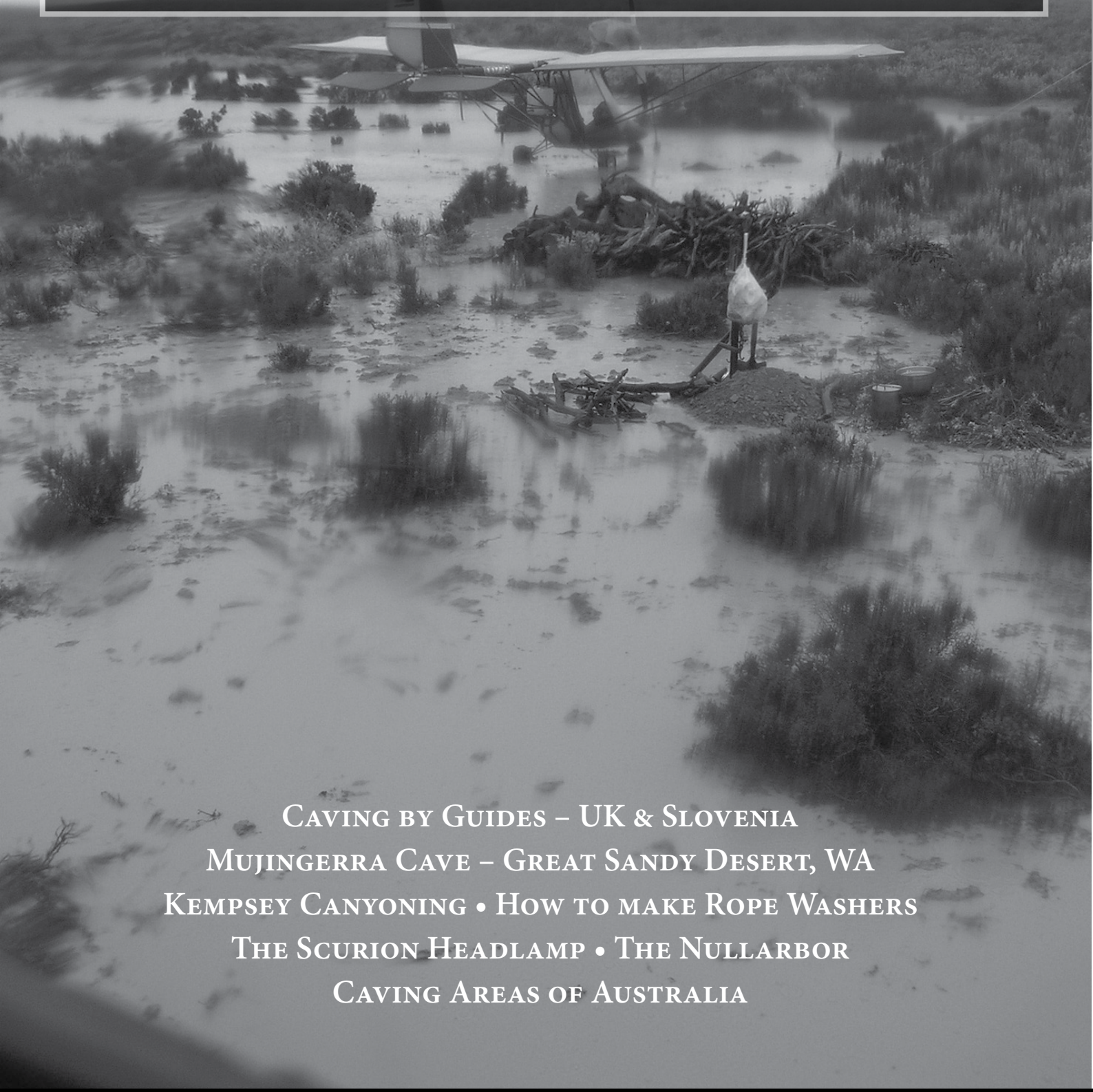
CAVES AUSTRALIA

The Journal of the Australian Speleological Federation

AUSTRALIAN SPELEOLOGICAL FEDERATION
ESTABLISHED 1956



Caving by Guides – UK & Slovenia
Mujingerra Cave – Great Sandy Desert, WA
Kempsey Canyoning • How to make Rope Washers
The Scurion Headlamp • The Nullarbor
Caving Areas of Australia

No. 175 • SEPTEMBER AND DECEMBER 2007
(Printed October 2008)

COMING EVENTS

In particular, this list will cover events of special interest to cavers and others seriously interested in caves and karst. This list is just that: if you are interested in any listed events, Elery Hamilton-Smith: elery@alphalink.com.au or Nicholas White, (Chair of the International Commission) nicholaswhite@netspace.net.au may have further information. The relevant websites also are useful. Details of other regional/ local overseas events can be found on the UIS/IUS website http://www.uis-speleo.org/.

2008

November 24—28

Australian Protected Areas Congress, Twin Waters, Queensland. http://www.epa.qld.gov.au/parks_and_forests/managing_parks_and_forests/australian_protected_areas_congress_2008__apac08/

2009

January 5—9

27th ASF Conference Gippsland Victoria Pre and post conference trips as well. All enquiries to karstaway@caves.org.au or Marg James margpj@yahoo.com.au or go to http://www.caves.org.au/conf2009/ More details in this issue of *Caves Australia.*

May 3—9

ACKMA Conference, Margaret River, Western Australia. Convenor: Anne Wood. http://www.ackma.org/

May 12—17

Hypogene Speleogenesis and Karst Hydrology of Artesian Basins, Chernivtsy, Ukraine. The First Circular is available at http://www.network.speleogenesis.info/member/ uploads/files/101/ SGNDocs/Hypogene%20Speleogenesis%20Conf_1st%20Circular.pdf

July 7—12

ANZ IAG International Association of Geomorphologists Conference, Melbourne. A karst session and some karst field trips will be run during this conference. For details contact Susan White Email: susanqwhite@netspace.net.au, or visit the website: http://www.anzgg.org/melbourne2009.htm

July 19—26

15th International Congress of Speleology, Texas, USA organised by the NSS. For the latest details see http://www.ics2009.us/

2010

May

ACKMA Annual General Meeting "Week", Mulu Caves, Sarawak, Malaysia.

2011

May19

ACKMA Conference, Tasmania

Caves Australia

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ASF

Contents

COVER: The ultralight aircraft grounded after heavy rain on the Nullarbor. Photo: Daryl Carr

ASF Executive

CAVES AUSTRALIA

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For contributor guidelines, contact the Production Manager.

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

As no issues of **Caves Australia** *were able to be published in 2007, the publication dates will include the actual dates the issue is produced.*

Caves Australia 175 is a large double issue of 44 pages. It has a new layout which all readers hopefully like. The issue has a single number but covers the September and December 2007 issues. CA176 should also be a double issue

Layout and Production by Summerleas Print, Kingston, Tasmania

From the Editor

WELCOME to this double issue of *Caves Australia*. The printing of issue 175 (September and December 2007) brings our backlog from 2007 to a close. *CA*176 is well under way and we are actively looking for new articles for that issue and beyond.

With the release of *CA*174 recently we hope you have enjoyed our new section, Conversation on Conservation, and the revamped club news section Down Under All Over. You may have noticed some changes to layout as well from our new publishing team!

This double issue sees the introduction of a new section called Caving Areas of Australia. The inaugural article by Sue White outlines the role of this section and I hope that many of you will contribute to sharing details about caving in your region.

Don't forget to share all your topical news and events with us via Ross Anderson, editor of the monthly *E-Speleo Bulletin.*

Current article closure dates:

*CA*176	Closed
*CA*177	15th October 2008

Regards, Ed.

WANTED

ARTICLES FOR CAVES AUSTRALIA!

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

It is only with YOUR contribution that we can produce a quality magazine for all to enjoy.

For writing and style guidelines, contact the Editor or Production Manager for further information.

President's Report

THESE PAST few months have reinforced my views on the importance of continuing strong caver and cave manager relationships. Cavers have a desire to explore, enjoy and quantify components of caves. Cave managers have many reasons and circumstances that have put caves under their control.

There was an occasion, recently reported, where a search and rescue operation in NSW successfully located and extracted a missing caver.

Investigations have revealed that the caver had made decisions and performed actions, which deviated from accepted ASF guidelines and policies for caving.

I do not want to judge the rights and wrongs of an individual caver but I do want to look at the flow on effects that incidents may have with regard to caver and cave manager interactions.

There are many ways in which access to caves is controlled to varying degrees, ranging from total public access to zero access to anyone.

A cave, its visitation and exploration, historically begins with an open access situation that moves backward and forward towards a fully managed one. In some situations a cave may actually cease to exist by the actions of a destructive owner.

We as cavers must continue to work with cave owners to find an appropriate level of access that will maintain and protect caves. We need to learn to accept decisions made and follow appropriate pathways to allow us to suitably conserve and visit caves.

I stress that we need to be unified in our interaction with other cavers, with cave managers and with the traditional owners of caves. The likelihood of achieving a desired outcome will be increased if we present a united, consistent and in some cases persistent front rather than a series of fragmented approaches to the matter. Our shared love of caves and the best possible outcomes for their preservation should be the driving force behind these interactions rather than personal goals.

We often see cave managers as being transient in their care and control of caves.

They may start at one end and see a cave merely as a hole in a rock that they are interested in utilising for construction or profit or they may see the cave as an attraction. They may also see caves as a hazard to be avoided by closure. For whatever reason, they have a major role in access and management of them.

When managers make decisions regarding the integrity and conservation of part or all of a cave we must honour those decisions. We however have the right to be interactive and persuasive to change decisions, by sharing our knowledge and expertise relating to caves.

ASF still needs to resolve problems with and develop firm policies on how to acquire, store and disseminate karst information. This combined information gathered within clubs represents millions of hours spent underground and in processing over a long period of time.

There is a desire to keep this data safe and controlled in its dissemination and distribution and yet still available to bona fide requests from landowners and managers of karst areas.

We as cavers must be prudent in the giving and confident in the security and integrity of the data once exchanged. Many of us have seen cave locations and maps inadvertently ending up in the public domain by the inappropriate management of this data.

I see that one outcome of discussions on karst data availability is a series of Agreements and Memoranda being drawn up between caving groups, state councils and individuals where the terms of data flow is agreed upon and signed against.

Thus it is a two-way road we travel as cavers; we need to build up relationships with managers, share our knowledge with them and enjoy the caves they are responsible for as they reveal to us all the undiscovered spaces.

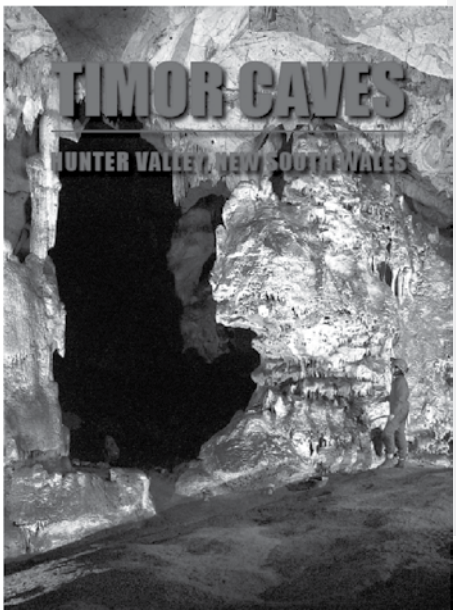
In Caving,
Stan Flavel

Timor Caves Book Launch

Sonia Taylor-Smith
(Newcastle and Hunter Valley Speleological Society)

SONIA TAYLOR-SMITH

Part of the audience at the book launch held at Murrurundi Bowling Club



IT'S BEEN three years in the making and the Newcastle and Hunter Valley Speleological Society members thought the day would never come! There had been countless field trips to the Timor region for specific reasons such as mapping and photographing caves together with the search for those special photos which typify the limestone landscape with the ever-present grass-trees.

A few of us met at Murrurundi Bowling Club (the book launch destination) around 10 o'clock on Saturday 2nd August to organise and arrange the venue.

After several hours we were happy with the outcome and everything was set in place for the launch at 2 pm. The crowd started to arrive around one o'clock and from that time, it was full on.

As guests arrived, book purchases started and the editors were busy signing copies like celebrities!

SONIA TAYLOR-SMITH

Garry Smith delivering the opening speech at the book launch

The four editors are: Jodie Rutledge, Garry K. Smith, Meredith Brainwood and Andrew C. Baker.

By the time we started there were in excess of 120 guests overflowing the room. The atmosphere in the club was all abuzz. In a short period of time we had transformed the bowling club from its normal patronage of roughly six locals on a Saturday afternoon to well over one hundred guests.

The atmosphere in the club was one of excitement and anticipation by locals, the guests and our club members.

Garry opened the launch by welcoming everyone and talking about the club's background and also thanking the many contributors for their co-operation and financial support.

This was followed by the introduction of Jodie Rutledge, who had been the driving force behind the book. Jodie explained some of the logistics involved with bringing such an idea to fruition: the application for the grant, the number of field trips, identifying contributors, editing submitted work, widespread book editing and proofreading was all paramount to the success and quality of the book.

After the two speeches concluded, light refreshments were provided and the book sales resumed. The book sales exceeded our expectations and the positive feedback from cavers and property owners was exceptional.

The whole experience added to a very memorable event. The book, by our club's standards, has been extremely successful and shows the power of teamwork headed by a motivated leader.

In conjunction with the book launch, our club also released a DVD on Timor 'Above and Below.' The Timor Caves book is for sale at $35.00 (plus postage and handling) and the DVD is $10.00 (plus postage and handling). More details at www.nhvss.org.au

SONIA TAYLOR-SMITH

Jodie Rutledge delivering her speech on the making of the book

BOOKS

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This project has been assisted by the New South Wales Government through its Environmental Trust.

Environmental TRUST

Get yours now!

ORDERS are now being accepted for this comprehensive guidebook on the Timor Caves. The Newcastle and Hunter Valley Speleological Society has been working on this project for the past three years, carefully researching and documenting this unique karst environment.

This project was assisted by the New South Wales Government through its Environmental Trust.

The book serves as a record of the Timor Caves and Karst for visitors, cavers, local government and property owners.

Readers are educated about the fragile nature of karst and encouraged to visit the caves with care and respect.

The book at a glance

A4 size; soft cover 112 pages; 93 colour photos; 8 tables; 15 figures/diagrams; 80 cave descriptions; and 57 cave maps, 37 of which are published for the first time.

Chapter subjects include:

- Geology
- Invertebrates
- Bats
- Karst-specific vegetation
- Birds
- Palaeontology
- Cave surveying and mapping
- Education opportunities
- Minimal impact caving

The book includes a cave glossary and geological timeline for the Timor region.

Orders now accepted: $35 plus postage and handling.

