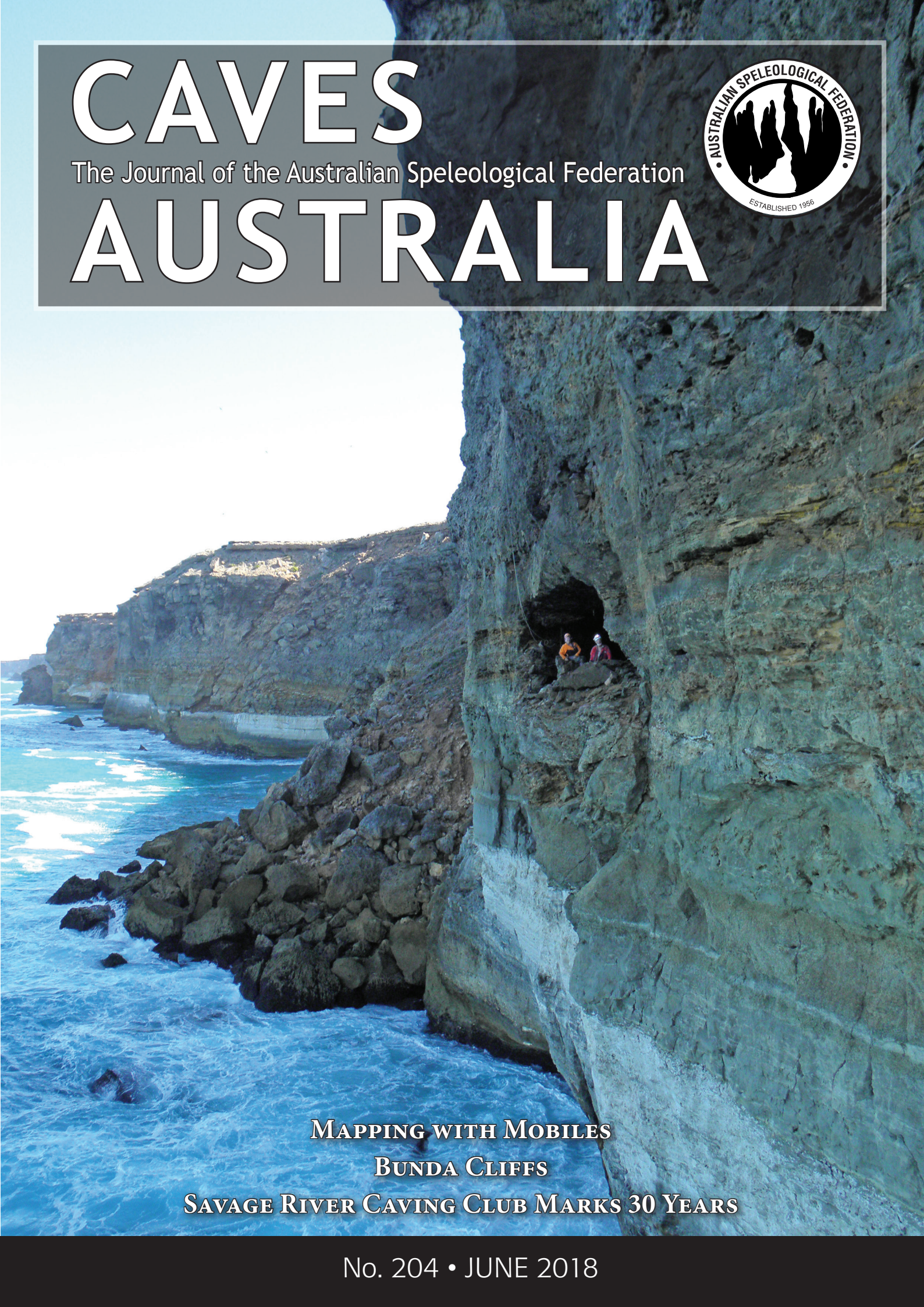


CAVES

The Journal of the Australian Speleological Federation

AUSTRALIA



MAPPING WITH MOBILES

BUNDA CLIFFS

SAVAGE RIVER CAVING CLUB MARKS 30 YEARS

No. 204 • JUNE 2018

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 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 or international@caves.org.au) may have extra information.

A similar calendar is published in *ESpeleo*. This calendar is for known events in 2018.

2018

June 6-9

Karst 2018: Expect the Unexpected. Trebinje, Bosnia-Herzegovina, <http://www.karst.edu.rs/>

June 3-August 10

USA Karst Field Studies Program, Grand Canyon National Park and Mammoth Cave National Park. Six different 5-6 day courses. www.karstfieldstudies.com

June 11-16

8th International Workshop on Ice Caves (IWIC-VIII) Picos de Europa National Park, Spain, To register and for more information visit <https://eventos.uva.es/go/iwic8> or https://www5.uva.es/gir_pangea/

June 18-22

26th International Karstological School: theme 'Classical Karst' — show caves and science, Postojna, Slovenia, website to be posted soon.

July 2-6

EuroKarst 2018 Besançon, France. <http://www.eurokarst.org/>

July 21-27

18th International Vulcanospeleology Symposium, Lava Beds National Monument, California, USA. <http://18ivslavabeds.com/>

July 29-August 20

BERGER 2018 "Clean deep" International gathering for the clean-up of Gouffre Berger, Vercors, France About 500 kg of waste were extracted from Gouffre Berger in 2017. The work has to concentrate from now on the deep parts of the cave, between -800 m and the camp -1000 m. The 2017 gathering saw a strong foreign participation; the objective for 2018 is 150 European cavers. More than 300 cavers are expected during three weeks. Please, get in touch with Rémy Limagne before March 2018 r.limagne@gmail.com. <http://cbs39.fr/BFC/B18/> <https://www.facebook.com/groups/816551028409538/>

July 30-August 3

US National Speleological Society Convention, Helena, Montana, USA. <http://nss2018.caves.org/>

August 23-26

EuroSpeleo Forum 2018, Ebensee, Austria <http://eurospeleo.at/expo.html>.

August 20-24

24th International Conference on Subterranean Biology, University of Aveiro, Portugal <http://24icbsb.web.ua.pt/>.

September 27-30

24th International Cave Bear Symposium, Chepelare, Bulgaria. <http://icbs2018.at>

October 12-18

8th Congress of the International Show Caves Association, Genga, Italy. <http://www.i-s-c-a.com/event/68-8th-isca-congress>

November 4-7

Geological Society of America (GSA) 130th annual meeting, Indianapolis, Indiana USA Karst Division Sessions. The sessions include: Karst Processes and Speleology, Karst Hazards and Monitoring, Karst Sedimentary, Paleoclimate, and Historical Records, Karst Ecosystems and Biogeochemistry and Pseudo-karst Processes and Features. For details <http://www.gsa2018.org/contact-us.php>

November 6-10

1st Columbian and 8th FEALC Congress San Gil, Columbia. Speleologists from all nations are welcome to attend. For more information visit: <http://sociedadcolombianadegeologia.org/i-congreso-colombiano-de-espeleologia-y-viii-congreso-espeleologico-de-america-latina-y-el-caribe/>

November 10-18

INTERNATIONAL CAVE RESCUE TRAINING, Lozere, France, for details contact dodelinchristian@gmail.com

2019 and beyond

December 30-January 4 2019

31st Australian Speleological Federation Conference – The Darkness Beneath: Caving Tasmania Devonport, Tasmania. For more information: <https://asfconference2019.com/general-information/> Presentation: <https://prezi.com/view/KavyRw5tX1ExvDqCr7aY/>

23-29 July 2021

18th International Congress of Speleology Lyon, France <http://uis2021.speleos.fr/>

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.

A must-have for cavers

Rod Smith

MSS

IN 2015 MSS celebrated its 50th anniversary; who would have thought we'd last that long?

To mark this momentous occasion we put together a special, one-off, never to be repeated publication. It is 46 pages full of history, information, colour photos and humour.

Written by the members, it chronicles many of the events that made MSS what it is today. This is a must-have for the discerning caver's library.

And all this for \$12.00 plus \$3.00 postage (or we can try to arrange hand delivery at no cost). But wait, there's more!

Um, actually, there's no more. But it's still a great buy.

