the same outcrop, Glenlyon is a significantly lower streamway system that is partially day-lighted in a series of

dolines. Ken Grimes described Glenlyon as 'an excellent example of a subterranean cutoff of a meander loop', noting that complete capture of Pike Creek did not develop most likely due to collapse of sections of the caves (Grimes 1978, p. 27).

2019 VISIT TO TEXAS CAVES

The trip to the Texas Caves took place over four days, with days one and four being travelling days — the area is about eight to nine hours' drive from Sydney.

Prior arrangements had been made with the Glenlyon Tourist Park for accommodation and boat hire and their generous help made the trip possible. While campsites were available at the park, in the end we chose to rent cabins, which were very reasonably priced.

This turned out to be a good decision, as it reduced the amount of gear we needed to transport and the air conditioning was much appreciated.

Phil Maynard flew to Toowoomba, hired a car and arrived first, but everyone else (except Murray Dalton and Peter Downes who arrived the next morning) trickled in later on Friday afternoon. We picked up our



Viator Hill from above, looking south in the direction of Glenlyon Dam. The limestone outcrop has been (mostly) washed clean.



Aerial view of the Glenlyon System of caves, showing the extent of the outcrop and the series of collapse dolines. Viator Hill lies out of shot on the top left.

GARRY K SMITH



Garry K Smith takes a selfie as Brian Reeves drives the boat away from the Glenlyon Tourist Park boat launching area, heading for Viator Hill.

small aluminium hire boat that afternoon and took it for a test run — just as well, as it turned out to have a water pump impeller problem. The proprietor of the Tourist Park, Brian Dare, who has published studies on the lifecycle of cod in this dam and in other waterways, fixed the motor overnight and it was ready the next day for our 4 km ferry runs to the caves.

Walking access to the caves is possible when the dam is at low levels — Keir proved it on Saturday afternoon by losing patience

of Viator Hill, this first team carried all the gear to the top of the hill where the only shade was. It was already at least 30°C and the limestone reflected the heat relentlessly. Brian made many of these ferrying trips up and down the dam and they were essential in getting everyone to the caves and back.

Aside from the mud flats, the first thing that strikes upon landing at the Texas Caves is a sense of desolation, quickly followed by a sudden stop as the bow of the boat buries itself into a bank of thick mud.

Where once there was long grass, trees and a range of stinging and spiky things according to many UQSS reports, there is now only dryness and denuded limestone. The receding dam water level has left a wide expanse of drying mud which takes the form of huge polygonal stepping 'stones' divided by very deep cracks. These stepping stones were sometimes spongy, sometimes rocking, sometimes crunchy and sometimes they simply sank abruptly underfoot, dropping the unsuspecting walker into sticky black ooze.

On first arriving at Viator Hill, Rod OBrien went to work locating each of the listed caves, joined by others as they

arrived. Unlike the young blokes who turned up on the Sunday and walked all over the hill without ever finding anything that resembled a cave, we were armed with some experience, an old aerial photo from UQSS annotated with the names and locations of the caves, and Ken Grimes' map (Grimes, 1978, Map 10).

The aerial photo was particularly useful as we could correlate the remaining dead trees with the live ones shown on it. Although the Karst Index mentioned that some caves had tags, we weren't sure if they would still be there.

We soon discovered that some caves were indeed tagged, but not as we expected. Instead of a utilitarian diamond of aluminium, we found lovely, neatly lettered name tags, clinging to the rock on rusted attachment points. Sadly, they will not be there for much longer.

Over on the Glenlyon system the following day, a member of the team attempted to wipe the grime from a tag to make it legible — it turned out to be for Dustbath Cave, GL-6 — and it crumbled away beneath his touch. The long immersion has taken its toll on both the tags and the pins.



The Russenden cave tag - showing the extensive corrosion of the bolts after a period of submersion. These tags are beautiful and it is very sad to see them falling apart.

MAIN VIATOR CAVE (VR-1)

After most of the caves listed in the Karst Index for Viator Hill were located and 'GPSed', now apparently a common caving verb, two drones were sent up to take photos and Main Viator was explored. There was quite a bit of mud in this cave along with some rubbish, and Rod Smith tested the depth of this (about 50 cm) by getting stuck in it.