Caving by guides around Cave Land
–United Kingdom and Slovenia

Clare Buswell and Heiko Maurer

WAY BACK in July of 2005, Heiko and I visited a friend and ex FUSSI member, now resident in the Peak District of the United Kingdom. The Peak District, which lies between Manchester and Sheffield, is one of the premier karst regions in England. This region is known as the Castleton Karst area and lies at the northern end of the Peak District limestone. As our travels overseas were primarily work and family related, caving gear was left at home, so we entered the world of the guided cave tour.

As our time in the Peak District was short we opted for a walk up to Mam Tor, which is essentially a landslip that dominates the Hope Valley.

This ten-mile walk took us past about four tourist caves, Peak Caverns (aka the Devils Arse), Speedwell, Blue John and Treak Cliff Caverns. We visited Peak Cavern on the way, and entered a world of history, water and cold.

Our guide was one out of the box: full of songs, film star impersonations, a teller of historic tales—all complemented with a strong Yorkshire accent.

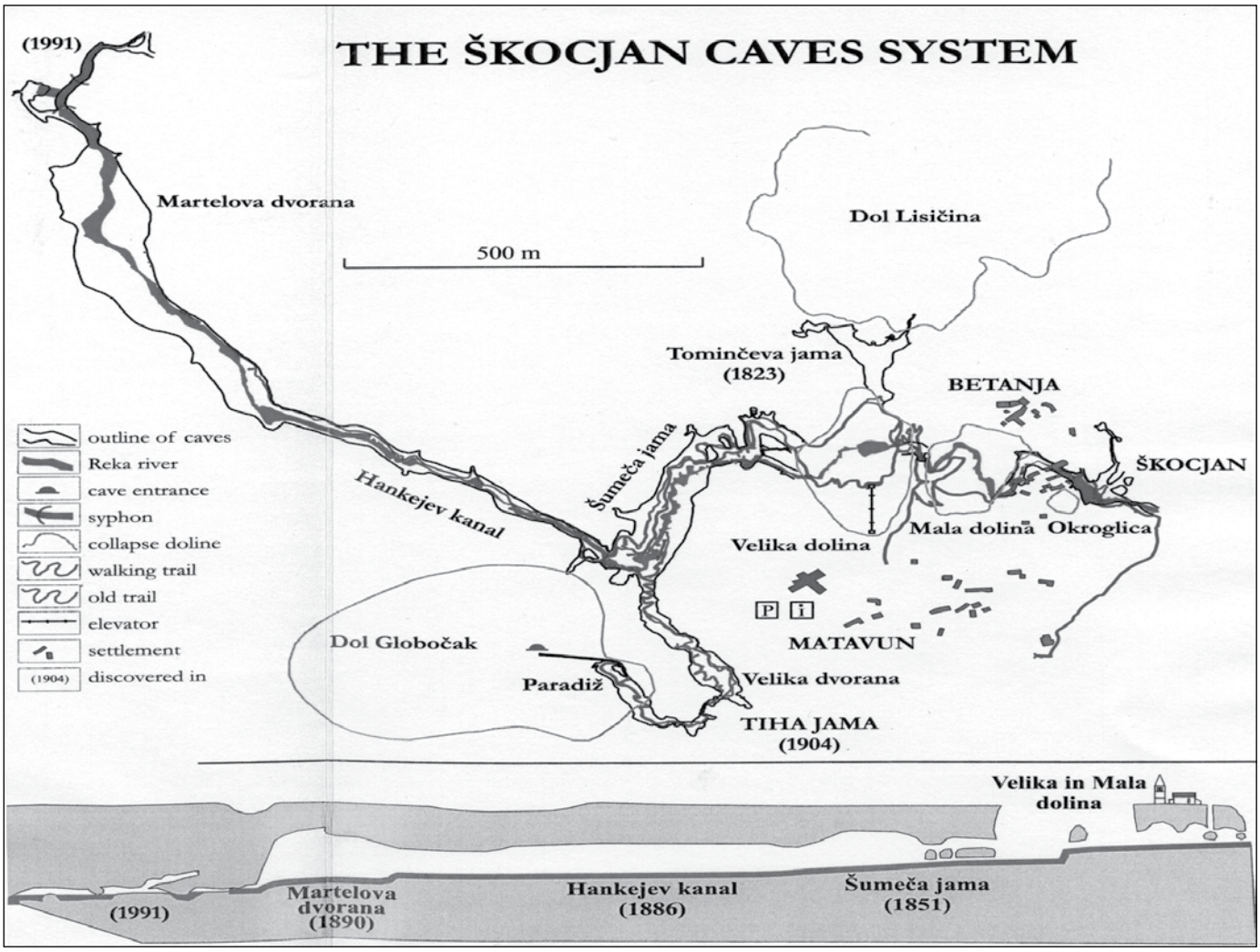
The entrance to the Peak Cavern is situated in a blind gorge, 280ft (84m) below a vertical cliff that once formed part of the defence structure of the now ruined Peveril Castle. It is also the largest natural cave entrance in Britain and is in rock that is around 300 million years old (Carboniferous Period).

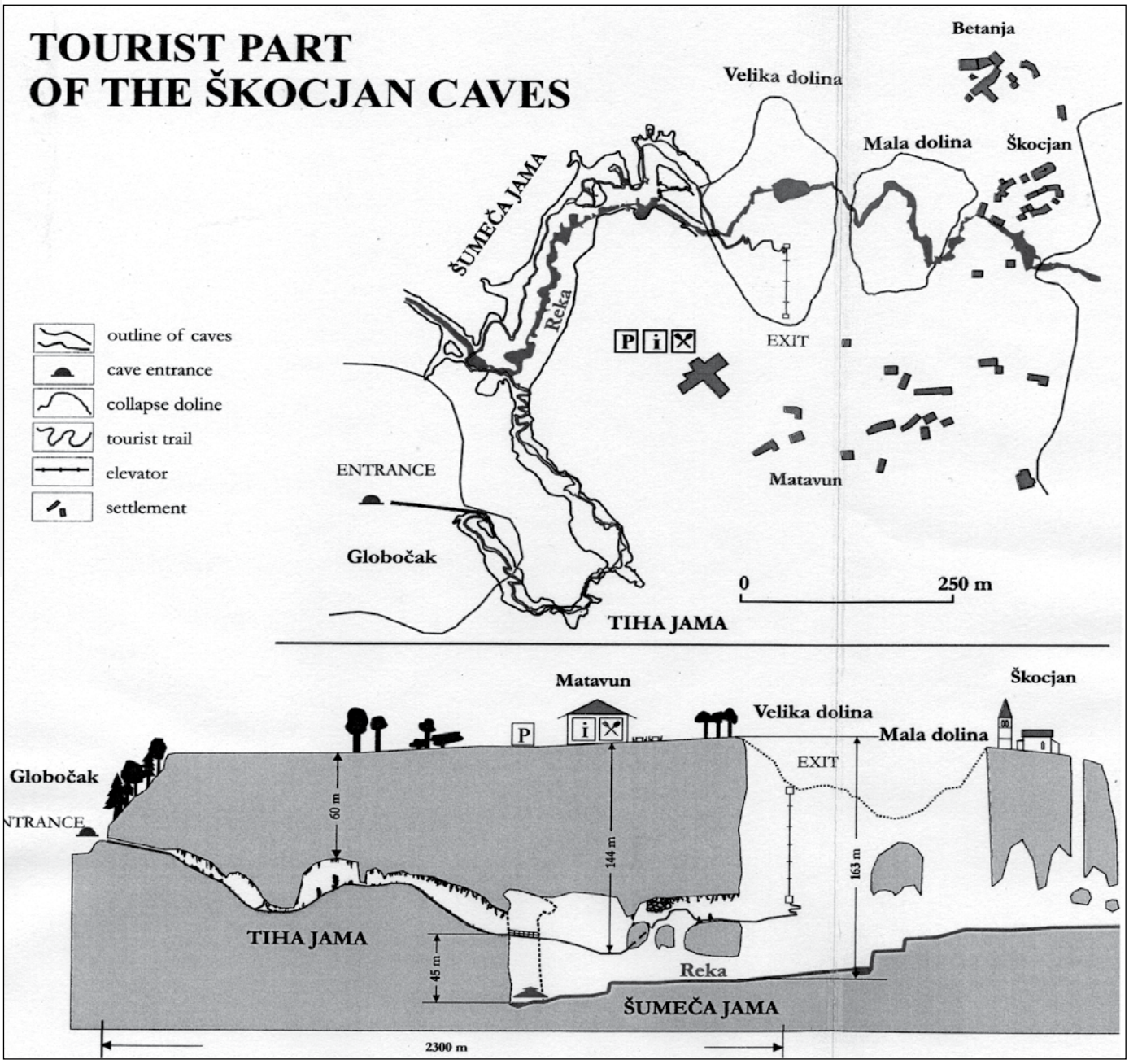
The entrance cavern, which contains the resurgence for the Peak Cavern streamway, was once the site of a rope works industry, which lasted around 400 years. The cave tour begins with a hands-on rope making demonstration and history tour. Heiko was conned into being the labourer and made a very good piece of rope, which was no doubt placed on sale at the front office later on.

The cavern roof is scarred with smoke from the cottages that were built to house the rope makers and their families.

On display are reconstructions of these houses and yards, which held livestock. As a visitor you certainly get a sense of the industry that went on here, as well as the living conditions of the workers. Imagine a constant temperature of 10 degrees, the smell of yarded pigs, sheep and other livestock, smoke from fires and being flooded out in winter.

The tour continues through the entrance chamber into a stooped walkway known as the Lumbago Walk. This passage has been blasted out to allow better access.





Originally, paying guests, including one Queen Victoria, were put in a small rowboat and at the lowest point had to lie down in the boat so as to get through the passage, which was at that time, around a metre high and two or three wide. Now the passage bypasses the streamway, except for high rainfall events when the place floods. From here you emerge, via Rogers Rain House, into a large chamber called Pluto's Dining Room, which is now used as a special occasions banquet room.

Rogers Rain House is a veil of water falling from a mineral vein that has a streamlet at surface level as its source.

The tour, which ends at Pluto's Dining room, covers about 100 m of the cave. The cave itself links into the Speedwell cave system, and is approximately 3 km long. There were six people on this trip including the guide, who insisted on doing Frank Sinatra impersonations in Pluto's Dining Room.

The next guided experience was in Slovenia, the home of speleology. Slovenia was part of old Yugoslavia and is bordered by Austria in the north, Italy on the west, Bosnia (what was Croatia) on the south and Hungary on the north-east corner. It also has 35 km of seafront along the Adriatic in the West.

The country has around 7000 caves that have been recorded. The deepest, Cehi II on Jelenk Peak, is near Bovec, at -1370 m.

There are about twenty-four show caves open to tourists, and the caving regions lie in the north—the Gorenjska and Primorska sections of the Julian Alps and in the Notranjska karst area of the Postojna region in the south west.

Heiko and I visited two show caves in the Postojna region.

The Skocjan Caves

The Skocjan cave system was and is being carved out by the Reka River, which has eroded a magnificent double doline entrance to the system. Indeed, to get a sense of size it takes a half hour to briskly walk around it. If you want to stop and take it all in then give yourself an hour at least.

This is the official description of the cave:

> *"The Reka flows initially from springs below the Sneznik Mountain along a 55 km course as a superficial stream. After … [making] contact with the limestone the river erodes and deepens its bed and flows through a 4 km long gorge, at the end of which there is a mighty wall under which*

the Reka disappears underground. About 200 m beyond this the cave ceiling collapsed, most likely in the early Pleistocene period (2-300,000 years ago), the consequences are the present collapse dolines Vekija dolina, 160 m deep and Mala dolina, 120 m deep, divided by a natural arch, which is the only remaining part of the original cave ceiling. In the Velika dolina the Reka finally disappears underground and emerges on the surface as far as 34 km away in the Timavo springs. This part of the Skocjan Cave system, the Murmuring Cave (Sumeca Jama), is in fact an underground gorge, 3.5 km long, 10-60 m wide and up to 100 m high. The length of the whole system is approximately 6 km with 205 m of vertical difference between the highest entrance (Okroglica), and the lowest known point, the siphon. The system also contains the world's largest underground hall, the Martel Hall 308 m long, 123 m wide and 106 m high."[1]

At the time that we visited so did about 100 people. That is, 100 people went on the same tour as us. We were broken into four language groups: Slovenian, Italian, English and French, with two guides. You enter the cave via the 116 m long tunnel that was constructed in 1933. The cave temperature is 13 degrees. We took up the tail-end Charlie position. Taking photos, by the way, is banned.

The first chamber, known as Paradise, is covered with speleothems from top to bottom. From here the tour descends into the Podorna Dvorana (Collapsed Hall), with its boulders on the floor that were once on the ceiling.

You continue through the Labyrinth, to the Velika Dvorana (Great Hall,) with stalagmites that are up to 15 m tall. Australia's tallest stalagmite, the Khan in Kubla Khan Cave, Tasmania is 17 m tall. The Khan is on its own; here in the Velika Dvorana are at least half a dozen.

I was too awestruck to keep counting and I would still be there except that the guide turned off all the lights.

From here you begin to hear the Reka River and soon the cave opens up into the gorge that is Semeca Jama (the Murmuring Cave) with the river at its bottom.

The section of the chasm that the tourist trip covers is mind-blowing. You cross the Cerkvenik Bridge 45 m above the river, just where the river enters the Hanke Canal and you can't hear yourself speak above the noise of the water. Somewhere ahead of us were 97 other people, we didn't care as Heiko and myself just hung around trying to take it all in. If you looked up from the bridge you could see the remains of the previous bridge built 65 years ago and 20 metres higher than the one we were on. The guide also hung around so we got a chance to chat him up after we had reached an area known as the Gour Pools.

We learnt from the guide that the cave averages 800 people through it each day, so let's say that equals 288,000 people per year. (Naracoorte caves gets 75,000 people visiting each year.) The management authority employs 16 people to deal with them.

The Skocjan caves are on the UNESCO's world heritage list of natural monuments. The cave has a long history of human habitation and the first known written record of it dates back to Posidonius of Apamea (135-59 BC).

Archaeological work has found evidence from the Mesolithic period through the Iron Age, classical antiquity and the Middle Ages up to the present day. Recorded tourism dates from 1819 when a visitors' book was introduced.

The first plan map of the cave was drawn by Anton Hanke in 1888. The oldest printed maps from the 16th century marked the Skocjan caves on them. The dolines are home to 250 varieties of plants and five different types of bats.

We left the bridge over the river and continued down to the Bowl Hall, which is filled with gour pools, and reminded me of the pools in Kubla and Croesus caves, although not as extensive here.

We came back into daylight at a large cavern, Schmidl Hall, that opens on to the Velika Doline. On the wall here are a number of plaques that give credit to the speleos involved in the exploration of the cave.

At the bottom of this doline the river exits the cave via a waterfall into a small lake. It then disappears again underground for 34km and reappears in a spring. We tourists, in the meantime, walk past Tominc cave, the site of pre-historic settlement, and catch a funicular car back up to the top of the doline about 100 metres in elevation from the exit point.

The tour took us about two hours but most of the group had well and truly gone by the time we got anywhere near the surface.