Contact: Rod Smith at roderick_smith@hotmail.com (note that there are two underscores)



CAVES AUSTRALIA

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Cover: *Cavers and Lejeg Cave* Photo: Alan Jackson

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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

ISSUE 204 of *Caves Australia* follows in the same vein as issue 203 — padded out with articles by Garry K. Smith and Alan Jackson with lots of photos. The only cure is to pull your finger out and write something. It doesn't need to be a literary masterpiece or grammatically pure (our editorial team can sort out most problems). All it needs is to be cave-related and mildly interesting. Here are some ideas:

What's happening in WA? Found anything new or done anything interesting in the last three years? Tell us about it. [Repeat for SA, Vic, NSW, QLD, NT].

I hear about expeditions to Bullita, Kimberly, Bungle Bungle, Nullarbor and other obscure places on the grapevine, but I never see any photos or read about them. I'd like to. And don't feed me the standard lines on secret squirrel business — just make it appropriately vague, don't include exact locations and run it past land managers first. I want an overview, not a field guide.

International expeditions. They happen. If you've been on one, write about it.

Gear reviews — tried some fancy new bit of kit lately? Tell us if it worked.

Have a whinge! The 'letters' section of most magazines is always the most entertaining, particularly when filled with hilariously ignorant rants. If you can't find an aspect of ASF or cave management in Australia to whinge about then you're not trying very hard. Might I suggest the new editor? He needs a good public whacking.

In the meantime, Garry and I hope you enjoy our articles.



The conference in Tasmania in December-January is shaping up to be a good one. Jess Bayles appears to be doing a fine job of bullying encouraging her team to achieve dizzying new heights of organisation and preparedness. Get yourself registered, book a spot on the ferry early (if applicable), prepare your presentation and come and see some cold but good caves. The website (see Coming Events on page 2) is thorough and user friendly — visit it.

— Alan Jackson

President's Report

IRECENTLY attended the wake in Canberra for long-time ASF member John Dunkley. The room was filled with cavers, family and friends from around Australia and overseas.

Many a tale about John and his adventures, travel and book writing was told. His pushing of people to open their wallets for the Karst Conservation Fund continued.

Some of John's quirky collections were on display at the wake — his collection of stuffed animals, his infamous shirt collection from Thailand, his journal of every flight he ever took, along with their corresponding tickets.

John had some outstanding adventures but was always keen to let people know that this was only possible with the amazing support provided by his beautiful wife Jeanette.

Something the ASF is only too aware and appreciative of is that Jeanette remains the patient guardian of the ASF's library resources while a more permanent solution is in preparation. Jeanette — thank you.

One thing about meeting up with so many people in Canberra was that we are not getting any younger and in that room at that time was a mountain of knowledge of speleology; some has been recorded and preserved, but a lot is still not.

We need to make sure that we record this knowledge and get it into a library or journal.

Have you booked your place at the next ASF Conference in Tasmania yet? Jess and her team have a great week planned plus



the pre and post trips will give you great Tassie caving experiences. See the website for more information and start planning your pre or post conference caving.

In July I will be meeting up with the Illawarra Speleological Society in the Kimberleys for some great caving along with some robust chat around the campfire in the evening.

The executive, as always, has been busy doing business by email and met in late May for a face-to-face meeting. It's time to start thinking about your nomination for the executive election at the Tassie Conference.

The Awards Commission will be seeking nominations for awards soon, so start chatting on your next caving trip about who deserves a nomination and start gathering the information. — John Cugley

www.aspiringsafety.com.au

Check out our new improved cave overall measurement guide online now!

Devonport Conference

Pre- and post- conference field trips

Janice March
NC

IF YOU are coming to Devonport for the conference over the New Year period, you really should spend a bit more time in the state and see some Tasmanian caves.

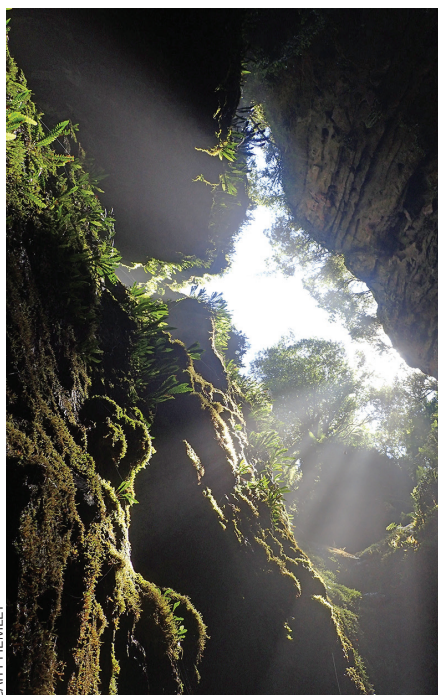
Check out 'Caving in Tasmania' on the conference website to get your creative juices flowing and start to create your own adventure based on the multiple offerings by the organisers before and after the conference's five days.

The options for pre-conference trips are Mole Creek caving, Derby mountain biking or Southern caving.

Post-conference, Mole Creek will be a happening place as it is very accessible and we will be offering a wide range of caving trips, but you can go caving all around the state including trips down south to the Junee-Florentine or Ida Bay (subject to expressions of interest by suitably skilled cavers) or spend a few days bushwalking and caving at Mt Cripps west of Cradle Mountain before heading for the beauty of Mole Creek.

Leading the Mt Cripps trip is Paul Darby from Savage River Caving Club who probably knows the area better than anyone. Paul will happily guide you on a couple of day-long bushwalks to visit some of the hundreds of small caves and karst features found in the magnificent rainforest and steep rugged country of this area west of Cradle Mountain. Moderate bushwalking fitness is essential for this trip.

Co-ordinating the Mole Creek trips is David Wools-Cobb from the Northern Caverneers. A true local, David grew up



CATH HEMLEY

Devils Pot, canyon route

in the north-west of Tasmania, caving with the Scouts and has kept up the enthusiasm and built an extensive knowledge base over many years. He is experienced at recommending itineraries to visiting groups of cavers and relishes this opportunity to send you down a few holes with various Northern Caverneers as guides.

Organising the southern caving trips is Alan Jackson, a Hobart-based caver of extraordinary talents.

Due to the difficulty and length/depth of many of the caves in the south of the state, Alan will be assigning people to trips that



are suited to their caving experience and vertical skills.

This way proficient mainlanders can enjoy our sporty vertical caves in relative safety. There are also limited shorter horizontal caves down south if you don't mind water and mud.

Running the Derby mountain biking trip is Andrew March, an armchair caver from Launceston who now prefers riding to keep his arthritic joints working.

Hire or bring your own dual suspension bike for two days of flying around berms and boulders on Australia's best trail network in Tasmania's lush and shady north-east forests.

We have put together a varied program of pre- and post- conference caving adventures which are available to anyone attending the conference for little or no cost.

Children and partners are also welcome to participate and the program will include beginner level trips at Mole Creek depending on demand.

Post-conference camping will be in a paddock behind the Mole Creek pub for a nominal fee. Limited power will be available for charging lights. Trips will meet outside the pub each morning for anyone looking into alternative accommodation in the area.

Have a look at the website https://asfconference2019.com/excursions_and_field_trips/ or contact one of the organisers for further information on how to experience The Darkness Beneath in Tasmania this summer: asftasmania2019@gmail.com

Registrations are open online.

ASF Conference Attendance Grants

DID YOU know that the ASF has Conference Attendance Grants available for a limited number of suitable applicants?

Newer ASF members of less than 5 years standing who are able to present a conference paper in person at the Devonport

conference are encouraged to apply to the ASF outlining their valuable contribution relevant to speleology.

Full or part remission of conference attendance and travel costs is available to successful applicants.

Applications should be submitted as

soon as possible to grants@caves.org.au

Further information on eligibility and selection criteria can be found on the ASF website at

<http://www.caves.org.au/component/downloads/send/20-grants/30-asf-grants-scheme-information1>

New Ideas in Cave Mapping and Navigation

Bob Kershaw
ISS

ARE YOU looking for an arm chair caving activity or to go surface trogging over your caves?

Have you ever thought about walking over the surface of a cave directly above the cave passages with the map you have drawn?

You may have thought about the idea but you aren't sure how to go about it. This article provides you with an idea and a few technical details so that you can walk all over your cave within a couple of metres of its location while you stay high and dry.

Many a caver has probably overlaid their cave in Google Earth and knows where the cave passages go in relation to the surface.

See Figure 1, showing BD1 at Bendethera, NSW. But you cannot really take this out into the field and walk accurately over the surface of the cave.