PENNY SZE



Murray Dalton and Phil Maynard walking toward Glenlyon. They're not wearing boots, that's mud.

with the boat shuffle and walking back to the Tourist Park from Viator Hill (in the stifling heat). But even at around 3.5 per cent capacity, boat access still remains the most efficient way of accessing the caves.

While we were there a number of fisher-people with motors more impressive than ours turned up to visit Main Viator and Russenden caves. It took several trips by Brian Reeves, our designated skipper, to transport everyone to the caves.

The first trip took those more likely to struggle with the walk, the backpacks, rigging, drinking water and Rod OBrien's dive gear. On reaching the muddy shores



Peter Downes, Rod Smith, Phil Maynard and Brian Reeves arrive at the entrance to VR-1, Main Viator Cave. Lachlan Bailey is already heading in.



Marcia Kaye in VR-1. The shafts of sunlight were so intense they raised steam from the damp mud.

Peter Downes also observed a bone breccia deposit in the wall at the lower entrance of the cave. This bone breccia has already been documented and is also present in Russenden (VR-2) and 'The Joint' (VR-5), where sampling had revealed fragments of many different kinds of mammals, some extinct and others not previously known in SE Queensland, and dated as Pleistocene (Archer, 1978, p. 61).

The main chamber of VR-1 is quite large (about 30 m x 20 m at the widest, longest point) with a high roof. The sump was located approximately in the middle of the chamber against the right hand wall when facing inwards.

This cave is fairly shallow and has a number of daylight holes. Shafts of sunlight poured in, raising wisps of steam from the mud beneath. The mud in Main Viator was still very damp and was a slippery mess to walk in.

Phil Maynard, Murray Dalton and Peter

Downes completed a line traverse through the cave so that Phil could model the cave in 3D, with Peter pointing out faults and mega breccias in the walls and roof. Certainly, much of the decoration appears to be controlled by faulting and palaeobreccia.

RUSSENDEN (VR-2)

Russenden is located on the west side of Viator Hill. The temperature in Russenden was quite pleasant compared to the baking heat above ground, so most of the team were happy to spend time examining the cave, acting as photographic models for Garry Smith and/or taking photos of their own. Phil Maynard, who we all know can't be in a cave for more than five minutes without feeling the need to survey it, again roped in Murray and Peter and, assisted by Anna Ossig-Bonanno, very quickly and efficiently put together a line traverse through the cave showing the strike of the major branches.

This allowed for the subsequent 3D modelling of Russenden and Main Viator and a comparison of the relative levels between these two large caves. Phil was of the opinion that the initial cave surveys made by UQSS prior to the flooding were very well done.

Rod O'Brien spent a little bit of time searching for Margots Shawl, but found he could not access the chamber as the way on was choked up and so was the other entrance leading to it.

That said, being slightly higher than Main Viator Cave and without an obvious drain, Russenden had very little mud in its upper parts and still retained much of the original red dirt floor described in the UQSS reports.

The decoration was dirty and there was a large amount of graffiti on the walls. Most of the dates we saw were very recent, from around July 2019 when the cave would have become accessible. However, there were older dates and a lot of scratched writing with bits of flaking black on them that we suspect was previous graffiti where the pigment had been eroded by the water.



Older graffiti is being eroded from the walls of Russenden cave by the dam water, leaving scratch marks behind