Both of us longed for our own caving gear and heaps of holiday time so we could join the local speleo group and venture underground with them for the remaining known 5 km of passages. The tourist section of the cave is 2300 metres long. Our thanks go to the guide who put up with our lingering and endless questions.

Postojna Cave

Our next cave was Postojna Jama. This is one of Slovenia's prime tourist sites and it has been visited since the 13th century, if the graffiti in the Gallery of Old Signatures by the entrance is any gauge. In the last 185 years 30 million people have visited Postojna.

It is the largest show cave in 'classic karst' and the most visited show cave in Europe. The cave system is 22 km and tourists get to see 5.7 km of it. Cave temperature is a chilly 8 degrees so it was definitely beanie time. It was also culture shock time, as 500 people, plus one dog—a laptop sort, boarded an electric train that shuttled us through 4 km of lit cave passage at 20 km an hour. First impression is that they like *fast* cave tours, but eventually the train slows down.

Your destination for the start of the tour is Big Mountain (Velika Gora), where you

CLARE BUSWELL

Heiko in the distance, about to board the train in Postojna cave

1) *Debevec, Albin et al, Peric, Borut (ed.) Translated by Basa, Manica.* The Skocjan Caves – in the bosom of classical karst. *National University of Knijiznica. Ljubljana, 2004. pp. 30-34.*

stand under your lighted language sign—an electric fluorescent light which is not turned off until the end of the day. Five languages are catered for. It was a bit like standing around waiting for a train in the London underground.

Mind you, so important to the economy of Slovenia was this cave, that it received electric lighting in 1884 two years before the nearby town did. The initial railway lines into the cave went down in 1872.

Just to get a different guiding experience, Heiko decided to join the German language group whilst I trundled off with the English and Slovenian group.

The walking section of the tour is 1.7 km and is really a self-guided walk through the cave. The guide met up with our group at four strategic places on the one and a half hour tour, so most people set off at their own pace.

The cave system is vast, and every chamber is full of speleothems except one, which is devoid of them as the Partisans blew up a Nazi fuel dump in it in 1944. The walls in this chamber remain blackened.

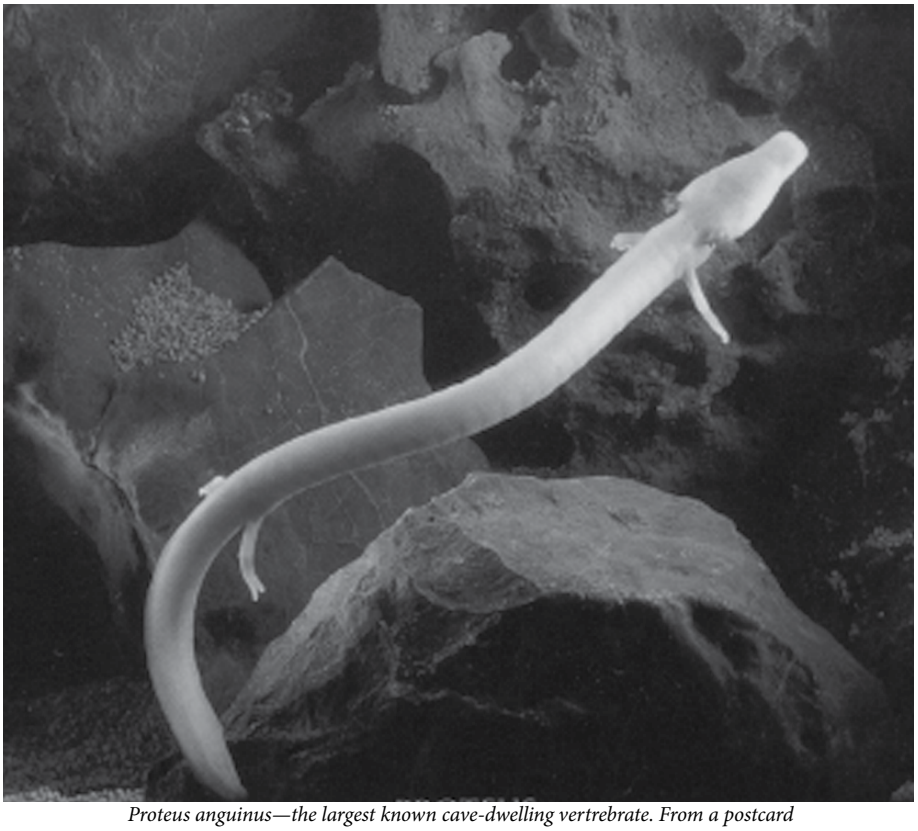
From the Velika Gora you wind your way through a 500 m long chamber, known as Beautiful Cave, to the Russian Bridge, so named as it was constructed by Russian prisoners of war during WWI. You cross the Bridge and meander your way through another kilometre of heavily decorated caverns which carry such names as the Winter Hall, or the Pillar Column or the Brilliant Stalagmite.

The latter has become the symbol of the cave and appears on all official cave gear, guides' uniforms etc. It is not hard to see why this cave attracts the tourist population in droves and how it is set up to deal with them. Before you leave the cave you pass by a concrete constructed diamond shaped bath. In it are live specimens of *Proteus anguinus*, a kind of salamander for which Postojna Cave is famous.

It was a very sad sight to see trogloditic fauna subject to a barren life under light. The six that were in the tank were all huddled together trying to escape the glare of brightness. They had nowhere to hide and little water to swim in.

From here you move into the Concert Hall, which is the largest in the system and has been known to hold 10,000 people for musical performances. It has a gift shop to one side from which you can buy cave souvenirs. The roof of this chamber is partly covered by green lampenflora that results from the light that comes from the gift shop.

Once again we managed to get hold of the guide at the end of the trip and talked to him about the issues of cave management given the huge impact tourism has on the cave.



Proteus anguinus—the largest known cave-dwelling vertrebrate. From a postcard

He told me that there is a fair amount of scientific work carried out on the 190 different species of fauna, including beetles, bats, cave hedgehogs and of course, *Proteus anguinus.* The biospeleological station is the hub of this work.

There are large problems with lint, damage done by tourists touching the cave formations, lampenflora, and ethical issues in subjecting endangered troglobitic fauna to six hours of light a day so as to make money. The other side of this is that Slovenia is not exactly a wealthy nation, although it has not suffered as much as some of the other ex-Yugoslavian countries, such as Bosnia.

We left the cave via the train and came back into the madness of daylight tourism, as outside the entrance is a motel, and a shopping precinct with every imaginable cave related trinket for sale. One thing that we did not see for sale was bits of speleothem. Postojna Jama is a massive cave system that leaves you overwhelmed by its decorative enormity. Going cave touring with 500 people and a dog is something to remember.

However, Heiko and I wanted to spend hours just wandering, admiring and soaking up the uniqueness of the place.

Once again, our thanks go to the guide for the chat at the end and for doing a job that must be exceedingly difficult given the production line of tourists that visit. (The dog, by the way, coped quite well).

A note on salamanders

Proteus anguinus is the largest cave dwelling vertebrate known. It matures at age 18 or so, lives for around 100 years and has been known to go without food for long periods of time. It measures about 25-30 cm long, has a long tail that it uses for swimming, but it also uses its four legs to propel it around.

It has an excellent sense of smell and is sensitive to weak electric fields in the water. It uses these senses to find food and communicate. It breathes through gills when submerged and has rudimentary lungs for breathing when it is outside the water.

Its skin has no pigmentation, but gets the pink colour from its blood circulation. The sad thing is that despite the export of the species being banned from Slovenia, it keeps turning up in fish tanks and pet shops throughout Europe. It is rumoured that the biggest customers are scientists.

Go caving anywhere in Slovenia: you will enjoy it, no matter the number of tourists—it is, after all, a caver's paradise!

Bibliography

Maps are from: Debevec, Albin et al, Peric, Borut (ed.) Translated by Basa, Manica. *The Skocjan Caves—in the bosom of classical karst.* National University of Knijiznica. Ljubljana, 2004. pp. 30-34.

Starlight Cave: Issues for the Conservation of the Southern Bent Wing Bat

Nicholas White
Conservation Commission

The June 2008 ACKMA Journal contains a disturbing article by Steve Bourne—ACKMA president and manager of Naracoorte Caves—on a visit after the Australasian Bat Society conference recently by him and three others to Starlight Cave (3W5) at Allansford in Western Victoria. The cave is used as a maternity site by the critically endangered southern bent wing bat *(Miniopterus orinanae bassanii,* previously *Miniopterus schreibersii)* along with the now partially collapsed Thunder Point Cave (3W8) at Warrnambool. The bat is listed as critically endangered under the Federal *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and as endangered under the *Fauna and Flora Guarantee Act 1988,* Victoria.

The total population of this species is dependent on the maternity sites at Starlight Cave and Bat Cave, Naracoorte National Park, South Australia although they disperse to other caves outside the maternity season.

Miniopterus schreibersii in Australia was originally only the one species. Elery Hamilton-Smith always claimed that the Naracoorte—Warrnambool population was distinct from the East Coast populations on distinct breeding patterns and on a quite different group of ectoparasites.

Genetic analysis undertaken in the past 10 years has confirmed this distinction. The Southern Bentwing Bat of the Naracoorte-Warrnambool population has been given the name *Miniopterus orinanae bassanii* separating it from the Eastern Bentwing bat (*Miniopterus orinanae oceanensis*). These have both been differentiated from *M. schreibersii* which occurs on other continents. The Naracoorte—Warrnambool population has been under threat from changed land use and more recently the severe drought.

Starlight Cave is located on rural land that changed ownership in 2007 and despite an effort by the Fund for Nature to acquire the new subdivision, it was sold to the adjoining landowner.

Quite extensive earthworks involving ripping and associated pasture improvement works have been undertaken by the new owner with evidence of heavy earthmoving machinery having been used to within less than a metre of an entrance.

The cave roof near the top entrances is thin and thus there is a high risk of damaging the cave by collapsing the roof (as well as a risk to the plant and its operator). A wrongly captioned photograph accompanying the *ACKMA Journal* article shows heavy vehicle tracks and the evident removal of the large bushes that previously surrounded the multiple shaft entrances to the inner chamber.

Following the visit and consequent contact with DEWHA in Canberra in regard to the *EPBC Act* provisions, a letter was sent to the owner informing him of the potential fine of up to $5 million if he causes damage to the cave and the bats. Meetings have since been held and are continuing with the relevant officers in DSE, DEWHA and the landowner regarding ongoing management. ASF and VSA have been approached regarding issues about the cave and its ongoing management.

Comments over the years have been made advising the capping of the solution pipe top entrances.

However, no work has been undertaken on what this would do to the air flows within the cave.

The bats are currently breeding successfully in the cave, so what might happen if things are changed?

The assumption is that if the holes are capped this will change the microclimate for the better, but this is totally unproven. Capping the holes is likely to affect water flow across the surface—how will this affect the hydrology of the cave and the stability of the roof?

Depending on the material used for capping, will the extra weight of this material and/or the method needed to fix the capping to the existing rock risk collapsing the roof of the cave?

How will capping affect other values in the cave: the cave itself, cave invertebrates etc?

The DSE bat expert, Dr Lindy Lumsden, wants to make sure the situation is well understood before such action was taken. The landowner certainly wants the boxthorn removed and this currently gives some protection over the solution pipe entrances as well as erosion protection.

One positive aspect of the whole issue is that the long awaited and very overdue Victorian government Fauna and Flora Guarantee Draft Action Statement on the Common Bent Wing Bat, is now available for comment (by September 1, 2008).

These action statements are supposed to be prepared for endangered species but we have been waiting on the cave bat ones for over a decade. The action statement for the eastern horseshoe bat (*Rhinolophus megaphyllus*) is similarly long overdue.

I currently have the Draft Action Statement and intend to comment on behalf of VSA and ASF.

There is also now a group of people from both Victoria and South Australia collaborating on research needs to adequately understand the bats requirements for survival. They are proposing to apply for funding for various research programs for this.

Mujingerra Cave, Great Sandy Desert, Western Australia

By Paul Hosie
Cave Exploration Group of South Australia

IN THE HEART of the vast Western Australian deserts, dots on the map mark some of the points where the Aboriginal Desert People accessed the subterranean aquifer and these enabled them to survive for countless aeons. What is truly amazing is that those remarkable people could re-locate the soaks and wells amongst the enormous areas of repetitive sand dunes. They passed this knowledge down through the generations by means of song; their lives depended on it.

Today we have GPS, four-wheel-drives, satphones, EPIRBs and charts of the desert tracks to get us into what was until about only 100 years ago, the great inaccessible, impenetrable and unknown Australian interior.

Make no mistake, though—a venomous snakebite or other serious injury out in the desert 'boonies' will likely be fatal due to the time it would take you to reach medical facilities.

Mujingerra Cave had been the subject of interest to Perth based cave diver Paul Hosie for a number of years. A sketched map of the cave in a published book, rumours of vast submerged cave systems beneath the desert's calcarenite substrate and the call of the unknown finally convinced Paul to make the trip a reality.

Six weeks of long service leave from the Navy in July-August 2006 were used to run a cave diving expedition into the magnificent Kija Blue sinkhole, followed by two weeks of caving and cave diving in the Ningbing Range with wife Kym, dive buddy Ken Smith (CEGSA) and local WASG club members.

A Plan Becomes Reality

The plan to dive in Mujingerra Cave was simple – drive to the Canning Stock Route (CSR) from the closest access point in the Pilbara (town of Newman) via the Talawanna Track, spend up to four days exploring and mapping the cave before exiting via the same route. A 44 gallon (210 litre) drum of unleaded fuel had already been ordered from the Capricornia Roadhouse months before and staged at Well 23 on the CSR ahead of arrival. After dropping off the trailer in Newman at a pre-arranged depot, the fuel drop and travel details were confirmed with the roadhouse and authorities, then the journey to the cave was begun in earnest. Heading East from town, civilisation is left behind and the land becomes distinctly flatter as the Great Sandy and Gibson Deserts are approached.

The track is rough—heavily corrugated, but otherwise sound! The Capricornia Fuel Dump is located some 450 km from Newman, the appropriate drum was located and half the fuel siphoned to refill the car and jerry cans. With only 180 km of the CSR between Paul and the cave, you wouldn't be blamed for thinking the trip was almost over, but the fact is the track is so poor that time-wise, this was only the halfway point from Newman. With track washouts, extreme corrugations and many dozens of large parallel desert dunes to cross, the average speed achievable is 30 km/hr or less. Vehicles not hardened for these conditions cop a pounding and Paul's lightweight Mazda Bravo 4WD lost its spotlights – they were simply vibrated to bits and shaken clean off their mounts!

Desert tracks

Mujingerra Cave is located a few kilometres off the CSR near Well 30, in a beautiful stony patch between parallel dunes. According to internet reports from CSR travellers in recent years, the caprock covering the entrance of the cave had collapsed in recent years, blocking the small crawl-way leading to the water below. Assuming that

ALL PHOTOGRAPHS BY PAUL HOSIE

none of the reports were by cavers, this was considered to be questionable advice. What all previous reports had agreed on however, was the very high likelihood of there being snakes in the crawl-way. Large Western Brown snakes had been sighted on several occasions and given that they are highly venomous, this was a real risk, and one that Paul was acutely aware of.