To undertake this caving adventure, you will need a smartphone, either an Apple or Android, with the Avenza Maps® app downloaded from Apple's app store or Google Play. There is a free edition of Avenza that allows you to load three PDF maps only at a time, but that is more than sufficient for your use.

Avenza allows you to use georeferenced PDFs and you can walk or drive over the surface, taking account of the error of the GPS within the phone.

A georeferenced map is a map that has geographic coordinates embedded within it so that it is correctly located on the earth's surface. Many Australian state parks departments supply PDF maps of their parks for use in Avenza these days.

After you have drawn your cave map in a program that produces a georeferenced PDF, upload it to your smartphone and open with Avenza.

Ensure that you set your location to 'On', and you can walk over your cave. Refer to Figure 2 — BD1 with the cave wall outline. The software shows your GPS location as well.

But what drawing programs allow you to export your map as a georeferenced PDF?



Figure 1

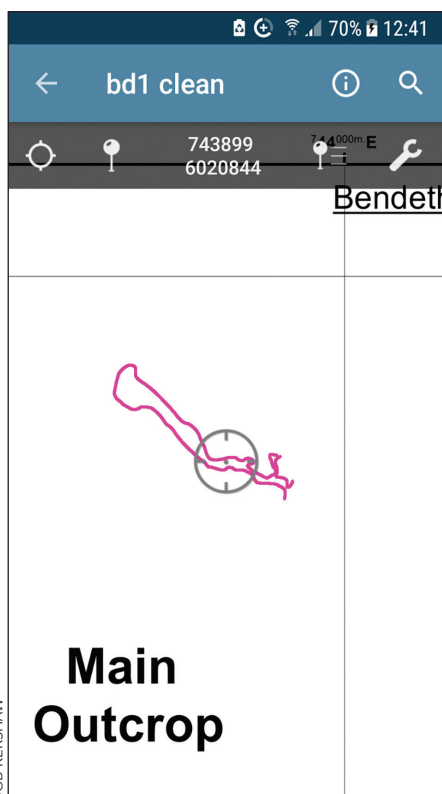


Figure 2

ESRI ArcMap and the free GIS program QGIS allow you to draw your cave map as well as produce georeferenced PDFs. If you use Adobe Illustrator you can produce a PDF then manually georeference the map using Map2Map software.

If you don't want to use Avenza maps and have Oziexplorer (licence fee of \$32) on your Android device, you have to convert your georeferenced PDF to a 'map' file and then use img2ozf software conversion utility to convert the cave map to an 'ozf4' format for use with OziExplorer.

Here is an interesting question now that you are using your smartphone and OziExplorer.

Do you now need to carry a separate GPS unit with you in the field?

The new GPS units also use the Russian Global Orbiting Navigation Satellite System (GLONASS) and combined with the US system you can have more than 23 satellites calculating your location.

Maybe you don't want to drop your phone down a hole as you walk on the surface. The solution is up to you.

But you can produce an enhanced surface location map if you add topographic

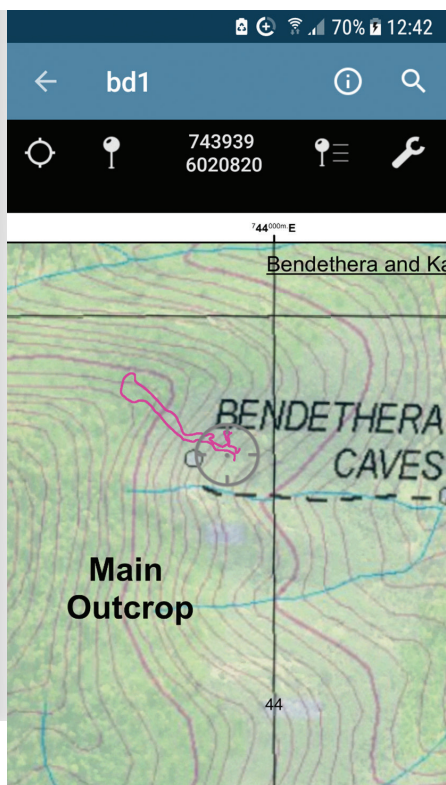


Figure 3

map information into your GIS program and then produce a map for use in Avenza or OziExplorer.

Refer to Figure 3 — BD1 with the NSW topographic map layer in Avenza. Figure 4

shows the same map using OziExplorer.

But where can you obtain your topographic maps in Australia to enhance your cave map?

Geoscience Australia (GA) provides free 1:250 000 scale maps in an 'ECW' format for use in GIS software or you can obtain the data as free shapefiles you can use to make your own maps in the GIS.

In NSW you can also download free local government area information in shapefile format for GIS which is similar to the GA data.

The good news for NSW and Queensland members is that the topographic maps in PDF are free. The other states ask you to dig deep and pay for their maps.

The other good news for NSW members is that you can use the whole NSW topographic map layer for free for use in GIS software.

This is fantastic, as you can make your own topographic maps to fit your printer at home or work.

I hope that I have sparked your curiosity and you now have a few tools and programs that you can use to find out where your cave passages are while you walk over the surface.

Who knows, you may even find another entrance to the passages or a surface feature of the cave that will prompt a dig.

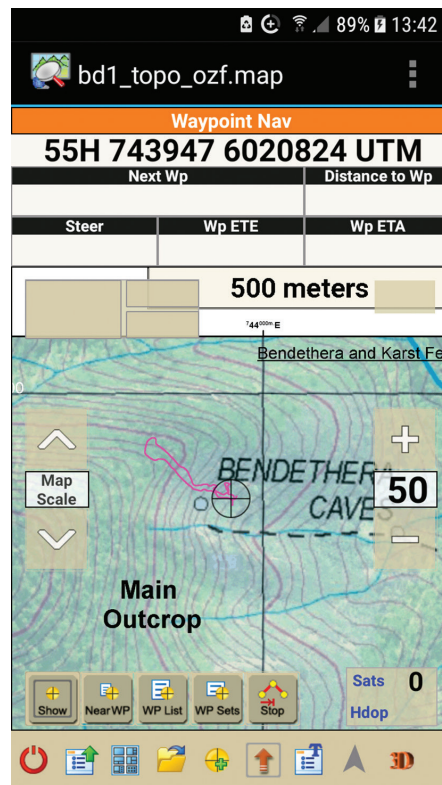


Figure 4

If you have any other ideas regarding how we can improve our expedition searches for caves using modern technology (smartphone apps and computer programs) please share your idea.

REFERENCES

Software

ESRI personal licence information costs \$165 per year
<https://checkout.esriaustralia.com.au/store-arcgis-for-personal-licence>

QGIS

<https://qgis.org/en/site/>

Img2ozf Conversion Utility

This is the program to convert image files to the OZF format,

<http://www.ozexplorer.com/au/>

Avenza Maps® information

<https://www.avenzamaps.com/maps/how-it-works.html>

<https://www.avenza.com/avenza-maps/>

OziExplorer for Android

<http://www.ozexplorer.com/au/>

map2map

<http://www.the-thorns.org.uk/mapping/>

Free maps in Australia

1:250 000 scale maps from Geoscience Australia as an ecw format

<http://www.ga.gov.au/cedda/maps/1058>

NSW

<https://maps.six.nsw.gov.au/etopo.html>

The whole NSW topographic map layer

https://maps.six.nsw.gov.au/arcgis/rest/services/public/NSW_Topo_Map/MapServer

Queensland

<http://qtopo.dnrm.qld.gov.au/mobile/>

<http://qldspatial.information.qld.gov.au/catalogue/>

Tasmania

TASMAPS

<https://www.tasmap.tas.gov.au/do/category/25000TOPO>

South Australia

<https://www.environment.sa.gov.au/Science/mapland/maps/topographic-cadastral>

<http://spatialwebapps.environment.sa.gov.au/naturemaps/?locale=en-us&viewer=naturemaps>

Victoria

<https://www2.delwp.vic.gov.au/maps/maps-and-services/vicmap-topographic-maps>

Western Australia

<https://www0.landgate.wa.gov.au/business-and-government/land-data/topographic-data>

<http://www.dmp.wa.gov.au/ebookshop-1508.aspx>

Help Wanted And Needed

KARST CONSERVATION FUND COMMISSION: HELP NEEDED

The Fund has a number of projects currently under consideration. To achieve its success, the Commission needs to expand the volunteers involved. In particular we need a Fundraising Co-ordinator and a Communication and Publicity Co-ordinator. If you can help, contact the Chair of the Commission, Nicholas White (Email: karstfundinfo@caves.org.au).