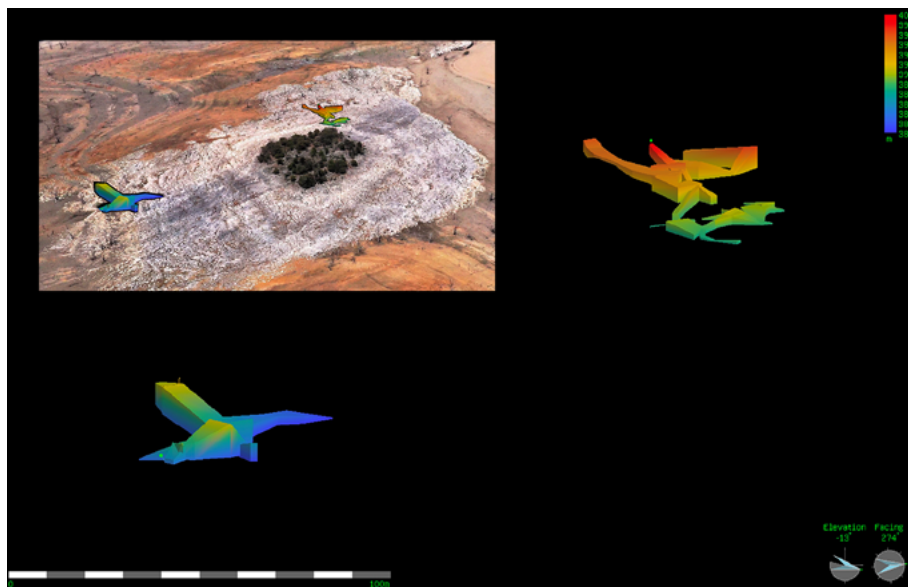


The one that didn't get away... future fossil in VR-2

Deeper into the cave a shallow river of dried mud held the remains of a decent-sized fish, probably a catfish, that had become trapped when the water receded.

A couple of bats were also noticed in the main chamber and we wondered if they were taking up residence again, though the Texas Caves were never considered to be a major bat breeding area (*Pike Creek Dam Environmental Study*, 1973, p.19).

After leaving the cave we had a quick lunch beneath the thriving cactus trees on the crest of Viator Hill, then some of the team returned to Main Viator to help Rod O'Brien with his sump dive.



The survey done in the field by Phil Maynard — in less than half a day — showing the relative levels between the two large caves on Viator Hill. Phil has also overlaid his survey on Rod O'Brien's drone image to show their positions.

Meanwhile, the others returned to the boat to start the trip back down toward the dam. Unfortunately, Brian had trouble starting the engine, and after many attempts, called the Tourist Park office for help.

This call was diverted to Lismore and then forwarded on to Brian Dare who quickly mobilised his much faster boat. Due to the long wait, Keir took off over the hills and returned on foot. Brian Reeves finally managed to get the hire boat going and with two boats the team and rest of the gear was quickly moved back to the tourist park boat ramp.

DIVING THE SUMP IN MAIN VIATOR VR-1

In 1970 UQSS cavers had free-dived Cloister Cave (GL-7) in the Glenlyon system and had made a connection with Efflux Cave, GL-8 (Brown 1970) but not without mishap.

However, as a whole, the submerged passages in the area had not been properly explored using diving equipment. Rod O'Brien considered the water-filled hole in the floor of Main Viator Cave a good candidate for a cave dive and Henry Shannon had put in a request for some photos of the scalloping if possible.

A number of small fish could be seen swimming around on the surface, but the sump itself was not very clear. Garry, Marcia, Cathi, Keir and Penny were the dive support team.

Rod geared up, entered the water and moved some branches that blocked the underwater passage. After this he was able to slowly squeeze down a small vertical tube by manoeuvring his dive cylinders around the rock obstacles.

Some of these rocks were unstable and fell out when disturbed. The water visibility, poor at the start, quickly dropped to zero. As the passage became horizontal Rod found that this area was also silted up. He dug for a while with his back against the roof and his body half buried in mud.

Pushing branches out to the side and dragging himself through the mud, he progressed about four metres along this passage before turning back in total black-out conditions. Even if he had managed somehow to locate the scallops, fulfilling Henry's request for a photo would not have been possible.

Peter Downes suggests the sump and passages below act a bit like a drainpipe for Main Viator cave. When the water level falls quickly to low levels (due to water releases from the dam) and the lower

entrance is above water, the sump acts like a drain and sucks mud, silt and debris into the lower level of the cave. Eventually this lower level will silt up and become entirely inaccessible.

After the dive, Rod O'Brien and the dive support team left VR-1 and planned to look at some of the other pot type entrances on the hill.