The risk of meeting large western brown snakes was high

Desert Blooming—Above and Below!

In early 2006 the Western Australian deserts received heavy rainfalls from tropical cyclones crossing the North-West coast. The consequence of this, several months later in July, was a desert in full bloom – every single shrub and bush green and flowering, the scent of spinifex resin thick in the air and the sandy desert floor carpeted in white and purple everlasting flowers. A breathtaking sight not readily captured in either photos or words.

The cave entrance is a small doline some 6 m in diameter with a vegetated talus slope beginning 2 m below the lip and leading down to a pinch 5 m below the surface. It was clear from earlier descriptions that the roof of the cave had indeed collapsed, but a small, low hole was still evident at the base of the talus slope.

The desert was in full bloom

After rigging up the entrance with a tape ladder and rope for self belay and lowering of dive gear, Paul descended into the doline and headed for the blocked crawl-way. Mentally prepared for an encounter with a venomous snake in the cave, Paul dressed in full coveralls, boots and gloves and dug out the hole with a folding army shovel which was also the first line of defence against any up-close venomous snake encounters. The rubble was dug away until it was big enough to slide down through and Paul cautiously lowered himself in, making plenty of noise on the way. A small chamber big enough to sit up in, leads down through a partially blocked crawl-way which again had to be excavated to enable access to the lake chamber below. Finally, what a beautiful sight for a sore cave diver's eyes—a 7m long x 3m wide x 1m high room full of deep, dark, crystal clear water. Next step: dive gear!

Mujingerra Cave entrance, a 6 m diameter doline

Snake protection and digging tool at Mujingerra cave entrance

An Unlikely Meeting

Making his way up through the crawl-way, Paul encountered the first of the resident snakes in the cave. There were two of them and they were making their way slowly up and out of the cave. They looked like pythons to Paul, but not wanting to test this theory, he sat back and watched them slowly slither over his caving pack and out through the recently excavated crawl-way. Later that night, after the light had faded from another magnificent desert sunset, a major advantage of being in the desert was revealed through the stunningly clear, bejewelled night sky. Rugged up against the chilly night, hours were passed watching shooting stars and listening to the rustling of the desert's nocturnal life—what a wonderful place!

The following morning, Paul headed into the cave with his dive gear and set it all up at the waters edge ready to dive. A trip back out to suit up and then the dive commenced —untold kilometres of passages just waiting to be explored and mapped—fantastic! Alas, it wasn't to be and after checking every nook and cranny, approximately 60 m of cave passage was explored. The entrance lake was found to cover half the area of the underwater chamber. A connecting underwater tunnel leads to a parallel chamber of similar dimensions to the entrance lake with a large airbell above it. The absolute maximum depth was -3.5 m and a small dry passage was explored beyond the second chamber but did not go. After surveying the cave as far as possible, the cave was exited and the plan for the remaining desert sojourn was considered.

Dive gear preparation

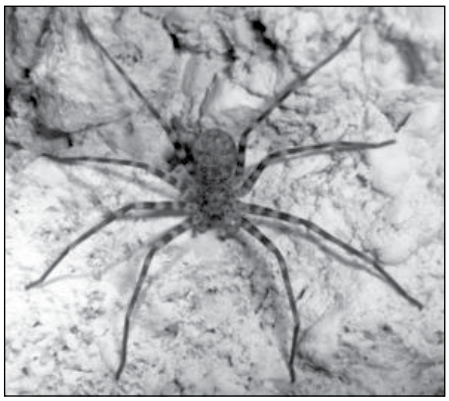
Just after lunch, the desert silence was disturbed by the sound of several diesel 4WDs pulling into the campsite. Out jumps a lanky, fifty-something year old fellow, inspects the array of diving gear and announces "cave diver, eh? I heard you were out here!" Now, surprise would be a slight understatement, but this was to be the introduction Paul had to one of Australia's cave diving legends – Phil Prust. Phil was on a 4WD club trip heading down the CSR with his partner Rae and friends. They decided to drop into Mujingerra Cave for a look. Through their mutual friend Ken Smith, Phil and Paul had heard much of each other and they had plenty of gasbagging to do about cave diving around Australia. The odds of meeting in the desert were pretty slim, particularly given that a day either side of this one would have prevented it from happening at all. At about 3.30 pm, Paul extricated all his cave diving equipment from the cave with Phil and his party lending a helping hand on the surface. Tall stories of caving and cave diving resounded that evening until the dying embers of the campfire sent everyone to bed.

An unexpected meeting with Phil Prust

Desert Discoveries

Early next morning, Thursday 17th August, Paul bade farewell to his new friends and drove to Kunawarritji Community, Veever's Meteorite Crater and then to a site marked 'cave' on the map 100 km East of Mujingerra for investigation. To say the desert was stunningly beautiful is simply a sad understatement and really just reflects that not everything can be captured in words alone—just go there! The wide open vastness of the desert is like an intoxicant for the soul. Paul set his chair up in one spot to read a book—overlooking a vast panorama of waving Spinifex grass, red dunes and blue sky: magic.

Later that afternoon, the 'cave' was arrived at, located right next to the track, the entrance at the base of a 5m high ironstone conglomerate cliff. Donning caving gear, Paul found the cave to be a simple low, wide passage with a dusty floor, penetrating about 30m to back where there are several low, rounded rooms above a main sump pit. The area was a bat roosting site and several young bats were seen. Withdrawing



Resident Arachnid

to minimise his disturbance of the site, Paul later counted approximately 50 bats exiting the cave that evening. At about one o'clock the following morning, Paul was rudely awoken from deep slumber by a pack of dingos howling around and above the cave's entrance—obviously one of their favourite dens and visitors were not welcome.

The cave

The following morning, Paul began the long drive out of the desert and back to home, only destroying one tyre and rim on the way. A bull camel decided it didn't want Paul to go and did its very best to block his exit along the track for over 30km. Paul's last view and fading memory of the Great Sandy and Gibson Deserts was that of a camel's arse!

The final view on leaving the desert

Recommendation

Definitely one of the world's remotest cave diving sites and whilst not recommended as a fabulous cave diving site, a visit to the desert country is highly recommended as it is stunningly beautiful and spiritually uplifting. ■

AUSTRALIAN CAVING AREAS

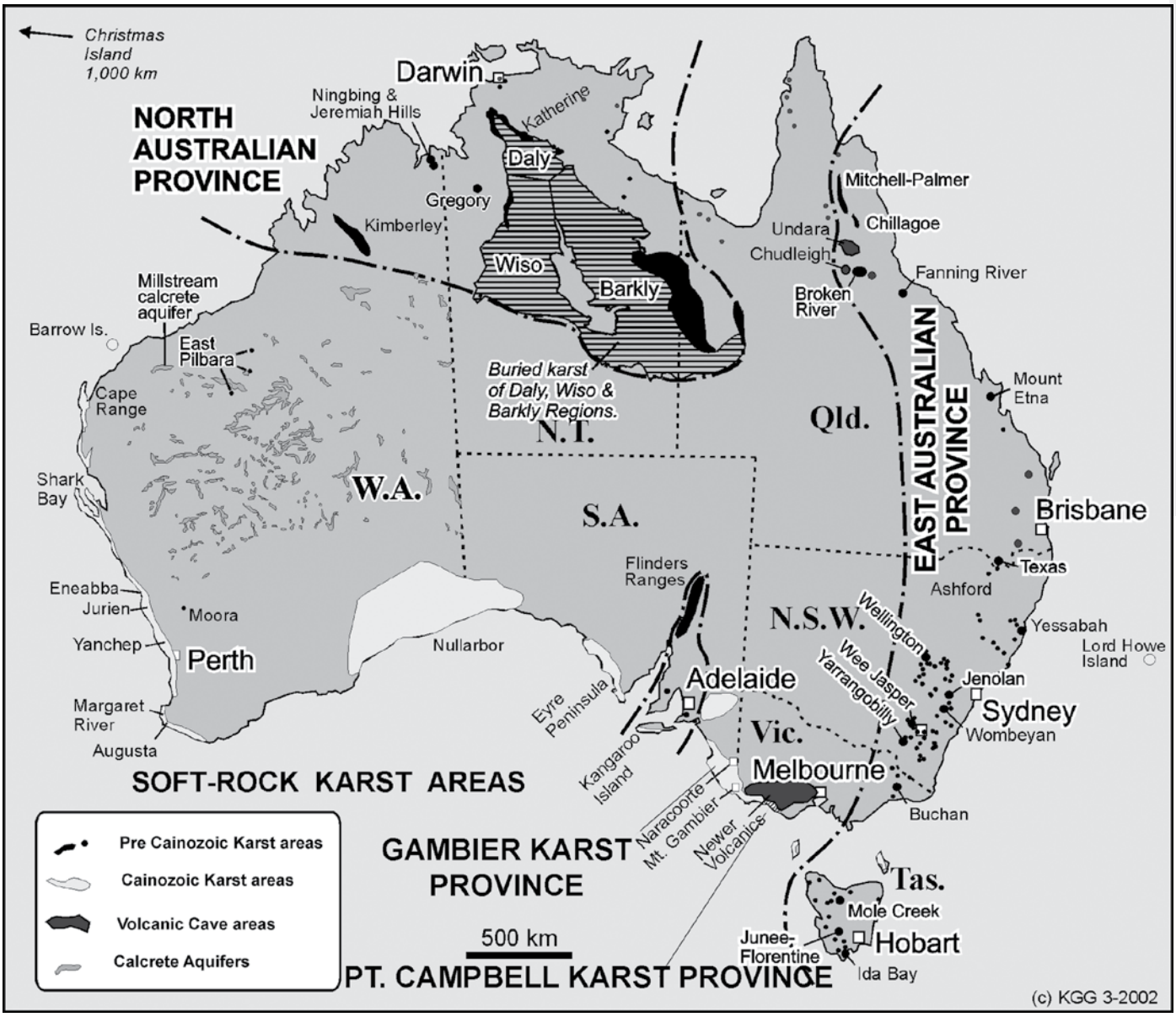


Figure 1: Karst areas of Australia (modified from map by Ken Grimes).

Susan White

A new regular section is planned for *Caves Australia.* ASF as a speleological federation is composed of caving organisations, specifically caving clubs. Although our members are involved in a lot more than just sport caving, we are constantly looking for areas to get underground. This section will highlight particular caving areas around the country. Each article will comprise a good description of the area, its general location and information on access and land management, which clubs are appropriate to contact, camping, accommodation and services in the area and hopefully some highlights of particular caves. Detailed cave locations will not be included.

It will therefore be similar to some of the field guides produced for ASF conferences. However, many of these become difficult to source as they are quite short print runs, and also material regarding caving access and local services becomes out of date over time.

The area description should include the general geology and geomorphology and some of the other natural and cultural history of the area. Relevant literature in the form of a short reference list should be included.

This introduction will be an outline of cave and karst areas in Australia.

There are over 300 areas listed in the Karst Index Database (KID) on the ASF website, but this list is now incomplete.

As the KID is currently being slowly updated, several areas including several significant ones, which have been discovered and explored over the past 25 years are not yet included.

Therefore, the 300+ areas is a minimum. Some areas are large e.g. the Nullarbor and have many caves, and some are tiny e.g. Strathdownie, but an understanding of the karst and cave estate of Australia is something we are all interested in.

The size of an area is sometimes misleading as areas where there may only be one or two caves e.g. Labertouche, Victoria, have interesting and well visited caves.

Australia has two major karst provinces: North Australia and East Australia Provinces and several smaller provinces (Figure 1).

Many of the smaller provinces have not been adequately described but the

Gambier and Port Campbell Karst Provinces are identified (White, 2005).

The North Australia Province is characterised by karst in older carbonates, much of it in Proterozoic (Pre Cambrian) dolomites. Northern Australia has been more accessible for caving exploration over the past 15 years and this has seen the exploration of karst areas such as Gregory (Bullita), Pungalina and Ningbings as well as the better known Camoweal and Kimberley karst areas. Much of the karst is buried karst e.g. Barkly Karst where there is only obvious karst and caves on the edges e.g. Camoweal and Katherine (Figure 1).

The more familiar karst areas of North Queensland, Chillagoe, Mitchell-Palmer and Broken River are actually in the East Australian Province as they are typically Palaeozoic impounded karst areas, in some ways similar to Mt Etna, Jenolan, Buchan and the Tasmanian areas (Figure 1).

In these areas the caves are often old and have developed over more than one period of karstification. Palaeokarst, has been described from several of these areas e.g. Wombeyan and Jenolan.

These karst landscapes have developed in well-cemented and well-jointed Palaeozoic limestones. These are surrounded by non-karstic rocks and the more aggressive water from these non calcareous areas results in intense karstification in many areas.

The karst in Cainozoic limestones, often called Soft-Rock karst is generally either in Tertiary marine limestones e.g. Nullarbor, Cape Range, Mt Gambier area and Naracoorte, or in the younger Pleistocene dune aeolianites (dune limestones) e.g. Margaret River, Yanchep and Bats Ridge (Figure 1). In many areas caves exist in both the marine limestones and the aeolianites, e.g. Glenelg River and Naracoorte.

N. WHITE

Collapse window entrance, Robertson Cave (U 19E)

These areas comprise extensive areas where cave and karst development is limited, interspersed with areas of atypical karst development, such as Naracoorte and the Glenelg River area where the jointly-controlled caves reflect the northwest-southeast jointing pattern and the water-filled cenotes around Mount Gambier.

In addition, there are some smaller areas such as Monbulla, Avenue Range, Mount Burr, Glencoe and Tantanoola. This pattern is reflected in other "soft rock" karst areas.

As well as these karstic areas, Australia has areas of both volcanic caves and pseudo karst. Extensive volcanic provinces in both western Victoria and north Queensland have caves and interesting associated volcanic features.

Also several areas of pseudokarst where caves exist in granites (Labertouche, Victoria) and quartz sandstones (Sydney area) as well as other more obscure cave types. As well, there are lots of caves along the Australian coast and although some of these will be solutional caves, others are not.

It is interesting to find out about a range of cave and karst areas. Let's see your caving area featured in *Caves Australia!*

B. NUSKE

Decoration from Lilly Pilly Cave Murrindal

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Webb, J.A., Grimes, K.G. and Osborne, A., 2003. Caves in the Australian Landscape. In Finlayson, B.L. & Hamilton-Smith, E. (eds), *Beneath the surface: a natural history of Australian caves*, 1-52. University of New South Wales Press Ltd, Sydney.

A Do-it-yourself Rope Washer

It works well and doesn't cost the earth

Clare Buswell
Flinders University Speleological Society

HOW MANY of we mainland cavers trundle off to Tassie and spend heaps of time scrubbing ropes in streams with a hand held scrubbing brush? It is a real pain in the hands as the creek is usually freezing and it all takes forever. So a couple of years ago some experiments turned up the following. I have tried to make the instructions as simple as possible and hope that everyone can follow it.