PUBLICATIONS COMMISSION

The commission urgently needs a volunteer to regularly collate the calendar and events for *Caves Australia*, *ESpeleo* and the website. For details contact: Susan White Publications Commission Chair (Email susanqwhite@netspace.net.au)

50,000-year-old microbes revived from liquid-filled bubbles in cave crystals

A summary from available literature on the internet

Garry K. Smith



Huge gypsum crystals in the 'Cave of Crystals', Naica Mine. Note the human figure for scale

A POPULATION of extraordinary microbes classed as extremophiles has been discovered trapped in bubbles within gypsum cave crystals, deep within the Naica Mine in the northern state of Chihuahua, Mexico.

The lead, zinc and silver mine operated by Industrias Peñoles, broke into the submerged 'Giant Crystal Cave' system in April 2000 and had to pump groundwater out of the vast underground caverns to stop the mine flooding.

The water was continuously pumped out of the mine at a rate of 22,000 gallons every minute otherwise the caves would quickly flood.

Pumping out the water revealed a labyrinth of massive milky-white gypsum

crystals. The largest crystal found to date is 12 m (39 ft) in length, 4 m (13 ft) in diameter and 55 tons in weight.

The Giant Crystal Cave system is so beautiful and hot that it is called both 'Fairyland' and 'Hell' by scientists. It should also be noted that the mine has broken into several other caves containing large crystals at different depths of its workings.

The volcanically heated cave system has temperatures reaching 58°C and humidity between 90 and 99 per cent. Scientists must wear specially designed cool suits and breathing apparatus to enter the cave system.

NASA Astrobiology Institute director, Dr. Penelope Boston, who led the team searching for extremophiles trapped in the

Naica mine crystals, says 'These organisms have been dormant but viable for a geologically significant period of time, and they can be released due to other geological processes.' The deepest part accessed to collect samples was a chamber called 'Hell' at a depth of 300 metres from the surface.

Based on previous research work which dated the oldest crystals at half a million years (500,000 years), they believed the microbes have been trapped within the liquid bubbles somewhere between 10,000 and 50,000 years, shut off from light and oxygen.

With no light at depth, any life form must chemosynthesise to survive. In other words, they are living on iron, sulphur, and other chemicals in the rocks and water to



Scientists must wear specially designed cool suits and breathing apparatus

obtain energy. After being trapped in the crystal, the microbes had continued to survive in a dormant state for tens of thousands of years.

The discovery provides more evidence that microbial life on Earth can endure harsher conditions in isolated places than scientists previously thought possible. The bugs may be a taste of what to expect if alien microbes are found on Mars or Jupiter's moon Europa, which has a global ice-covered ocean.

At the meeting of the American Association for the Advancement of Science, on 17th February 2017 in Boston MA, Dr Boston said, 'This has profound effects on how we try to understand the evolutionary history of microbial life on this planet.' Her talk was titled 'The Astrobiological Exploration of Earth and Mars.'

This discovery at the Naica Mine 'Crystal Cave' raises questions about NASA's many rigorous steps to sterilize spacecraft, as there are risks that a mission to drill into another world could carry invasive—and highly durable—Earth creatures along for the ride.

Also to be considered is our hunt for alien life on other worlds in our solar system: 'How do we ensure that life-detection missions are going to detect true Mars life

or life from icy worlds rather than our life?'

In 2008 and 2009 Dr Boston and her team collected the samples from pockets of fluid trapped inside the crystals. Experiments conducted in situ to see if the weird bugs could be cultured were partly successful. Much to their surprise, they were able to 'wake up' dormant microbes in that fluid and grow cultures. She said that because of the heat in the cave, their team could only work about 20 minutes at a time before ducking out to a specially constructed 'cool' room in the mine workings, which was about 38°C.

Attempts to classify the bugs showed 90 per cent could not be matched with any other micro-organisms catalogued in available databases. They were also highly diverse, including about 100 different strains made up both of bacteria and other microbes known as archaea.

The NASA team has determined that the organisms are genetically distinct from anything known on Earth, and the most similar microbes are found in caves and volcanic terrain. Dr Boston said the weird bugs are 10 per cent genetically different from their nearest known micro-organisms, which genetically is like comparing humans to fungi.

Dr Boston's work is currently being

written up for publication and has not yet been peer-reviewed, which makes it hard for other experts to acknowledge or dispute the claims at this stage. However, Boston's report of reviving microbes is not outlandish, as this has been achieved in the past from geological samples, glacial ice, amber many thousands of years old, and microbes trapped in salt crystals possibly half a million years old, notes Brent Christner, a microbiologist at the University of Florida in Gainesville.

One outstanding issue is that nobody knows how long life of any kind can survive when dormant. Even sleeping organisms need food eventually or their cells will start to degrade, and scientists do not yet know if these hardy microbes can slow down their metabolism just enough to survive for millennia. It could be that these organisms are surviving on the limited energy in the enclosed bubble fluid or eating microbes which had previously died.

Microbiologist Purificación López-García of the French National Center for Scientific Research, one of the co-authors of the 2013 study, which identifies microbial life in hot, saline springs deep inside the Naica system, has reservations. 'Contamination during drilling with microorganisms attached to the surface of these crystals or



The volcanically heated cave system has temperatures reaching 58°C and humidity between 90 and 99 per cent



Rigorous steps were taken to prevent contamination



The largest crystal found to date is 12 m (39 ft) in length and 55 tons in weight.

living in tiny fractures constitutes a very serious risk.'

Dr Boston and her team are confident that the steps they took to prevent contamination are sound. These included wearing protective suits, sterilising their drills, and the surfaces of the crystals with hydrogen peroxide and, in some cases, fire.

Collecting more samples is pretty well out of the question, as the Naica mine

ceased operation in early February 2017, after it became unprofitable. The Crystal Cave is now flooded with groundwater which will protect the crystals into the future.

The good thing is that the microbes collected are still actively growing in cultures in laboratory incubators kept at the same temperature as the mine.

Boston and her team are hoping that

other scientists will keep studying the creatures.

Dr. Boston said, 'Natural caves and mines—anthropogenic caves—give us a window into this hidden planet-within-a-planet that is home to microorganisms that eat rock, transform minerals and metals, and can live in extreme temperatures and chemical conditions that would be lethal to humans.'

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Bunda Cliffs, Nullarbor Plain 2017

Alan Jackson
STC

Exploration of the sea cliff entrances on the Nullarbor's Bunda Cliffs continued in August 2017 with another two week expedition to the area (refer to Jackson [2016] for background and an account of the 2015 expedition and to Milner *et al.* [2017] for a detailed explanation of all the work conducted since the 1990s). The 2017 expedition ran partly as an official post-congress trip (Sydney UIS Congress).

In March 2017 funding from the ASF Karst Conservation Fund was secured to assist with the collection of new high definition aerial video and stills of the Bunda Cliffs as well as the first detailed aerial photography of the Baxter Cliffs (Western Australia) using the services of Ian Oswald-Jacobs (IOJ Photography). Armed with new and improved images, the brains trust of Steve Milner, Rod Short and Allan Campbell (the latter two allegedly aided by copious quantities of red wine) studiously prepared a list of targets for 2017. The jury is still out on whether the wine improved the selections.

The trip started with the usual covering of thousands of kilometres (two cars from Sydney, three from Melbourne and one from Adelaide).

We all came together at Ceduna then continued west to our base camp near Clay Dam Cave.

Ten caving days were then filled with generally two but sometimes three teams working the cliff edge (and quite a bit of banter). Ian Oswald-Jacobs joined the expedition part way through in his Cessna to do some caving, some joy flights and generally excoriate us with his merciless sense of humour.

Twenty-six targets were checked, plus a few small bonus inland discoveries. With the exception of N6749 Swallows and Amazons, a large deep cave, 'wide, low and not very long' was the dominant theme. However, two caves stood out from the rest, of those I explored. N6770 Yellow Stone was proper passage (20 m wide by 5 m high) for 80 m before ending all too abruptly, but N6763 Schrödingers Bat was certainly the jewel of the expedition.