Anna had earlier investigated Crystal Cave (VR-3) and was dismayed to find the way on had been blocked up with dirt not far below the entrance and the cave could not be accessed. However, soon after leaving Main Viator Cave several people had already lined up for the voyage back to camp and serious heat-induced nausea finally got to Rod Smith, so we left the other caves without doing a complete examination.

THE GLENLYON SYSTEM

On the following day we shuffled the team back upstream to the Glenlyon side of the creek, which is lower than Viator Hill.

These caves are the last to be exposed by the receding water and the dolines were full of silt.

It was another very hot day and, as this area is often a long way under water, there were no live trees to provide shade. In spite of being close to Viator Hill, the curve of the river made the boat trip a lot longer and the last group to arrive did not get much time to walk around the caves.

Walking across the west side of the creek while waiting for the last boat shuffle enabled that group to look at another outcrop of limestone, noting smoothed rillenkarren patterns being dissolved by the dam water.

Rod O'Brien arrived first at Glenlyon and once again set about locating the cave entrances, but not many had tags and Dust-



Keir Vaughn-Taylor handing Rod O'Brien his dive tanks before Rod dives the sump in Main Viator Cave.

bath soon lost one. He found Efflux Cave (GL-8) completely blocked up, as were several of the other entrances.

Murray Dalton examined an opening for Cloister Cave (GL-25E), but did not think he would fit into it while others including Penny, Phil and Peter investigated a number of entrances and checked out various passages.

The Glenlyon Stream Cave still had water in it, sitting stagnant in a brown-coated anoxic ooze that was jet black underneath and distinctly uninviting. Garry Smith somehow managed to coax Marcia Kaye into posing for a photo on the other side of the stream and we were lucky to get her back again as she sank waist-deep while returning.

Anna enthusiastically crawled in to investigate mud-filled passages, while Phil tentatively did a 'through trip', squelching his way from what was probably the GL-17E entrance to the GL-2E entrance, which had a neatly lettered 'GLEN LYON' tag on it that was still in fairly good shape).

Peter Downes noted little sign of turbulent flow in the mud deposits within the caves he entered, nor did the recent cave sediments show a distinct layering as observed in the mud flats outside the cave entrances, which would suggest that the cave fill was being deposited by sediment-laden dam water.



PENNY SZE

Marcia Kaye regretting her decision to cross the creek for Garry Smith's photo shoot.

The massive nature of the recent sediment fill in the caves and abundance of organic material — sticks, leaves etc — led Peter to suggest that the majority of recent sediment in the caves was topsoil that had slumped into them from the adjacent



KEIR VAUGHN-TAYLOR

Drying sediment filling the holes in the Glenlyon dolines.

surface rather than material that had come from a more distal source.

The old undated UQSS air photo enlargement of the caving area shows significantly more soil and regolith adjacent to the cave entrances than is evident today where there is much exposed karst outcrop to be seen.

Much of the vegetation covering both Glenlyon and Viator hill was stripped away prior to dam completion, as evidenced by numerous stumps which are shown as trees on the old air photo.

Peter suggests it is likely that the majority of recent fill was washed into the caves during the initial pre-completion flood of 1976 or shortly after during the initial filling of the dam rather than during subsequent events.

More drone flyovers were made over Glenlyon in spite of the hot and fairly strong wind. The landscape looked extremely bleak with the skeletons of long dead trees littering the expanse of deeply cracked mud, and with a reddish cast of bushfire smoke haze over all of it.

Lunch of sorts for those who felt like eating was had under the 'shade' of one of those trees on the rocks above Cliff Pit (GL-9).

We again called the day earlier than we would have liked because of the heat, but not before Garry Smith managed to take the standard team photo (minus Anna and Keir, who had already started walking back by wading through the mud and crossing Pike Creek).

As before, it took a while to transfer everyone back to the Tourist Park. Later that evening a welcome cool change came through, causing a massive temperature drop but sadly bringing only a few spots of rain.

On the following day Rod Smith, Garry, Marcia, Murray, Peter and Lachlan returned south via Ashford Caves, while Rod OBrien, Keir and Cathi left via Tenterfield, learning that a large hailstorm had gone over the night before but very little fell in the catchment area.