INTRODUCTION

1) Things to know about plumbing bits

Firstly plumbing bits come in different colours and in the real world of plumbing these colours are associated with different purposes. For these rope washers, grey, white and black is used. Grey is used for sewer or down pipes. White is for high pressure and is used for internal plumbing, and on pools etc. Black is poly pipe and is used in the garden for setting up sprinkler systems etc. The high pressure stuff is the most expensive.

All plumbing bits have a size and a production ID number on them. I have given these numbers/IDs here to aid in getting the right bits. The components used in these rope washers are from four plumbing manufacturers: Hardie, Iplex, Philmac and Hansen. All of the plumbing bits used here, you can get from you local hardware store.

When gluing sewer and high pressure pipe to other bits use solvents and glue known in the trade as "pink and blue". Pink is a cleaner/primer, which roughens the plastic and so makes for a better binding surface before gluing with Blue. When using Pink and Blue, wear gloves and do it outside. You will not need a great lot of Pink and Blue so, unless you are going to do some plumbing at home buy small containers of it. ONLY glue things together when you have all the components and have experimented with how it all works.

2) Brush Makers

You will find them listed in the Yellow pages.

You will need to spend time demonstrating and talking with the brush maker about what you want and how long you want the brushes to be. Do not be afraid to canvas the skills of a couple of brush makers. So, shop around. *Importantly, the length of the brushes that they make is contingent on the length of the wire that they twist to make up the brush.*

INSTRUCTIONS

Rope Washer for the creek or the bathtub.

This is for use with two people, to wash ropes in a creek or bath tub. One person stands/holds the rope washer under water and the other person pulls the rope through the washer. When I have used this, I generally pass the rope through it twice. Once in either direction, but it depends on how dirty the rope is.

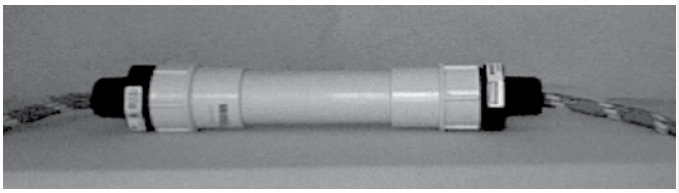


Figure 1. The Creek Rope Washer.

You will need the following:

1) Black poly: 2 x reducing bushes 40 mm/25 mm (1 ½ inch x 1 inch). These are also known as nipples and those used here are made by Philmac. Cost $3.15 each.
2) A length of grey sewer 40 mm pipe. It is the size that fits D cell batteries. The one shown is 150 mm long, so I can stand on it in the creek.
3) Grey sewer: 2 x female threaded coupling 40 mm. Iplex AS/NZS.1260. DWV 112.40. DO674040. Cost $2.80 each.

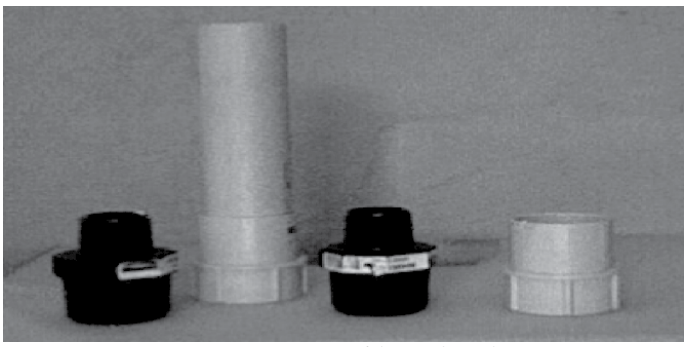


Figure 2. Components of the Creek Washer

4) Glue only ONE end as:

a) you need to be able to fit the rope and brushes into it; and
b) You will find that friction will keep the other end in place as you pull the rope through it. Also you only ever pull the rope in the direction of the glued end.

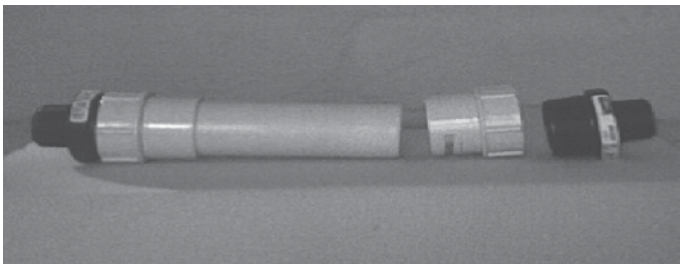


Figure 3. Creek washer with one end glued. Leave the other end unglued.

5) The total length of this washer is 280 mm.

The brushes are 130 mm long and I use 6 brushes on 11 mm rope.

Rope washer attached to the garden hose.

The best way to use this beast is to run the rope between a couple of poles/trees/cavers or whatever else is at hand and tension it with a couple of ascenders. Then it is just a simple matter of connecting the hose and running the washer up and down the rope a section at a time.

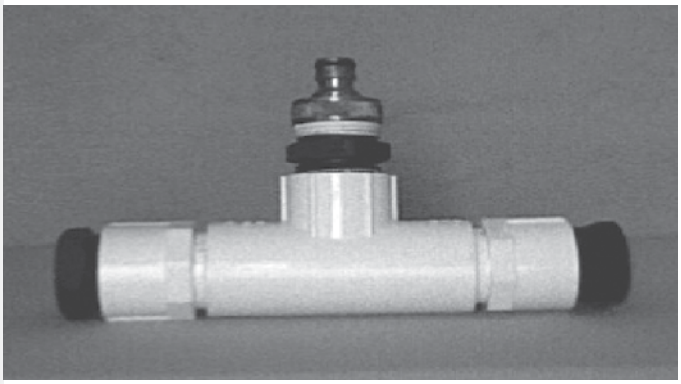


Figure 4. The hose washer assembled.

You will need the following:

1) Brass or plastic clip on hose fitting. Screw fitting on one end and clip fitting on the other.
2) 1 x25 mm (1") Nipple. Black Poly. Philmac. Cost: $1.90.
3) White high pressure, 1 x female Tee Faucet reducer. 32 mm x 25 mm. PO213225. PN18 AS/NZS.1477. Hardie. Cost: $9.50. This is threaded so the hose fitting can go into it.
4) White high pressure, 2 x female Faucet adapter 25 mm x 32 mm. No18/3. AS1477. CLI8. Hardie. Cost: $3.70 each. (Plain on the male end: 25 mm, and threaded on the female end: 32 mm.)

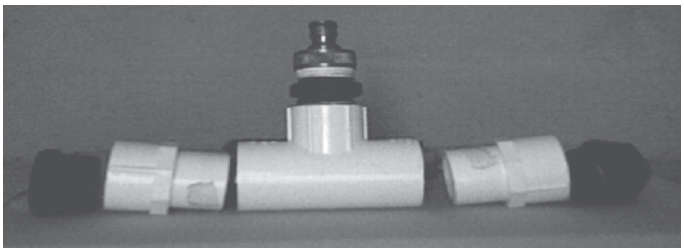


Figure 5. The hose washer components

5) Black poly. 2 x Hansen type SRB3220. 1 1/4" x ¾" poly bush. Cost: $2.95 each. Philmac also make this but I don't know the part number so look around for them if you can't find the Hansen type.
6) When you have the brushes then glue only ONE END TOGETHER as below, and screw the rest into it.

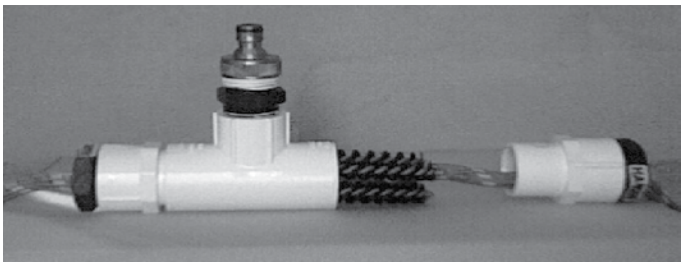


Figure 6. The hose washer with ONE end glued and the other ready to be assembled and which is NEVER glued.

7) Total length of this washer is 170 mm.

The Brush Maker

Take the un-glued rope washers to the brush maker with a piece of 11 mm or what ever rope diameter that you use the most. Ask him or her, what is the longest brush they can make. The brushes for mine are 130 mm long. (You should be able to get brushes longer than this.) The brush width is 5 mm either side of the wire. Total width including the wire in the middle is 14 mm. I have six of them because in the creek washer the sewer pipe is 40 mm and the hose washer is 32 mm, internal measurement.

In the hose washer I use five brushes and the creek uses six. The 10 mm Edelrid washes better in the hose washer then in the creek washer and the 11 mm Blue Water II Plus washes better in the creek washer.

Demonstrate to the brush maker what you want and leave the whole lot with them so they can experiment with it and make up brushes to suit.

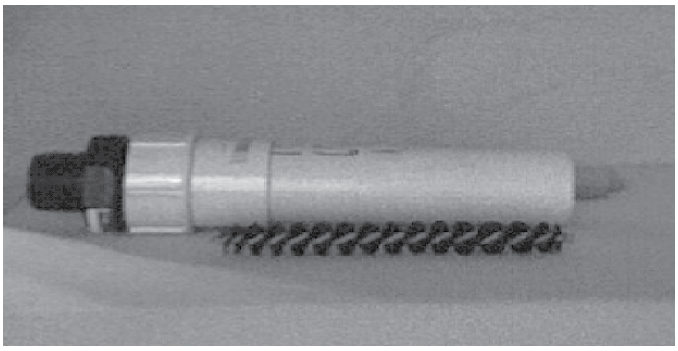


Figure 7. A Brush in scale with the creek washer.

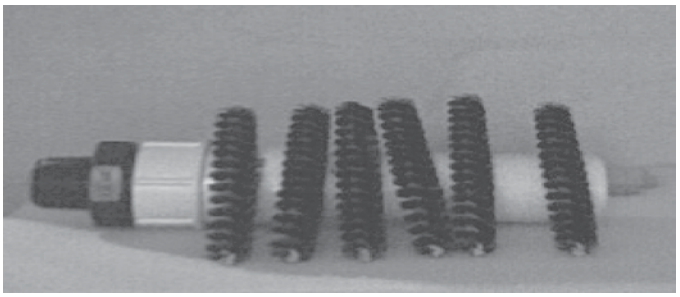


Figure 8. This is what the brushes look like.

Comments

When you are in the hardware store, fit all the plumbing bits together. You can, if you want, make up a washer using larger diameter pipe.

It is really personal preference, as is the length of the washer. The brushes that I had made up cost $30.00. So that works out at $15.00 for brushes for each washer.

Stainless steel wire was used in my brushes so the cost could potentially be reduced by using ordinary mild steel or galvanized wire, but considering the intended use, it is worth the extra to invest in stainless.

It is also important to smooth off the ends of the brushes with an angle grinder, rub them on rough concrete or whatever to remove the risk of rope damage from any sharp edges.

In terms of cost, the creek washer cost $15.00 for the brushes and $11.50 for plumbing bits, plus a bit of 40 mm sewer pipe I had hanging around in the shed. So, around $26.50.

The garden hose washer costs around $25.00 for plumbing bits, mainly due to the cost of high pressure fittings. I expect that these rope washers will never wear out.

By way of comparison, the Dobi rope washer that is commercially available retails for around $44.00, does not fit onto a hose and is not as sturdy. Have fun.

▮ I would like to thank Ivan Riley for his ideas and experiments with all of this.

Photographs by Clare Buswell

Mount Etna Saga

The handover to QPWS – 27 September 2008

Nicholas White

THE LONGEST conservation campaign in Australia finished on September 27 2008 when the titles to the quarries on Mt Etna were transferred from Cement Australia to the Queensland Parks and Wildlife Service at a ceremony at Cammoo Cave.

CQSS, UQSS and ASF members fought the cement companies for over 40 years over the mining of the caves on the sides of Mt Etna.

There were blockades and legal challenges to no avail. The legal arguments to prevent mining were never heard because of the question of standing, despite an appeal to the High Court, but the judgement produced changes to the law to allow cases to be heard in the public interest and to provide better protection for the environment in Australia.

ASF has been in detailed and time-consuming negotiation for three years with Cement Australia for the Eastern quarry to be donated, via the Gift Fund, to ASF to manage the residual caves and karst.

Stephen Comino, our solicitor, gave us a great deal of support and advice. These negotiations were interrupted when QPWS expressed an interest in the site and Cement Australia decided to donate the site directly to them.

This was disappointing for those who invested time and energy in preparing for ASF to receive and manage the land until such time as we handed it over to QPWS.

Various people from ASF spoke at the ceremony about the history of the campaign and Peter Berrill received a donation of $12,500 to the Gift Fund from Chris White of Cement Australia.

This donation was the result of Kerry Hamilton's representation that ASF did not want expenses towards either its costs in the negotiations or towards a rent-a-crowd at the ceremony, but to the Gift Fund where the dollars could be better spent for the future.

This was followed by the new Regional Manager of QPWS, Leigh Harris, accepting the gift of title to the quarries on behalf of the Government.

NICHOLAS WHITE.

Chris White, Cement Australia, handing titles to Leigh Harris, Regional Manager, QPWS.

As well as welcoming the handover, Peter Berrill was emphatic in stressing that the ASF was not happy with QPWS at present, but looked towards a renewed commitment to better karst management, including involvement of ASF.

He finished off with the statement: "Mt. Etna has become 'Hallowed Ground.' This is our mountain—look after it, because we will be forever vigilant."

ASF was well represented at the ceremony by a number of Executive members, as well as many of the people who conducted the campaign from the 1970s to the 1990s.

Past and present ASF members retreated to Noel and Jeanette Sands' house for an afternoon and evening of remembering the campaign.

Nullarbor Journal 2007

Ian Curtis
Orange Speleological Society

Reprinted with minor edits from Nargun *Vol 40(2) November 2007.*

AT THE Mount Gambier ASF Conference in January we learnt that the annual VSA Caving Expedition to the Nullarbor was taking place in March 2007, finishing in time for every one to be home before Easter. Denis and I had been talking for years about trying to get onto a trip as we had both been across the Nullarbor to ASF Conferences in Western Australia and looked into several impressive caves on the way. Elery's anecdotes about the first 1956 trip when OSS members, Jim Britten and Os Geddes, accompanied him encouraged us to ask. VSA members were very supportive and we left the Conference bubbling with enthusiasm. Between then and the realisation, regular contact was made with VSA and the trip participants, arrangements being worked out in detail. What follows is a journal of the trip.

9th March. Friday.

Our 8 am sharp start did not eventuate. Denis came down the hill at 9.30 and an hour later we pulled out. Ronda waved us off, Denis promising faithfully to ring at every opportunity.

A long day's drive into the westering sun to a rest stop just out of Wilcannia, where we pulled in next to two grey nomads. Ate Ros's spinach pie; enjoyed the celestial display; rang home; then crashed on the concrete floor of the enclosed picnic table area.