It started out as a typical small, guano crawl that didn't go far (~60 m) but a new



BRIAN EVANS

Overhang problems

pair of eyes (sharpened by an otherwise disappointing day of 'overhang' exploration further along the cliff) spotted a lead, shifted a rock and broke into continuing passage of much larger dimensions, free of guano and chock-full of gypsum speleothems.

Another two trips proved the cave to belong to the 'wide and low' category but with more than 500 m of survey data collected, spectacular gypsum decoration, a perfectly preserved Tasmanian devil skeleton and going leads, one couldn't help but be happy with this cave.

It wasn't all beer and skittles, though. The weather was against us, with frequent showers, strong winds (often onshore, making cliff work difficult), cool temperatures and even a dust storm.

Henry Shannon was kind enough to bring the UIS Congress disease with him and share it about, which progressively took people out. But as always, good caving, amazing scenery and exceptional company won the day. The survey total for the expedition barely exceeded 1200 m (which is less than you get in a day in Vietnam...) but Bunda Cliff expeditions are not measured

in metres, rather in stunning sunsets, endless skies, frolicking whales, mind-blowing cliff abseils and tall stories around the campfire.

ACKNOWLEDGEMENTS

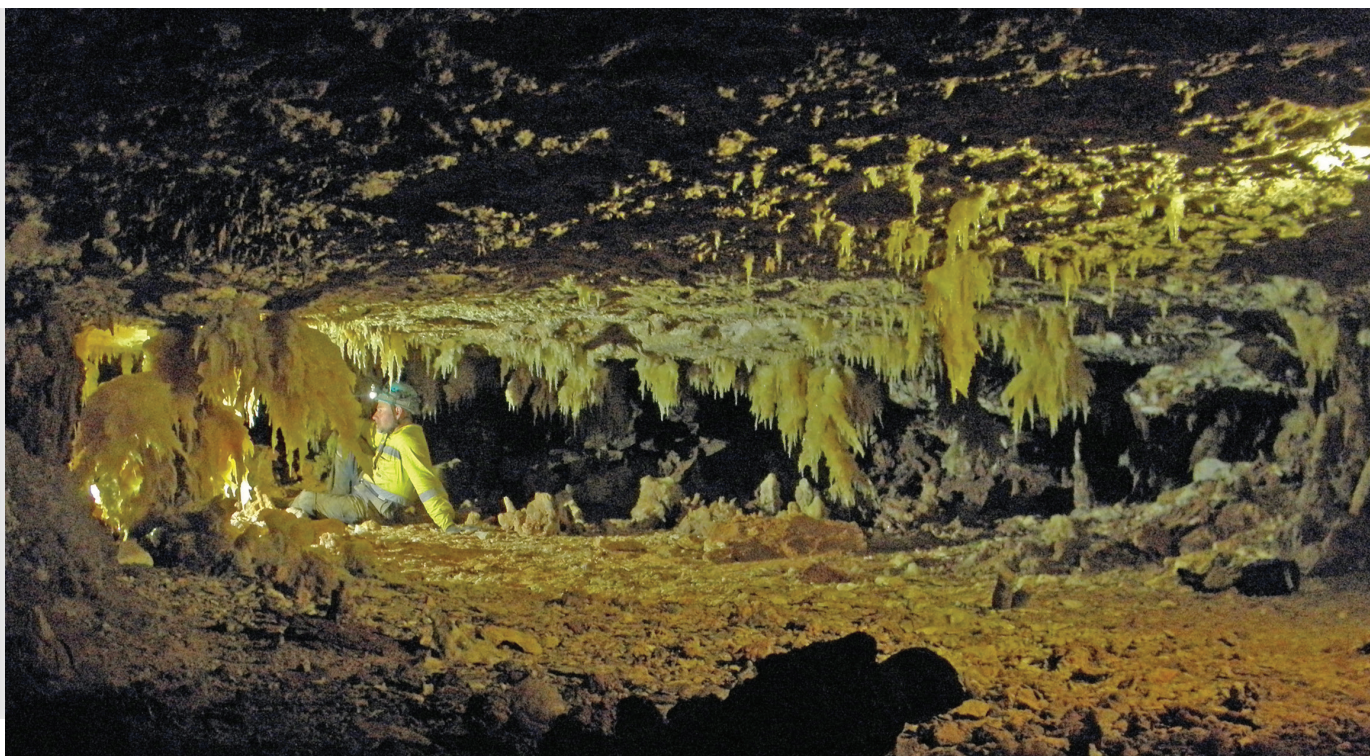
These trips wouldn't happen without all the behind the scenes work by Steve, Rod and Allan to organise permits, targets and trip logistics, so a massive thanks to them. It pains me to thank IOJ but without his aeronautical and photographic talents the task would be a lot harder, if not impossible. A big thank you also to Clem Lawrie, a Mirning Elder, for the cultural insights which would otherwise be so easily overlooked.

And of course the ASF Grants Commission who handed over nearly \$500 for the purchase of gear to support the expedition.

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ALAN JACKSON



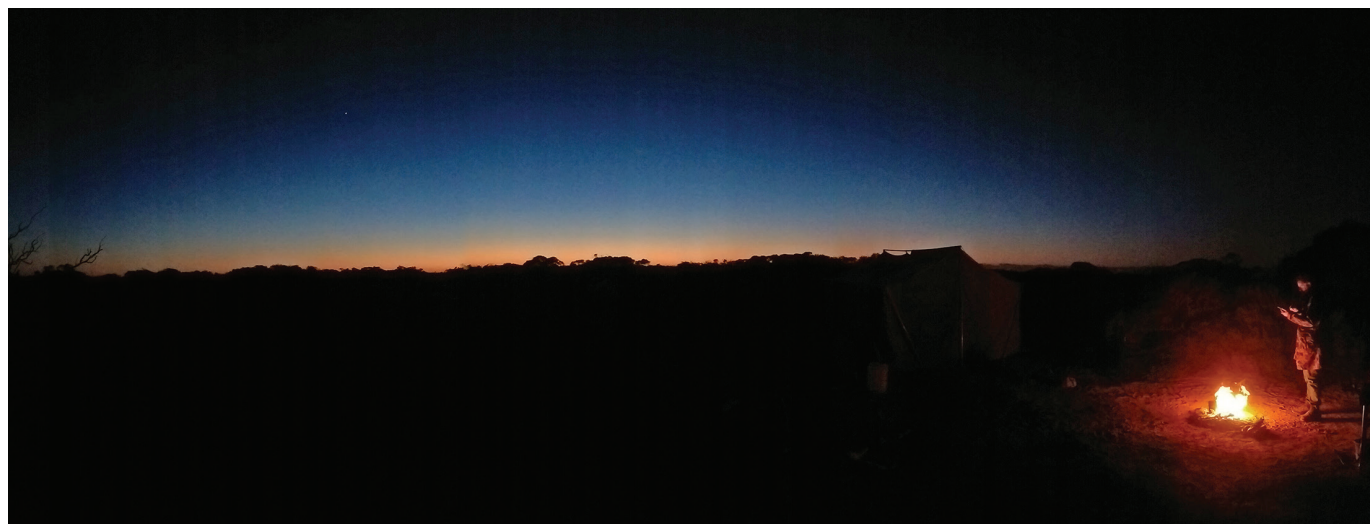
Gypsum in Schrödingers Bat

ALAN JACKSON



Yellow Stone entrance

ALAN JACKSON



Eastern glow

PATRICA E. SEISER



'Stal-bat-tite'

ROO WAITERS



Marty guano crawling

ALAN JACKSON



The fringe benefits of frequent showers

ALAN JACKSON



Rod in the spray zone

SARAH GILBERT



Tasmanian devil skull

ALAN JACKSON



Roo and onshore seas

MARTY BULLE



Diabolical edge approach



Post dust storm problems

BRIAN EVANS



Onshore winds

ALAN JACKSON



Team photo. L-R Rod Short, Dee Campbell, Steve Milner, Sarah Gilbert, Ian Oswald-Jacobs, Alan Jackson, Roo Walters, Henry Shannon, Pat Seiser, Brian Evans, Marty Bulle, Alan Campbell