COMING OUT IN THE WASH

Exploring the Texas Caves felt like walking into the remains of a lost city that had once been sunk beneath the waves.

Caving was made easier by the lack of vegetation, but instead of having to fight our way through foliage we had teetering columns of semi-dried mud to contend with and no shelter from the searing heat.

Accessing the area threw up a few logistical problems but fortunately nothing insurmountable. The remaining cave tags may not be there next time the caves are out of the water and even though we now have good GPS readings for most of the cave entrances, initial mistakes were made in identification for two caves before a cave tag was located for one of them, which helped us pinpoint the correct location for both.

Cave tags are an important identifier and it would be especially sad to see these particularly beautiful and unusual full name tags corrode away to nothing.

We found the caves near the top of Viator Hill to be in reasonably good condition, though additional sediment has been deposited into Main Viator Cave. The deep entrance shaft to Mikes Pot (VR-6), the highest cave, still looked to be open and free of debris, whereas some of the lower ones, such as Crystal Cave, have become inaccessible, although might be possible to access with some digging.

Rod OBrien did not consider the

GARRY K SMITH



Marcia Kaye and Penny Sze in Russenden Cave, which is still showing the original red earth floor.

GARRY K SMITH



The team at Glenlyon (missing Anna and Keir, who have already crossed the creek) Standing, L-R: Phil Maynard, Peter Downes, Brian Reeves, Rod Smith, Garry Smith; seated on the precariously weathered log: Marcia Kaye, Murray Dalton, Rod O'Brien, Cathi Humphrey-Hood, Penny Sze and Lachlan Bailey.

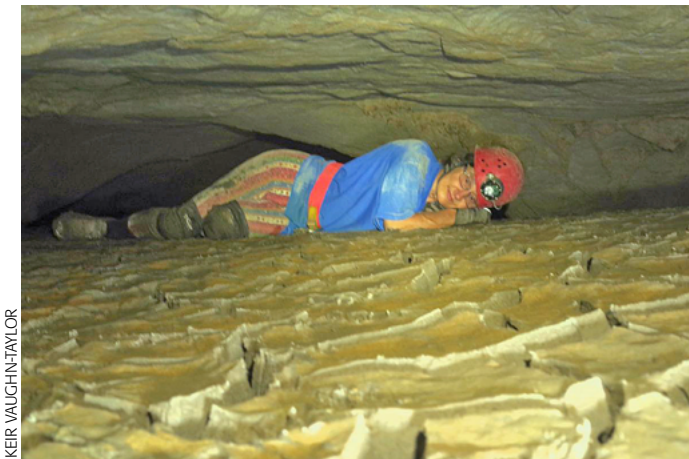




Phil Maynard preparing to brave the anoxic mud of Glenlyon



Penny watches Marcia wade into the muddy unknown of Glenlyon Stream Cave



Anna Ossig-Bonanno lying down on the job in the Glenlyon mud



Marcia Kaye on the baking mudflats near Dustbath Cave

area would make a quality cave diving destination.

Without comparison photos it is difficult to estimate just how much sediment has been deposited into the various cave systems since the dam was filled 40-plus years ago. For several, the answer would be a little while for others it may be significant.

However, given that the current sediment fill for Viator and Glenlyon is water-saturated and the clays forming the fill probably would have expanded due to being wet, it appears likely that the majority of new sediment in the lower caves is topsoil

that slumped into the various entrances from the adjacent surface (i.e. it only has come from within a few metres of the entrance) rather than material transported by dam waters. Given that there is little water movement through the caves when the water levels are higher and hence no current, this soft sediment can only be removed by erosion when dam levels are very low — for example, when the sump in Main Viator can act as a drain.

BIG, BIG THANKS TO:

Henry Shannon for inspiration, back-

ground information about the area and advice about what to look for; Brian and Debbie Dare from Glenlyon Tourist Park for helping us with information and for providing us with such wonderful help and hospitality; Brian Reeves for driving the boat and providing much-needed technical know-how and for the entire team who were dragged into the mud and heat without a clear plan and who still offered up the best caving company and assistance anyone could ask for. Thanks also to everyone who helped with the reviewing of the article and supplied images.

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