10th March. Saturday.

A day of driving. A latish start caused by our interest in a variety of birds squabbling for our breakfasts and watering at the nearby water tank.

Pizzey allowed us to recognise pied butcher birds (mature and immature), mallee ringneck parrots and noisy squabbling apostle birds. A bird list was begun as we headed out.

Lunched outside a hot, dry Broken Hill and thence a long drive to Port Augusta. Stinking hot, extremely humid. Had a few beers at the nearest pub to our caravan park while watching an incomprehensible game of AFL in the refuge of the non-smoking bar. Later news broadcasts declared this game one of the great fight backs. Carlton, down 73-42 in the second quarter, had rebounded to lead 100-73 before two Kangaroo goals in the dying minutes moved their score.)

Again, slept in the concrete communal picnic area, whipped by stinging sand in our faces and stung by local ants whose tracks we had lain in.

11th March. Sunday.

Westward again. Picked up our supplies and away. Long, straight roads into the sun. Turned in at Ceduna and camped near the pub and the beach in the centre of town. We still had seen no others, though they were, that night, here, in one of the many local camping grounds.

12th March. Monday.

Discussion in the car was on firewood and the fact that we had seen no roadkill since Port Augusta.

We conjectured that the drought had probably caused the roos to move (though a later theory was that the new 'road train convoy' system probably killed a lot fewer). Anyway, far fewer wedgies, quite common before Broken Hill.

At Nullarbor Road House we filled up for our final highway miles. We passed the sign to Cook and turned north on the next track.

Problem! After six km it stopped at a microwave tower, causing us to retrace our steps and explore the next road north; the old track to Koonalda. The weather had changed and on our slow, wet crawl to the abandoned station the old drums and abandoned tyres and a suspicious foraging dingo presaged our moving away from civilisation.

Koonalda homestead startled us. Buildings made of railway sleepers surrounded by heaps of abandoned and stripped cars.

Denis explored the house, abandoned since 1988, and I explored the junk piles. Mid 30s Fords, lots of early Holdens, 60s Valiants and early 70s Falcons. Obviously the old road had been fairly unforgiving!

While there, sheltering and eating lunch, everyone else materialised—Ken and Peter on their way to forage along the Old Eyre Highway for firewood with Margaret and Daryl; and Nick, loaded up, who had been only a few minutes behind us on the road. We all moved on, connecting by UHF, and wound our way along a poor track to the camp, already set up, 20 km to the north. Flat. Treeless. Windy. Skittering showers. A rush to erect tents.

13th March. Tuesday.

Rain during the night. Rain storms most of the day. We collected many bucketsful from our tent awning. The day was spent trying to shelter from the wind and rain. Mud-clogged boots clomped from tent to tent, filling in time.

No way could the plane fly as the afternoon descended into misery. Watching the plane sink into the mud, many photos were taken of the lonely Troopie settling in the middle of an ever-widening sea. The firepit sank and solace was sought in glasses of port. Everyone retreated to bed early, pursued by the storm.

14th March. Wednesday.

Stormy night (sixty-one millimetres in Ken's rain gauge this morning). The night had been spent gaffer-taping the many holes in the tent floor under my bed and moving boxes around the few islands on the tent floor. Caterpillared between my suitcase and caving crate, I had surrendered to the situation as morning approached, stopping the drip on my face by covering it with a

DARYL CARR

Troopie in a puddle

jumper. Lots of listening to radio stations for weather reports. I enjoyed early morning AM three times in three different time zones!

Blue skies! Everything hung up to dry on tent ropes in fresh wind. What to do, as the plane will be grounded, probably for a couple of days? Peter has co-ordinates for a hole (NX0220) 5km from camp, so while others wander north and south along the track, Denis, Greg and I head off SSW, led by the GPS. The long-visible camp disappears behind imperceptibly undulating ground. No luck. Much scouting around, but nothing: deserted rabbit warrens, a few kangaroos, empty bird nests, but no hole. According to Greg's GPS we have covered 12.2 km.

On returning to camp, visible for about two km, the fire was going and cooking was in progress. Sausages and damper under clearing starry skies. Denis revelled in his status as hero of the hour, having winched the marooned and bogged Troopie out of its mudhole, to the relief of its occupants.

15th March. Thursday.

I need a wash! Surprisingly, it had dried out enough for Ken to consider taking the plane up. A short runway was quickly constructed—us pulling out saltbush and bluebush (especially severe on tyres) and the rescued Troopie acting as roller. To test it, Ken bumped up and off, circled a couple of times, and landed on the road, scattering a couple of us taking photos. A fuel-up and a lengthening of the grass strip. A much more confident take-off and Ken disappeared to the North, disappearing from sight, then

DARYL CARR

hearing. We terrestrials returned to our unheroic duties. Our GPSs were taken out and calibrated—mine was identical to Denis's. Denis raised the pergola and erected it over our verandah.

The return of Ken about an hour later saw us again rush for cameras. He very stiffly emerged. It was commented that perhaps we should extend the runway. Ken, laconically, "You can never get enough." We gathered around Ken, anxious to learn what he had found.

"Find many holes?"(Ian)

"First things first."(Ken, heading for the far distant tent)

"You can't hang it out from up there!"(thank you, Denis)

"I think that's worth recording."(Ian)

"Or you'll soon get your own back."(Denis)

Ken gave a verbal account of his findings to us, assembled around. A series of holes had been seen not far from camp. Ken flies a 15 km square grid at about 6-800 feet. He flies grid legs about one km apart, GPSing on one knee and recording features on a notepad strapped to his other

Continued on page 24

27th Biennial Conference of the Australian Speleological Federation

4th–9th January 2009

Hosted by the Victorian Speleological Association, the Caving Club of Victoria and others

THE 27th ASF Conference, Karstaway, will be held from 4th to 9th January 2009, at Gippsland Grammar School in Sale, Victoria. For details of registration (including forms) and accommodation visit the Karstaway website: http://www.caves.org.au/conf2009/ with links from the ASF website and Victorian club websites.

The registration form was also in *Caves Australia* 174. Registration forms should be sent to:

ASF Conference 2009 PO Box 2277, Mount Waverley VIC 3149.

Please note that there is not an "early bird" registration; instead there is a penalty for late bookings. Accommodation should be booked separately. Don't forget to order your TShirt, hat and wine!

Sale is the closest town to the karst areas of East Gippsland capable of holding a conference of this size during the summer holiday period.

Many people have already booked accommodation at motels or commercial camping grounds.

Those wishing to use the very cheap camping at the Showgrounds (very close to the school), need to realise it is on a first come basis but there is a very large number of campsites.

New accommodation option: The school has just completed upgrading the boarding accommodation and have made it available at $35 per person per night, including a simple self serve continental breakfast. BYO linen, bedding and pillow.

This facility will be locked for security during the day and will have limited day access. This can be booked with registration and is the ONLY accommodation the organising committee is directly organising.

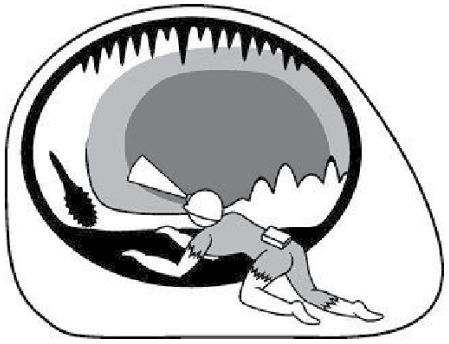
Post Conference trips are envisaged to places such as Buchan, Limestone Creek and some of the other small karst areas in Gippsland.

ASF Conferences are a chance for all Australian cavers to showcase the important projects individuals and clubs undertake. Australian cavers have undertaken many important exploration and documentation projects over the years and this conference will give you an opportunity to show what activities individuals and clubs have undertaken and are currently working on.

We have been promised presentations on areas as diverse as Nullarbor, Bullita, Pungalina, Drik Drik and Thailand.

What exploration has your group done?

What other speleological activities have you been involved in?



Are you prepared to share your experiences with other cavers?

Call for papers and presentations

The papers will be of 20 minutes duration plus a few minutes for questions. Please contact Susan White via email susanqwhite@netspace.net.au with the title of paper(s), author(s) and if it is to be a poster or an oral presentation.

If you are interested in organising a workshop please indicate title of workshop and any other details. Although the general theme of the conference is Australian cavers' speleological activities, papers on any relevant topic are welcome.

A DRAFT program is outlined below. Please note that various aspects of this may change.

DRAFT PROGRAM

DATE	*Morning*	*Afternoon*	*Evening*
Sunday 4	Committee set-up	Registration	Welcome BBQ (Information Centre Sponsored by Shire Council
Monday 5	Opening & Papers	Papers	Film & DVD show
Tuesday 6	Papers	ASF Council	Prussiking & Trivia Competitions
Wednesday 7	Papers	Art & other Workshops	Caveman's Dinner: Greyhound Racing Club
Thursday 8	Workshops/Forums	Speleo sports	Social evening with Karst Conservation Fund Auction BYO nibbles, tea and coffee provided
Friday 9	Papers & Closing	Council meeting	
Saturday 10	Field trips	Field trips	Field trips

Workshops currently offered include:

- Art (Action Figurative Art for Cavers and Non Cavers) by June McLucas
- Cave Conservation Forum by Nicholas White.

Others are very welcome:

- Cave photography?
- Safety & Training?
- Cave Rescue?
- Documentation?

Several social activities are planned and the usual meetings of the Council, Executive and Commissions and working groups will occur.

Please contact the program organiser, Susan White, as soon as possible to book in your workshop or take part in an already listed workshop/forum.

Meetings of commissions, working groups and executive are organised by themselves and the organising committee notified.

Rooms are available and can be organised through the registration desk.

Art Workshop

Action Figurative Art For Cavers And Non Cavers Life Drawing

You don't have to be a caver. Learn to capture on the spot cavers in action in or out of caves. This could assist in drawing figures at any time—in any situation. Presented by well known artist of speleological subjects, June McLucas.

Photographic display

Conference participants are invited to submit cave and/or karst related photographic prints for display at the Conference venue.

It is not intended to have a formal photographic competition with outside judges, as in the past, but conference attendees are asked to vote for the photograph they like most in each of a number of categories, and that prizes will be awarded for the picture gaining the most votes in each division.

Provisionally the categories are: surface karst / cave entrances; underground action; cave passages/pitches; speleothems. This may be varied by the conference organisers depending upon the actual number of prints made available for display and their subject matter.

A maximum of five photographic prints per person may be offered for any one category.

Persons intending to submit photographic prints for display at the conference are requested to indicate the number of prints either at the time of registration (preferred), or in writing to the conference official address (postal or email), not less than one month prior to the event.

Late submissions may not be accepted.

Further details on sizes and mounting is available on the conference website http://www.caves.org.au/conf2009

Enquiries:

Miles Pierce <milwen@ozemail.com.au>

Thanks to our sponsors:

Outdoor Recreation Council

Cave Divers Association of Australia

7th International Conference on Geomorphology

6th–11th July 2009, Melbourne, Australia

Karst Session

Although this is a specialist international geomorphology conference, the karst session may be of interest to many ASF members, and ASF is a supporting organisation of the conference.

The karst session will be organised partially by ASF as the Australian convenors are Dr Susan White, Environmental Geoscience, Latrobe University Bundoora, Victoria, Australia and Nicholas White, Australian Speleological Federation.

They are supported internationally by Professor John Mylroie, Department of Geosciences Mississippi State University USA.

Karst landscapes present unique issues in land management as substantial populations across the globe inhabit these areas and face significant issues in land degradation and water utilisation.

On longer time scales, karst processes are unique in geomorphological studies because the subsurface is a repository of past geomorphological and palaeoclimatic information.

We invite contributions in any area of cave and karst geomorphology. Oral and poster sessions are planned.

Several leading overseas karst geomorphologists have indicated that they intend attending, so it may be an excellent opportunity to listen to these people with out having to travel to Europe or the US.

There may be other sessions, which would be of interest to some.

For details of the whole conference see the conference website:

www.geomorphology2009.com

For enquires contact Susan White:

susanqwhite@netspace.net.au

DARYL CARR

Denis Underground

From page 21

knee. Features are prefixed with K for Ken, occasionally X for Unknown, and if later found to be worth recording, given a 5 North (South Australia, Nullarbor) prefix. The GPS is then handed to Daryl, who feeds the information into his laptop computer, transfers it to a map, and gives everyone a printout, the Daily Mail.

He and Michael presented us with our copies just before dinner, a roast and vegetables prepared by chef Christine, Ken's sister, with help from potato pickers and fire starters.

Talk during pre-dinner drinks centred on birds. Pizzey, Simpson & Day and Slater were consulted in an attempt to identify a small, common brown bird.

By consensus, we settled on Richard's Australian Pipit. Debate ensued on the crow/raven and eye colour: White? Brown? Black? A mystery. Birdman Kingston to be consulted on return.

We were driven to our tents as dinner was abruptly ended by a squall—the stayers-on crowding to our pergola. Denis, aided by Nick and resident experts, unsuccessfully tried to rig a light—the darkness and driving rain chasing us to our beds. I'll get that wash tomorrow.

16th March. Friday

Search day! Two teams were assigned a search pattern and off we set in our vehicles, up the road north to the closest point. From there we headed out west on foot, fanning out and following our downloaded GPS bearings. Our group comprised Nick, Greg, Denis and me.

Our first hole was a howler - straight down, wide and inviting. A kestrel had been seen there by Ken the previous day and white streaking was evident. As the hole was being photographed and explored, Nick realised he had forgotten the silastic for gluing on the numbering discs. A few suitable rocks were made into a cairn and the disc (5N350) slipped between the top rocks.

Our next hole was 5N3521, stumbled upon by Denis. Enthusiastic rock removal from a small doline saw an equally enthusiastic entry by Denis. Whoa! Tiger snake at the bottom. Denis warily mapped and photographed the snake and a gecko, the rest of us peering in.

Practice was making us quite proficient with the GPS and we quickly located the next feature found by Ken. 5N3523 saw Denis in his element. Peering into the smallest of holes in a solid rock doline, my compass slipped out of my top pocket and clattered down a couple of metres. Thinking I had lost it I was figuring out possibilities for fishing it out when Denis, to everyone's amazement, slipped into the hole. Measurements taken of the entry were of an oval, 260 mm X 330 mm—about the size and shape of a caving helmet.

Denis mapped underground while Nick, Greg and I took various photographs of the hole and doline.

A quick return to Nick's Hilux, visible on the horizon. As we approached, the other group's two vehicles could be seen turning along the track towards the camp. At the car, conversation centred on the efficiency of the GPS and the usefulness of the walkie-talkies.

At camp our GPSs were downloaded onto computer by Daryl and Michael, while Denis set up our solar shower. A wonderful camp meal followed—everyone beginning to fall into routine; mostly the women preparing food; Greg organising the fire; me

DARYL CARR

Taking bearings

doing the washing up; Nick organising all the small tying together tasks for operations to run smoothly; everyone stirring the pots. Early to bed and clean at last!