IOI PHOTOGRAPHY



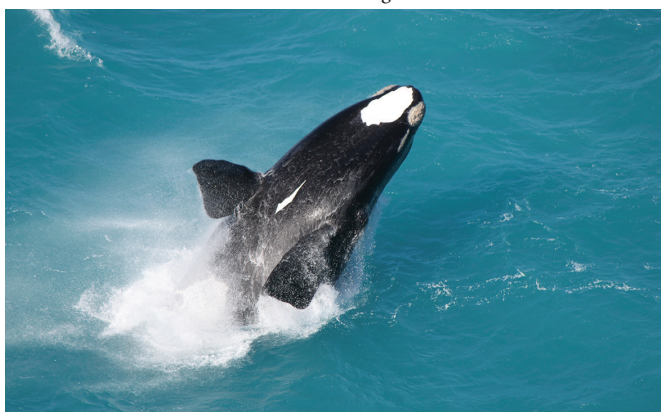
Gypsum in Schrödingers Bat

IOI PHOTOGRAPHY



Lunch in Schrödingers Bat

ALAN JACKSON



Southern Right Whale

ALLAN CAMPBELL

Savage River Caving Club

Marking 30 years of documenting the karsts of the north-west and west coasts, Tasmania

John Wylie
SRCC

INTRODUCTION

The Savage River Caving Club (SRCC) was formed as a result of Associated Forest Holdings contacting Frank Salt, an engineer then working for Savage River Mines, who had an interest in caves and karst. They asked Frank if he would be keen to look at some limestone where caves that had been found in a 700-800 year old temperate rainforest area to the south and south-west of Mt Cripps.

As a result of Frank getting together a group of people who were interested in checking out the caves, the SRCC was formed in February 1988, and the first trip to Mt Cripps was on the weekend of 9-10 April 1988.

The founding members of SRCC were Frank Salt, Lyndsey Gray, Paul Darby, Bevis Dutton, Ben Dutton, Rodney Walters, Henry & Rosie Shannon, Robert Irvine, Steve Hickey, Brian Povey and John Prewer. The Club was officially recognised by the Australian Speleological Federation (ASF) in June 1991, and has had a membership of 80 over the 25 years.

KARST AREAS DOCUMENTED PRIOR TO FORMATION OF SRCC

There are a variety of karst-forming rocks in the north-west of Tasmania, ranging from Pre-Cambrian dolomite to Cainozoic limestone. Dolomites have been recorded at Savage River, Arthur River (Magnesite), Montagu and Redpa.

Ordovician limestones are found at Eugenana, Gunns Plains, Hampshire, Loongana, Lorinna, Huskisson River, Moina, Mole Creek, Nelson River and Lake Lea (Vale of Belvoir). The Cainozoic limestone sites known were Fossil Bluff, King Island, Redpa (Kiernan 1995; Sharples 2011) and Flinders Island (Kiernan 1995).

An early record of karst in the North-West was in the Smithton district in 1845 by Strzelecki, writing on the amazing mound springs and describing the Tertiary limestone at Fossil Bluff, Wynyard and Cape Grim (Hughes 1957 p.70).

In 1880, R.M. Johnston noted a number of carbonate deposits along the North-West Coast, such as Vale of Belvoir, Don, Mersey, Circular Marshes and Chudleigh (Mole Creek) (Johnston 1888).

A comprehensive list of reports on the limestone, dolomite and magnesite deposits of the North, North-West and West Coast is in the Smithton geological report of 1989 (Brown 1989) and the Regional Geology of the Southern Smithton Synclinorium (Everard 2007).

In 1957 the state's Department of Mines published *Limestones in Tasmania* (Hughes 1957) – the first comprehensive guide to karst areas of the state. Most of the north-west and west coast karst areas known today were recorded in that publication.

A very early Australian mammal fossil was discovered in the mid-1800s in the Tertiary limestones at Wynyard (Merrick and others 2006) and as recently as 2000 some excellent

megafauna deposits were discovered at Mt Cripps by SRCC members (Cosgrove and others 2010).

NORTH-WEST AND WEST COAST KARST AREAS NOTED IN *SPELEO HANDBOOK* (1968)

Gunns Plains (8 caves), Loongana (4 caves), Lorrina (caves noted), Moina (2 caves), Mole Creek (102 caves), Nelson River (5 caves), Redpa (4 caves) and Trowutta (1 cave) were all recorded by 1968.

By the time the *Australian Karst Index* (Matthews 1985) was published, exploration of the north-west and west coast karst areas had progressed and the number of caves and features discovered had nearly doubled in number. Areas recorded were: Brougham Creek (Whitehawk Creek) (no caves), Eugenana (1 cave), Gunns Plains (11), Julius River (5), Lake Lea (Vale of Belvoir) (caves possible), Loongana (13), Lorrina (3), Moina (1), Mole Creek (158), Mackintosh River/Mt Mayday/Mt Cripps (2), Montagu (3), Nelson River (2), Redpa (9), Savage River (4) and Trowutta (2).

Thus, between 1968 and 1985 the number of karst areas documented rose from 8 to 15, and the number of caves, from 126 to 213 together with some not actually numbered.

SRCC has surveyed and documented 11 caves at Mole Creek in its journal, *Speleopod*, and has documented a total of 410 caves in this and other publications. *A Bibliography of Tasmanian Karst* (Kiernan 1989) came out the year after SRCC formed and provides a list of reports on the various karst areas and their authors.

SRCC 30 YEARS OF KARST DOCUMENTATION 1988–2018

SRCC's first public report on the Mt Cripps karst was published in *Speleo Spiel* (Salt and others 1989). In 1990 the club published its first issue of *Speleopod*, with the 81st in December 2018. *A Record of Caving 25 Years*, a publication recording the club's entire history, including all karst areas visited, caves discovered, tagged and surveyed in the 66 areas they have visited since 1988 appeared in 2013 (Gray 2013).

SRCC members have extensively added to the caves recorded in the *Australian Karst Index* 1985 through new discoveries, and some unpublished and historical records. Following on page 16 is a list of recorded caves before SRCC and to December 2018, documented in SRCC records.

Beside the club's regular journal, *Speleopod*, other publications noted below have been produced to further record the club's achievements, like membership, trips, search and rescue incidents, projects, surveying, cave naming, cave tagging, karst index forms, publications, conservation, significant events, scientific visits, visitors, club assets and the very important Th'ut.

Karst area	Caves recorded by ASF in 1985	Recorded by SRCC to 2018
Mount Cripps/Mount Mayday	2	235
Gunns Plains	11	146
Loongana	13	63
Lorinna	3	8
White Hawk Creek/Brougham Creek	0	21
Lake Lea (Vale of Belvoir)	0	22
Keith/Lyons River	0	12
Eugenana	1	12
Wilmot River	0	11
Julius River	5	8
Cardigan River	0	8
Nelson River	2	5
Fossil Bluff	0	7
Redpa	3	5
Timbs Creek	0	6
Moina	1	4
Newall Creek	0	4
Wilson River	0	3
Lower & Upper Huskisson River	0	3
King Island	0	3
Claude Creek	0	1
Hampshire	0	1
Non-karst areas		
Cradle Link Road	0	2
Don Head	0	3
Donaldson Landing	0	2
Goat Island	0	2
Howth	0	1
Ketchem Bay	0	1
Little Castray River	0	1
Preston	0	1
Rocky Cape National Park	0	2
Sisters Beach	0	2
Stoodley	0	6
Upper Natone	0	2

FACTS ABOUT THE NORTH-WEST AND WEST COAST KARST AREAS

The North-West has karst areas of great interest, though some have been little explored (Sharples 2011 pp. 67-68). Challenges await those prepared to make the effort. Some significant karst features are noted below. Some of these are poorly known but are worthy of highlighting in the hope it encourages others to seek further such discoveries.

No. 1



JOHN WYLLIE

Henry Shannon, Mount Cripps Karst

On the north coast of Tasmania abundant limestone was reported for the first time in Australia on the Tamar River near Launceston in 1804 (Middleton 2004 p. 127). (It was to be 1815 before limestone deposits were found on mainland Australia (Mayer 2007)).

No. 2



JOHN WYLLIE

Mound springs, Smithton

The mound springs recorded by Strzelecki in 1845 (Hughes 1957) have been reduced considerably in number due to agriculture, but a few good examples still survive, and have been studied and documented in recent years (Donaldson 2009, Sharples 2011 p. 33, Davidson and others 2011).