17th March. Saturday.

Ros will be down seeing little Suzie and the kids in Sydney today, so no use trying to use the satellite phone that Nick has so generously offered. Scurries of rain in the morning and dark sky in the south! It cleared after a couple of hours and a decision was made to travel to the northernmost holes and visit them. Everyone admired 5N3513, a hole too small to enter.

I noticed a fresh rabbit scratching and a few droppings nearby, though all the major warrens were deserted. After a throw-down feed the party divided; one group visiting 5N1022, 5N3514, 5N3515, 5N3516 and K2012, our group continuing to 5N3524. Denis and I mapped this cave, crawling through the skeleton of a kangaroo. The cave was, in essence, a three metre vertical drop and seven metres of horizontal passage, down which a subterranean wind howled. I noted a fine shell fossil, lying in the mud on the floor.

We drove home to prepare tea, seeing our first nankeen kestrel and wedge tail, on what had become a coolish afternoon and would become a cold, dark night.

18th March. Sunday.

Denis got through to Ronda on Nick's phone, though it dropped out after a couple of minutes. As Ken wandered past, Nick offered it to him. "Do you want to speak to your manager? It's got a pretty good range." [During the week, when Ken, a priest, had been questioned about the weather, he had benignly replied, "I'm in Sales, not Management," to the delight of all.] (In our daily conversations on Iraq, Howard and the current political malaise, Nick, ever the humorist, had been delighted to discover another unreconstructed socialist.)

Today was to be a big day. Nick drove a party south to check out K1995 and K2016 (both fizzers) and Margaret and Daryl drove north to check out K1999 and K1994 (unexciting). Denis drove Michael, Greg and me north to a point from where we would walk to all uninvestigated features to the east; a walk which turned out to be 21 km long.

The plain east of the road gently rises and all the holes were found on higher ground, dominated by a lone dead tree with an eagle's nest, visible for many miles. Our route was K2015, K2014, K2013, K2010, K2007 and back to the car. Denis wriggled down all accessible holes, surveying and sketching as he went.

The geopick was put to use in widening K2007 for a more comfortable exit. Denis later realised he had lost his whistle down the hole. The most interesting of the holes was K2013, almost 3 metres deep and 6 metres long. At the bottom was a dead kestrel and 3 unhatched eggs, 4 snake skeletons, a dead gecko and a couple of bearded dragons. Michael, a palaeontology student, was a great source of information on the flora and fauna we encountered.

A long, hot trudge ended in darkness as we made our way back to the Cruiser, relying on the ever reliable GPS. It was after nine when we drove back into camp; six features tagged and five entered. Poor Michael then had to scoff down dinner and work with Daryl on entering on computer all our findings and those of Ken, who had made three flights on a perfect day and discovered many features to our west.

DARYL CARR

Nicholas underground

19th March. Monday.

A perfect Autumn morning. The heat of yesterday did not continue during the day. Daryl's printout revealed features everywhere and the plan today was to divide into two groups and explore two northern clusters.

Two cars set off late in the morning, Denis and I riding shotgun with Nick, who was most concerned about the incompatibility of blue bush and tyres. In preparation he had changed from road to bush tyres and, on turning off the track, was most assiduous in dodging around undodgeable bushes.

Denis hung out of the rear window, doline and rabbit warren spotting, directing Nick to the right or left. By this method we happened upon 5N3550 Blow Hole on the way in, and 5N3557 when returning to the track.

All enterable holes were entered (it's good to have Denis!), accurately located and photographed (5N3551, 5N3552, 5N3553, 5N3554, 5N3555, 5N3556) before returning to camp at 6.30 pm. Daryl's Prado returned about half an hour after us.

A delicious meal of kangaroo stew and damper was being prepared by Christine and Ken. Ken had made only one flight pass during the day, explaining that the concentration of simultaneously flying and searching was so intense and energy sapping that he hadn't felt like doing a second run. He had noted, though, promising rock pools to the south west.

20th March. Tuesday.

No flat tyres this morning. Overcast weather, clearing. Yesterday's conversation on clacker board / clapper board / cloaca (L) = sewer pipe was still being played out over breakfast. An informal circular chair pow-wow eventuated after breakfast, with old Nullarbor maps and Ken's notes showing a small track, parallel and west of our campsite. It was decided to find the track, if it still existed, and locate the features in that area.

The two Toyotas travelled north in convoy, leap-frogging each other as caves were sought. We located 5N3558, 5N3559, 5N3540 and 5N3541; the other car found 5N3536 and 5N3560. Walking to 5N3540 Christine happened upon an unknown hole (tagged 5N3559) near which Nick found a sawn tree stump, below which was an old beer bottle and a piece of quartzite. He conjectured that an aborigine must have rested under the growing tree, working on his weapons with this introduced rock. Cutting down the tree must have been hard work, the later chainsawer needing a beer. Both parties combined to look for the large rock holes near 5N3541 to no avail.

The long return to camp found a cooked meal prepared by Greg and the discovery that Ken's rock holes location had been wrongly transferred to our maps. An excellent day as we now had eastern and western road parameters and could locate features using various tracks. Ken had flown that day on the eastern side, though only a few holes had been located towards the north.

21st March. Wednesday.

A perfect sunny morning. Nick decided to have a camp day and the group split into two: Daryl, Margaret and Christine travelling north to look at some holes discovered by Ken yesterday; Greg, Denis and I deciding to go bush and examine a cluster of features to the west. The Curries were leaving this morning, so it was group photo time in front of the plane, which then took off, Ken

DARYL CARR

The Nullarbor party

circling the camp and taking aerial photos before heading off on his day's flight.

We drove north up the track and headed off-road, finding K2017 (5N3542) and K2085 (5N3543) before heading over to a westward cluster of holes. Two dolines were clearly visible, and scouting around turned up a third hole and two features. We entered all holes, the fun starting on the third, from which Denis emerged covered in fleas. I had my legs down the hole surveying the entrance and much of the horde leapt onto me. Pandemonium! Stripping. Jumping around! Greg and I soon lost interest and moved off to record the other two features while Denis self-examined.

Free of fleas at last we headed off to locate and tag K2038 and K2018. From the latter Denis rescued a young stumpy tail lizard, relocating him in a nearby rabbit burrow. From there we bounced our way eastwards to camp, arriving about 6.30 pm. Denis showered with great care before helping Daryl with the daily computer entry. He's now affectionately known as the 'flea-bag weazel' to some and as the organ grinder's monkey to others.

A long, hot, dry day.

22nd March. Thursday.

Ken's trip yesterday revealed a very promising cave entrance to the NE, but we decided to postpone its exploration and instead, try to locate the NW rock holes. Ken decided not to fly as the day was overcast and it looked like rain.

Two cars headed north along the track, then SW towards the rock holes, nearly 10 km away. Two new holes, 5N3564 and 5N3565, were chanced upon and tagged. A distant group of six camels was viewed through the binoculars away to the south. Our journey was halted by an anguished call from Nick 'flat tyres' so the two cars combined to change not one, but two tyres. Our car turned south to tag K2075, on the way coming upon 5N3567, another unknown hole. We rejoined the other car, to proceed, on foot, to the rock holes (K2076). Two unseen holes were stumbled upon (5N3570 and 5N3571), entered and tagged.

The rock holes were magnificent; two water-filled holes in a large, flat pavement. Animal excreta was identified while many flints, searched out and photographed, were noted around the holes. This place had obviously been of importance to the aborigines.

We retraced our tracks to the road. At one point Denis noticed a doline and jumped out of the driver's seat to investigate, leaving me to close the driver's door, and steer the Cruiser from the front passenger seat, in crawl gear, along the barely visible outward track. I was having so much fun, Denis left me to it, chasing after the car and climbing onto the roof, searching from there. He had evolved from the Weazley Flea Bag to Priscilla, Queen of the Desert!

At camp, Nick, Denis and Greg repaired Nick's two perforated tyres while Ken and Christine prepared dinner. Another excellent day! Denis and I both got through to home on Nick's satellite phone. All sweet. A cold, miserable, windy night; a few huddling in the shelter of our tent.

23rd March. Friday.

8 PLY SUPER-DRIVER COMES TO A HISSING HALT.

A windy morning. Ken couldn't fly so he was staying in camp to do domestics; beginning with shifting the toilet, which we all held down to prevent sailing away. Nick fitted his repaired tyres.

After yesterday's long drive people were

happy to do short tours, so later in the morning two cars headed north up the track. Nick, Greg and June travelled with us and we turned west to park near K2000. Ominous hissing as we stopped! A dispirited Denis frowned while Nick grinned and gave little solace to his fellow sufferer. We deserted the car after jacking it up and headed off on our rounds. We located and tagged K2000, K2024, K2037 and K2036 before returning east to our just visible car.

The offending wheel was replaced and poser Marsh jumped onto the roof of the Cruiser (again) to get a viewing advantage. June enticed him into wrapping a shawl around his waist and posing for photos, possibly for the cover of a CEGSA magazine.

Westwards, oh so carefully now, to the incoming tyre tracks, then home. There, the strong wind had caused the dismantling of our marquee. It was my turn to cook as this had been our first early return to camp. Catastrophe. Baked potato and pumpkin chips, (undercooked), beef, onion and cabbage. Everyone lent a hand: Greg with the fire, Christine with the peeling, June with the meat and overall coming together. Denis, meanwhile, examined his tyres, removing all foreign woody projections. The second vehicle (Daryl, Margaret, Christine) returned shortly after us, having located K2028, K2027 and a few unknown holes.

People headed to an early bed, but the fire was so pleasant that I lingered by it, jolting awake towards midnight. A cold night - coldest yet. In the early morning a strange bird "like a duck with a cough" (Christine) had flown through the camp. Pizzey suggested that it was the Australian Bustard, and Daryl confessed to having seen one the previous day. Greg has lost his nocturnal battle with the mouse, always trying to enter his tent. It has chewed a hole through the nylon.

24th March. Saturday.

A perfect morning, though it soon changed. Today was to be a long day driving around to the western holes. In summary, we drove 115 km, walked, and tagged only one feature.

Razzle Dazzle (Nick's nickname for Daryl) and Priscilla drove south and around to the westward track leading up from Koonalda. K2019 turned out to be a wombat enclave, although we found our first brown snake (photographed) before heading off to K2070, meeting up again with the Prado. En route we had seen a dingo, several kestrels and a flock of ducks. The blue bush was ferocious, so after lunch Daryl elected not to continue and Denis pressed on, coming to a hissing halt. A decision was made at that point to walk the few km to K2080, K2081 and K2079. What did we find? Wombat central! Acres of mounds and holes, but no caves. Denis entered one enormous digging and disappeared inside with his torch and camera. June joined him after collecting a wombat skull and a few bones. Greg and I declined the invitation to join them, figuring that meeting a hairy wombat in his home was an experience we could do without.

A changed wheel and we headed back onto the track and north again to find K2082 before turning home. Another flat tyre on the main track just before camp. Another dingo. We limped into camp at sunset. Ken had flown out to the east for the final time and after dinner, Denis and Daryl downloaded the data and distributed late copies of the Daily News.

25th March. Sunday.

Real caving! During the night the Battle of the Mice continued. Greg was losing. His airbed had gone flat. Ken had negotiated a truce. Mice had ceased dropping into his tent from the top of the fly. Towards dawn the radio was filled with stations all broadcasting the cricket game between Australia and South Africa.

Ken had found the best hole yet, naming it Tank Cave, so we forewent fixing the tyres and headed off to, hopefully, cave. Two full cars headed south to Koonalda Cave, stopping to walk around it and then the doline near the old shed. We gawked at the size of the collapse and the large fig trees growing below. Galahs, kestrels and welcome swallows flew around. A brown falcon and magpies were seen near the yards. Turning up the old Eyre Highway, we turned in up a very faint N track near the old tanks (Guinewarra Tank) almost hidden in the bush. The track was in good condition, leading almost directly north. A single camel warily watched us. Both cars drove off track and we located the K2103, K2097, K2095 and K2104 group of holes. Those who had not seen Denis caving were gobsmacked at his entry and descent of a hole the rest of us could not even contemplate entering.

A long walk back to the cars. A wombat skull collected for June. A drive north to K2101, a real cave. Harry's Cave, (Ken's Tank Cave), previously tagged 5N223, saw us all underground and all at the same time. The entrance dropped into a rockfall chamber with air blowing through a large hole; scramble through there into another rockfall room with much bone debris and some inactive formation. A burnt flare, a survey marker and a desiccated kestrel were found. A further descent through rockfall to another small chamber (with kangaroo bones) saw us pulled up. No wind.

People photographed and June sketched Greg. Time for home as it was Ken's 69th birthday celebrations. We retraced our steps to camp, not being seduced by K2102, quite close to the track. A real buzz near camp as we chanced upon four bustards just off the road. Bustards had been a topic of conversation over many days and a cave and bustards in one day made a wonderful day.

Clear, starry night. Denis donated his cake as the birthday cake and Greg searched out a candle. Daryl produced a bottle of blackberry liqueur and we all enjoyed the fire.

26th March. Monday.

Domestics morning. Ken dismantled the ultralight and many hands made light work of tucking it away into its special trailer home. He had flown two sorties yesterday, finding a supply of holes for next year's trip as well as a suitable campsite and camping area. Denis repaired tyres and people generally busied themselves, writing, throwing and rearranging.

In the late afternoon Denis and I were driven south by Daryl and we walked out to K2091, a feature out by itself (5.99 km X 2).The 'doline with fissure' turned out to be a wombattery again. We saw our first echidna on the road back to camp. That night it was decided to start earlier in the morning to try to knock off all the features to the NE.

27th March. Tuesday.

A warm night and a blustery morning. Spectacularly clear early morning light, which heralded an uncomfortable day. Light drizzle soon set in, then rain. Ken and Christine, who yesterday had packed the plane and all but their tents and sleeping gear, slid out of camp, worried about the state of the road, as Ken only had a two wheel drive Hilux. The rest of us huddled under our awning as the rain set in. Nick suddenly decided it was time to go. He, June and Greg packed all their tents in the sopping rain and broke camp. Walkie-talkie connection told us they had made it safely to the highway.

Just before lunch the weather cleared and the four of us remaining (Daryl, Margaret, Denis and I) sat around a new fire, watching the effect of the sunshine on the road and drinking cups of tea. Would the road dry out enough tomorrow for us to head north and finish off?

28th March. Wednesday.

Big day today. Clear skies and fast-moving clouds. Both cars headed north early,

finding the track firm, though with a few puddles that needed skirting. As we entered the NE fork, Margaret walkie-talkied and told us of an old tagged feature from 1961 just off the track in front of us. We stopped and examined it and soon after I spied two others just by the road, one untagged.

The cars separated near our setting out point for K2096. The plan was that they should tag and map K2098, K2099 and K2100 then turn south and map K2102. We would leave the Cruiser beside the track and walk an arc of caves around to them and then be driven back to our own vehicle.