No. 3



Fossil Bluff, Wynyard

At Fossil Bluff, Wynyard, a partial skeleton was found in marine sediments in the mid-1800s. This proved to be the first Tertiary mammal described in Australia and until recently was our oldest fossil marsupial (Rich & van Tets 1985; Merrick and others 2006). Note: The reference in Merrick and others 2006, to Spencer's 1901 article is not in the *Proc. Roy. Soc. Tasmania* as cited. After much researching I found it in the *Proceedings of the Zoological Society of London* 1900, pp 776-795.

No. 4



Paul Darby, Central Creek, Magnesite

On the beautiful rugged west coast of Tasmania lies some amazing deposits of magnesite, first recorded at Savage River in 1897 (Hughes 1957 p. 35) and at the Arthur River in 1901, including possibly the only warm water springs in the world in magnesite (Kiernan 1995 p. 129).

Although large quantities of magnesite exist around the world, in only two areas have caves been recorded within the deposits; one in the Southern Hemisphere, one in the Northern Hemisphere. The magnesite deposits found in the Southern Hemisphere where caves have formed are on the west coast of Tasmania. This karst has been documented by a number of people (Houshold, *et al* 1999, Sharples 1997 and Wylie 2011), and this karst area has not yet been fully explored.

The only other area in the world where caves have been found in Permian Lower Magnesian Limestones is in a region stretching from Nottingham to the Durham Coast of England where a number of exceptional caves have been recorded (Wylie 2011).

No. 5

The first discovery of megafauna in Tasmania was made within an infilled cave in Tasmania in 1942 at Scotchtown, south of Smithton, in a small knoll of limestone, amid an area of Precambrian Dolomite (Wylie 2013).

No. 6



Dismal Swamp

In the far north-west lies one of the best examples of a polje in Australia; known as Dismal Swamp, it is almost still in its natural state. It is a large karstic swamp of melaleuca and blackwood trees with gradients of 1 in 2000, where extreme fluctuations in the water table through a complex doline act as an estavelle draining surface water underground as the water subsides during the summer, and then in the wetter months of winter the swamp is inundated with ground-water welling up and flooding it owing to the extreme flatness (Houshold 2006; Sharples 2011 p. 34).

No. 7



Quarry face of Eugenana bed

At Eugenana, in a small area of Ordovician limestone, quarrying has revealed a significant palaeokarst site. Cave sediments containing spores of plants, have helped date a significant orogenic event and made this the first palaeokarst site in Australia to be geologically dated (Kiernan 1988).

No. 8

The Mount Cripps landscape is pocked with a broad range of dolines of varying sizes giving the effect of an egg carton. This is termed polygonal karst and is the best example known in Tasmania; a map of the drainage divides in the polygonal karst at Mt Cripps has been drawn up (Gray & Heap 1996 p. 14). This is not Tasmania's only known site; a small area of polygonal karst also exists at Ida Bay (Clarke 1991).

No. 9



4.5 metre long straw. Philrod Cave (CP37), Mt Cripps

It is believed the Mt Cripps karst has the longest straw in Tasmania at 4.5 metres (Gray & Heap 1996). Another cave with a straw estimated at about 4 m was discovered in the area back in 1984 (Jackson 1984). The longest straw in Australia is in Strongs Cave, Western Australia, at 6.24 metres long (Eberhard 2001); in Jewel Cave, WA, another has been measured at 5.43 metres. The world's longest straw, at 6.45 metres, is in Kartchner Caverns, Arizona USA.

No. 10

Skull of a *Protemnodon* discovered in Bone Aven (CP213). Mt Cripps

While exploring in 2000, Stephen Blanden and Paul Darby descended a new cave at Mt Cripps, noting unusually large bones. Some were collected and sent to the Queen Victoria Museum in Launceston; they proved to be the almost complete skull of a *Protemnodon*. Zoologists, Palaeontologists and an evolutionary and molecular biologist visited a number of the caves at Mt Cripps between 2000 and 2009 (Gray 2013 p. 39), and the finds have gained international recognition (Cosgrove *et al* 2010)

No. 11



Vale of Belvoir

One of the latest limestone areas to be rescued from long term damage is the alpine karst of the Vale of Belvoir, just north of Cradle Mountain, where there are sinkholes, sinkhole ponds and caves, a subterranean drainage system having an unusual seasonal reverse outflow and the only alpine mound springs known in Australia, along with a rare sub-alpine floral and faunal community (Anon. 2010, Sharples 2011 p. 38, Corbett 2012).

No. 12



Thermal spring/pool, Kimberley

The thermal spring at Kimberley has been known for some time (Twelvetreets 1911). The water temperature is a constant 24°C; gas bubbles rise from a depth of about a metre through crystal clear water into a pool about 15 m x 10 m. Its source is believed to be a deposit of limestone or dolomite at a depth of about 350 metres. Its physical, chemical and biological characteristics have been noted as most unusual (Croome 1988, Matthews 1978).

OPPORTUNITIES FOR DISCOVERY

The north-west and west coast karst areas still remain largely unexplored, with huge potential to find more amazing karst features. If the above twelve items are any indication of what can be discovered, it can be anticipated that the region will in future reveal many more interesting karst features.

ACKNOWLEDGEMENTS

Thanks to Lyndsey Gray, Paul Darby and Greg Middleton for the fine-tuning of this article — truly appreciated.

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Vale Sonia Taylor-Smith

19/8/1954 – 4/11/2017

Garry K. Smith

MY WIFE Sonia joined the Newcastle and Hunter Valley Speleological Society (NHVSS) in June 2000, shortly after we started dating.

To Sonia caving was a new activity, to which she had never been exposed prior to her introductory Jenolan Caves trip – (Trip report *Newcaves Chronicles* No.15). Sonia took to this new activity with enthusiasm but soon learnt her limitations, which she took into account when undertaking trips.

When her limit was reached she was happy to sit and meditate in total darkness, listening to the serenity of water dripping and the occasional bat flutter past. Here she would wait, totally at peace with her surroundings until the rest of the party returned after a little while exploring the depths of the cave.

Sonia learnt abseiling, prusiking and ladder climbing, but preferred caves which didn't require rope work and could be explored by crawling, squeezing, small climbs or just walking. Photography was her passion, whether above or below ground, and her camera was never far from her grasp.

Over the last 17 years, Sonia has made many contributions to the NHVSS, taking on the positions of librarian and secretary at various stages. She wrote quite a few articles for the society's magazine, *Newcaves Chronicles*, and provided countless photos for use in this publication and the Timor Caves book. Sonia also wrote an article about cave photography, which was published in *Australian Photography* (August 2003) and another article about the Timor Caves book launch was published in *Caves Australia* (issue 175).

Sonia is the second of three sisters, born in La Linea, the Spanish border town with Gibraltar. At the age of eleven Sonia's parents moved the family to Wales in the UK. Hence her early years of schooling at an English-speaking school were made very difficult as she only spoke Spanish at the time. This gives us a small insight into the difficult hurdles which Sonia faced in early life and her willpower and drive to



GARRY K. SMITH

Sonia in Belfry Cave, Timor, NSW

overcome all obstacles set before her. And that she did in so many aspects of her life.

Sonia married in the UK and had two daughters; then her young family shifted to Australia in 1982.

It was on 24th May 2000 that I first met Sonia as a single mum and this first meeting quickly turned into a wonderful enduring relationship. Family was a central focus point, but Sonia also readily embraced the outdoor adventures of caving, abseiling, bushwalking, camping, white water canoeing and rafting.

I am sure everyone who knew Sonia would agree with me in saying that she was level-headed, had a great sense of humour, was very reliable, very caring and always concerned about the welfare of others ahead of her own. She never swore nor had a bad word to say about anybody.

In 2012, Sonia and I travelled for nine weeks with our caravan up through the centre of Australia to the Northern Territory then back home via Queensland. Our love for each other was not fazed by this

length of time living in the cramped quarters of a 5.1-metre caravan, so we planned many more trips after that. One such trip of seven and a half months in 2015 was around Australia. This was an incredible adventure, which took us to many beautiful remote locations and of course included visits to many tourist caves on route, plus the Australian Speleological Federation (ASF) Biennial Conference in Exmouth, WA. Overseas trips took us to Spain, Germany, Hawaii, Canada, Indonesia and New Zealand to name a few. We visited many tourist caves during these overseas adventures. One of these trips included the ACKMA meeting in 2010 and more than a week of caving in Borneo and the Mulu Caves in Sarawak, the home of the famous Deer Cave.

Sonia's fluent Spanish made it so easy to get around in Spanish-speaking countries; however, I am sure she became sick of me asking: "What did that person say?" I was often amazed at how she could transition from speaking fluent Spanish and then

English without missing a beat. But to Sonia it was no big deal. She had also learnt French in school so at times was able to translate some basic French.

Sonia's love and flair in photography meant that her camera was never far from her grasp. Her expertise and passion for photography ensured there was always an abundance of amazing images capturing all aspects of our adventures. This passion was later put to use when she formulated and ran a beginners' digital photography course for the U3A. Many of her students commented to me about her easy-to-understand teaching method, expert knowledge of the subject and patience with assisting everyone in the class. Sonia also took on the role of webmaster for the U3A and did an excellent job of giving it a fresh new look and keeping it up to date with activities over several years.

Sonia joined the Belmont Sing Australia choir and after a couple of years of her coaxing, I also joined the choir. We ended up going to many local gigs spanning more than eight years, including a national gathering in Canberra and another in Alice Springs. The choir asked her to sing the solo part of a Spanish song on many occasions. Sonia had an incredible singing voice and loved to sing.

Sonia had a great interest in healing with bush flower essences, reiki and kinesiology and undertook courses in each of these modalities. I vividly recall a four week caving research expedition to Indonesia where I sustained an injury to my knee which caused it to swell to enormous proportions. We had arranged to meet in Bali at the end of the expedition and spend a fortnight holidaying together on the island. While sitting in a minibus being driven out to a tourist attraction, Sonia placed her hand on my very swollen knee during the hour long trip. By the time the bus had stopped, my knee was totally back to normal. Sonia had performed reiki on it and in that hour had taken away the swelling which had been painful for two weeks. To this day I can't understand how she did it as these modalities are beyond my comprehension. This is but one of Sonia's incredible miracles which I witnessed.

Another day we walked into an RSL club for a meal and without warning she stopped and said a particular poker machine was calling her. She rarely puts money into these machines. On this particular day she put in just two coins and walked away with \$50 in a couple of minutes. Another day she went to purchase a raffle ticket and was very precise in that she wanted a particular numbered ticket as it was going to win. Yes, the ticket won!

Sonia's strong family ties meant that she



GARRY K. SMITH

Sonia abseiling in Bullio Cave, Wombeyan, NSW

was always in close contact with family, and in particular her daughters Siân and Catherine, even when we were travelling abroad or around Australia.

Sonia adored her grandchildren and looked after them whenever the opportunity arose. They saw her almost daily and I know they will sadly miss her, as will all her family and friends.

Over the last 17 years Sonia has been my rock, friend, partner, soulmate and loving wife. Our relationship was so natural we often envisaged that we would be side by side in rocking chairs during our old age, still chatting with endless conversations. We held no secrets from each other and talked openly about all subjects.

We had a wonderful marriage and incredible relationship to the point that we could tell what each other was thinking with just a glance or a gentle squeeze of the hand. I have been very blessed to have had a wonderful life with Sonia and surrounded

by our wonderful families and friends.

In many ways we complemented each other. I have good eyesight but terrible hearing, Sonia has incredible hearing but not the best eyesight. For example, when dining out I could read the menu on the wall behind the counter and Sonia could hear the softly spoken waiter's conversation. Our strengths and weaknesses complemented each other.

During the last eighteen months of Sonia's life, cancer caused her endless pain and suffering; however, she always put on a brave face, continued to smile and never complained. She was/is a very, very tough lady with a heart of gold and was always thinking of others before herself.

Sonia passed away peacefully at the Newcastle Mater Hospice surrounded by her immediate family at 6.55am on 4th November 2017.

Sonia will be sadly missed by her family, friends and all who knew her.

The Beal Escaper

Alan Jackson

STC

INNOVATION in the outdoor equipment market is pretty rare these days. 'New and improved' products are marketed enthusiastically every couple of weeks but in reality there's little new and the improvements are exaggerated.

Beal has done something interesting lately though with the release of its 'Escaper'. It's aimed more at the rock climbing and mountaineering market but I can see some application for cavers and canyoneers too.

Disclaimer: I don't own one of these things, I've never used one and I haven't even seen one other than on a computer screen, so this is hardly a gear review. Consider this a heads up for gear nerds.

The Beal Escaper is a bit of rope with a reinforced eye at one end, a bit of elastic and some dyneema tape woven into a 'Chinese finger trap'. It allows one to retrieve a single rope after an abseil.

My initial reaction was 'Jesus Christ, that looks scary', which appears to be mirrored by 90 per cent of the climbing community if online forums are anything to go by.

The idea is that when under load, the rope is grasped tightly by the Dyneema trap but when you unload it the elastic pulls the Dyneema back up and slips a bit of rope through. Repeatedly load and unload the setup and eventually all the tail feeds through and it falls out of the sky on your head.

It means you don't have to have twice as much rope as the length of a given abseil to effect a pull down (or a lightweight tag line to do the same). It appears to be being marketed as an emergency device only or for those who need to go super lightweight.

From the frenzy of keyboard warrior opinions and a very limited range of

real-life tests (I think it only hit the market in February 2018) it seems its main limitations are maximum abseil length (the elastic can only 'lift' so many kilograms of rope so once you exceed that the release stops working — or as good as), angled or 'dirty' abseils with lots of rub points and friction can overwhelm the elastic's ability



on anything but the shortest of abseils and the whole thing looks a bit snag-prone (as it tries to make its way down the abseil to you, or back up the next pitch below you after it's gone sailing past).

Plenty of people seem worried about abseils with ledges and other bits where you occasionally fully or partially unload the anchor mid-abseil but they seem to be ignoring the fact that the system generally requires at least eight unload-load cycles to release.

I'd be interested to see how it handles wet and muddy or gritty rope. Midnight Hole through trips would be easier with one 50 m rope rather than two. Ice Tube would almost be enjoyable with so little rope.

At the least it would be a useful thing to have sitting in your pack in the event of a rope snag which leaves you with less than the desirable amount of rope only partway down a cave or canyon.

As an emergency backup device it seems good — small and very light.

As a generator of online hysteria it is even better.

Some would have you believe it is Satan's work and only a fool would use one (but the internet is full of that kind of people).

Others can't believe how they've made it this far in life without one. But once you filter out the extremes the bulk of online discussion is good critical analysis on the likely pros and cons.

You'll learn much more about it online than by reading this drivel, so go and Google it now and lose yourself for hours in the miasma that is YouTube, then try to work out where the last five hours of your life went and why you're watching videos of cats doing Elvis impersonations.

M-3 Shades of Death Cave, Murrindal, Victoria

Nicholas White

Secretary, Rimstone Co-operative Ltd



DARYL CARR

The entrance chamber of the cave with the original owners and now members of Rimstone Co-operative Ltd, Geoff Rebecchi (left) and Graham Shaw on landing

SHADES OF DEATH CAVE got its name at the time of its discovery in the early 1900s. In the 1960s several cavers decided to develop the cave and it was operated as a show cave during holiday periods until the early 2000s.

The guides gave a very relaxed and informative tour. Graham Shaw and Geoff Rebecchi were amongst the original developers and became the owners but about three years ago, decided managing the cave had become too difficult for them. They offered the property to Rimstone Co-operative, a community advancement society.

Rimstone Co-operative, after assessing the cave, purchased it in June 2017, with assistance from ASF and the support of the Karst Conservation Fund. This is the sec-

ond cave property as the co-operative purchased the Scrubby Creek Cave property in 2012. This M-3 purchase is a valuable addition to the Homeleigh members' accommodation in Buchan and the Scrubby Creek property.

Rimstone's management strategy with Shades of Death Cave is to have occasional open days where the cave is interpreted for friends and the local community. Early work has concentrated on tidying up the property and cave infrastructure. Together with VSA we have started on a program of carefully re-surveying the cave and assessing areas that need track marking or cleaning. We expect to have recreational caving access trips and there is further exploration possible.

We have also embarked on basic scientific work with some speleothem samples being taken for dating. As well, the biota urgently requires assessment.

This whole project takes Rimstone into challenging new areas with many opportunities for responsibly and sustainably managing the cave.

A targeted fundraising campaign is underway to support the purchase.

Please consider donating to the purchase directly to Rimstone Co-operative Ltd or as a tax-deductible donation via the ASF Karst Conservation Fund.

Details of how to donate directly or via the ASF Karst Conservation Fund (tax deductible) are available at <http://www.rimstone.org.au/>



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