The finding, entering and tagging was quickly done. Here, towards the north of our searching, the holes seemed deeper and with greater potential for further exploration. Our deepest hole, K2086, was over seven metres deep.

As the sun sank radio contact was resumed and we learnt that Daryl and Margaret had retraced their steps to our vehicle. We suggested they return to camp as we needed to locate one more hole and we would walk back to our car.

Dusk was setting as we searched in vain for K2094, sweeping in circles out a hundred metres or so, disturbing a lone bustard. The sun set, Venus shone brightly, and with a half-moon to the north, we set out on a bearing for the car.

Denis and I trotted the 5 km, arriving by GPS reckoning exactly at the car, visible only for the last 100 metres or so. Forty minutes or so later we came to camp, the welcoming fire visible as we dropped down into our hollow. A rabbit scampered across the road.

Daryl and Margaret had prepared tea and waited for us. A cold night. We slept soundly after our 20.5 km walk.

29th March. Thursday.

Pack-up day. Sadness as the firewood was taken away and secreted for next year and 120 litres of Clergate water poured onto the ground. Daryl's toilet and its disassembly revealed the ingenuity of man. Much lighter than on arrival seventeen days ago, we headed out on a dry track.

At Koonalda Cave we stopped and looked over the edge, essaying how to descend. Near the tag, 5N4, we threw down a rope and scrambled down after it. The size of the hole, after the ones we had been squeezing into, took some adjusting to. We examined the mesh gate and the barbed wire defences, both worthy of a WW1 trench system, and like them, both breeched. A masked owl and kestrel and numerous welcome swallows traversed above the remains of an old garden: fig trees, a woody peach, a plum and a mulberry.

As the day was ending, and Denis wished to look into Weekes Cave, marked on the map between the old and new Eyre Highway, we opted to remain at Koonalda for the night and explore the next morning before heading home. Dingoes were howling in the distance (a sound we hadn't heard at the airstrip camp site) and as our dinner cooked over a wheel and hubcap hotplate, owls circled above and perched in a nearby eucalypt.

Denis photographed two, one continually screeching to keep away a third. Denis took many photographs and we debated whether it was the same owl as at the cave. Denis retired inside the old homestead to sleep on a wire-sprung bed; I slept on the concrete verandah outside.

30th March. Friday.

Robyn Williams was interviewing Dr John Long on Radio National as I got up and wandered through the cars and sheds, photographing in the early morning light. Denis, later, was quite taken with the cottage and its memorabilia.

We moved south, searching for the track into Weekes, but without success. Faint tyre tracks attracted us along a collapsing fence line. No luck, though the going was easy in the light grass. We came upon chains and tyres, once used to clear scrub, hidden by the bushes. Denis sized up the chains and hooks, but I hurried him away.

We crawled south, searching for the track into Clay Dam Cave, which turned out to be well travelled. We marvelled at the deep walls and the eroded mud, circumambulating it and figuring out how best we could get down on our next trip. Finally we got to the highway and headed east, stopping for lunch at the Bight lookout and camping that night at Ceduna.

31st March. Saturday.

Where is my small tent? Couldn't find it anywhere and neither of us had laid eyes on it since Ceduna on the trip west. The Foreshore Caravan Park wasn't open till 8 am, so I couldn't check there. A quick breakfast in the bakery (interesting historic photos on the walls) then on our way. Having a gay time identifying birds in Pizzey, noticing emus and noting dolines. Just sailing along. Making grand time.

Couldn't find some small town on our map and then, we were nearly in Port Lincoln. Feeling annoyed with ourselves, we pulled over for lunch at John Tennant's monument just outside town, boiled a billy of tea, gulped it down (while enjoying our graffitied table - Bill and Jules had hot sex on this table - much more exciting than our boring old cup of tea!) and went for it. Beautiful country at warp speed.

Denis reckoned that we were in the process of taking a 304 km detour. Beautiful light up Horrocks Pass and spectacular eucalypts. Willmington. Orroroo (worth time). Peterborough. Crashed in a rest area just outside Broken Hill just before midnight, the roos making it too dangerous to continue.

1st April. Sunday.

April-Fools-Day. A day late we reckoned. Up and into Broken Hill after listening to trucks arrive and depart all night. Petrolled up and Eastward. Emus. Corellas. Dead kangaroos. Wedgies and crows feeding and flying off in haste at the last possible moment. Wilcannia. Cobar. Trangee. Narromine. (Glen McGrath—how is the World Cup going?) Dubbo. Phone call home. Wellington. Serious swerve to miss a barn owl which fluttered up onto a nearby branch. In the excitement we forgot to photograph it to compare to our Koonalda owls. Orange: 8.30 pm. Trip over.

DARYL CARR

Dry Creek Canyon

Craig Hainz
Kempsey Speleological Society

DID YOU think that only the Blue Mountains held worthwhile canyons? Well, we've found one in the mountains 45 km west of Kempsey.

RECONNAISSANCE TRIP
20 November 2006
Party: Craig Hainz & Ed Castro

After some discussion at a recent KSS meeting as to the location of nearby canyons, some of the members reported seeing one in a section of Dry Creek when they flew over in a plane just to the SE of Haydonville.

So with lots of anticipation but no firm idea of what we were about to encounter, we parked on Carrai Road just near the bottom of the Willi Willi map.

There, we entered the bush to the east and headed northeast along a ridge line.

Five minutes later we'd picked up a very overgrown forestry trail with its many side branches and followed it occasionally down to within 100 metres of the creek. We intersected the creek just above a 20 metre waterfall & scrambled down on the left.

Next time I come here I'll abseil this section because it was very steep with a lot of loose rocks! After an easy 30 minute walk down a scenic creek we arrived at a 40-metre vertical waterfall unfortunately carrying an inadequate length of rope to continue down.

The view from here down into the start of the canyon was very interesting. At the bottom of this waterfall the creek continues into a large vertical slot and disappears. It seems to me that 2 x 50 metre ropes would be adequate to access this section but more might come in handy.

We could see a selection of easy exit ridges further down the gorge after the creek reappears so the whole trip looks like it could be completed in one day. It's possible to avoid getting wet while abseiling the main drop but it's impossible to tell what the conditions are like after this.

At this point we had lunch and walked back to the car by the same way we came in. All in all, it turned out to a pleasant half day reconnaissance trip and I'm looking forward to going back soon to complete it.

HENK MORGANS

Craig Hainz at the bottom of the second abseil

SECOND ATTEMPT
28 April 2007
Party: Mick Short, Craig Sydenham, Peter Hull, Craig Hainz

The weather and conditions were perfect as we arrived at the beginning of the old logging trail to start our walk. The walk down to the first waterfall was pleasant and took an hour. At this point we scrambled around a little but then were forced back to our vehicle due to a fear of not being able to find suitable belay points further down the canyon (it's a new class of phobia). We then drove to Haydonville and did a bit of trogging around the Bat Cave area with not a lot of success.

Then we drove to the Natural Arch and trogged this area, finding a series of cave passageways under the rockfall area on the eastern side of the arch. [These are collectively known as Glow worm Cave (SC 14) where Dave Merritt recently did some research on glow worms; see *TROG*, February 2007.] After this, we headed home.

THIRD ATTEMPT
2 June 2007
Party: Phillip Lardner, George Cowan, Craig Hainz

We drove up from Kempsey and met Phillip at Kookaburra where he had spent the night.

We did a car shuffle and left Phillip's vehicle along McCoys Trail, then set off yet again along the old logging trail, a little later than expected.

George and I decided to abseil the first waterfall while Phillip climbed down and continued down to the main drop ahead of us.

The first abseil took a lot longer than expected and lunch was concluded at the top of the main drop around 2 pm so we then decided that it was too late in the day to continue on down.

We navigated right along a ridge back to McCoys Trail to pick up Phillip's vehicle. This leg turned out to be a little further and later than we had hoped, and then we were further delayed by a group who had camped right in the middle of the trail blocking our vehicle. So it turned out to be a very long day.

There will be a fourth more serious attempt on this canyon during the first week of July. The days will be shorter then so it could be more difficult but I have faith that persistence will pay off.

SUCCESSFUL FOURTH ATTEMPT
3 July 2007
Party: Craig Hainz, Peter Hull, George Cowan, Henk Morgans, Isabelle Johnson

After four attempts to complete Dry Creek Canyon over the last seven months we've just made the first historic descent! Yet again we did a car shuffle down McCoys Trail, leaving a car at the top of our exit ridge. We then spent a comfortable night in the hut at Kookaburra.

The next day we commenced our walk down the old forestry trail at first light (6.30 am).

The walk down to the top of the main drop was pleasant and we arrived there at about 8.00 am.

No time was wasted as Henk set up the first abseil located about 10 m to the right of the falls and we all then abseiled down a very unobstructed pitch which turned out to be 50.5 m high.

After a short and wet climb down to the top of the next drop, there was a considerable amount of discussion and reconnaissance before we decided to locate the next abseil 10m to the left of the next fall.

HENK MORGANS

The second waterfall

Some members of our party were concerned about getting wet in this section on the way down but the pitch ended 45m later in a surprising position where it was possible to stay dry, thanks to Henk's efforts yet again.

A relaxing lunch was then consumed 10 minutes down the creek from the bottom of the last pitch.

After an initial navigation error about where our exit ridge commenced, we were soon on our way up the correct ridge.

This ridge was steep for the first 20 minutes but then became gentler and we reached McCoys Trail about an hour after leaving the creek.

We believe that no one else has ever fully descended this canyon as there was no obvious evidence, such as slings, bolts, rope marks on trees or any rubbish left behind, that any another canyoning party had been there previously.

This canyon compares well to other more popular canyons in the Blue Mountains and was well worth the effort.

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A Nullarbor Glossary

A collection of terms to help you navigate your way around the Nullarbor

Margaret James
Victorian Speleological Association

THIS WAS originally published in *Nargun* Vol 38 (4) after the 2006 VSA Expedition. The glossary provides an indication of the trials, tribulations and fun experienced by VSA members on their annual expedition and explains some aspects of Ian Curtis' journal.

Ablutions:

Oi! Stop wasting water. Haven't you learned you can wash yourself out of a cup?

Barking geckos:

1. No, not Miles with the flu. That was LAST trip.

2. The real ones are some of the Nullarbor's cutest inhabitants. Only about as long as your hand, in various earth shades, and all ornamented with their own individual aboriginal dot paintings. They live in blowholes, and under rocks on the surface. When disturbed they yap like tiny dogs, and bolt for the nearest shelter. If that happens to be under your boots (yet again!), you just have to stand there like a goose while someone else rebuilds their shelter so they have somewhere safe to run when you move.

DARYL CARR

Big pitch:

In fact the biggest found all trip — 35 metres! Too late in the afternoon, on the way back to camp, the night before final packup and departure, several days after half the group had already left, taking a fair whack of the ladders and other gear with them - so not enough ladder left for the pitch. And not even much SRT gear left in camp. Only one solution! Pack up the entire camp in the morning, let Ken fly as close as he can, then drive him to the shaft, and put him down on SRT. Back up (grunt!), back to the plane, and off he flies to the plane disassembly point behind Eucla quarry. What else could a caving pilot wish for?!

DARYL CARR

Blowhole:

A hole in the ground which under the right atmospheric conditions can roar like a banshee, and/or blow your shirt right over your head just when you need to see what you're doing in it. Its size can vary from way too small to fit into, to rather too many metres across for bridging to be possible. Smaller ones may be squeezed into, as long as you've checked they don't suddenly bell out after the first narrow bit, leaving you with nothing to climb on! Big ones definitely require ladders and/or ropes. Some of them "go", but many don't. Depending on their size and location, some have been known to contain things you'd rather not meet, like live spiders and snakes, nasty smelly corpses of all sorts (always RIGHT at the bottom of your rope!), and the occasional cute little barking gecko.

DARYL CARR

Bluebush:

An inoffensive-looking but vindictive little bush that deliberately and malevolently hides savage crocodile teeth under its leaves, disguising its sole apparent purpose in life — which is to spike any passing cavers' tyres in the nastiest and most permanent way possible. If feeling particularly sneaky it sometimes prefers to inflict invisible unfindable damage that nonetheless results in square tyres in the morning, leaving the owners scratching their heads and unable to take any action but get out the compressor yet again. Seems to have a particular liking for Michelin and Dunlop tyres.

Boxthorn:

Spiny carnivorous bush that inhabits harsh rocky ridgetops, which are exactly the sorts of places you might have to march over to find a feature. Also good for the occasional puncture — just for a change.

Bustards:

For some of the party, their first sight of these majestic metre-tall birds, superciliously stalking through the scrub. How could such a huge bird ever get airborne?! But they do, the moment you get out of the car to have a better look. What a wingspan!

Cabbages:

One of the few veggies that lasts for ages. Can be eaten boiled, stir-fried, raw, coleslaw, mixed in with other stuff, spiced, and ... er ... um ... (Wish you could take tomatoes and capsicums in!)

Car batteries:

Devices which work much better if there's two of them under each bonnet, especially if you're trying to run computers, converters,

camp lights, AND also recharging all your lights, UHF radios, and other battery operated gadgets. Not to mention a satellite dish for someone's portable telly (true)!

Camels:

1. Traces seen by ground parties included tracks, skid marks, and lots of poo. But no actual camels.
2. But at least two big mobs seen from the plane, one group of about five and another of about 20.

Car fridge:

A device that conks out while carrying its share of group meat supplies, particularly during 40°+ days while en route to the Nullarbor. Versatile enough to also conk out during cooler weather in camp, and with the hitherto unsuspected ability to communicate with most other trip fridges, in order to take turns to not work. Always restarts by the end of the trip when it's no longer needed, then works brilliantly.

Compressor:

A device which operates most mornings on the Nullarbor (usually in concert with several others around the camp) as cranky vehicle owners discover — yet again — that they DIDN'T escape unscathed from yesterday's foray into yet another whopping swathe of bluebush.

Cooking:

1. Nearly everyone took a turn at cooking the evening meal or helping with food preparation. It worked!
2. We didn't even have to retell that old joke about the camp cook. ("Who called the cook a bastard?" "Who called the bastard a cook?!") All the dinners were good, and some were fabulous. Nobody came home skinnier than they were before!

Data processing:

The bane (and salvation) of the expedition. All of Ken's data gets put on computer, with maps produced to tell ground parties where to find everything. Then when ground parties come back at the end of the day, all their data has to go on computer as well, and is cross-referenced with Ken's original data. Sometimes the doco people don't get to bed till midnight or even later. Fortunately for them, their tent-mates are restrained from murdering them by everyone else, because they produce useful maps and tell everyone where to find the best places to search.

Diet:

Forget it on these trips. The catering always seems to provide way too much food, even when you spend a heap of time marching around looking for Ken's waypoints.

Dingoes:

Heard howling mournfully at night from time to time — very spooky. Seen during daylight hours by several groups — all looking like pure breds (that's the dingoes, not the cavers), and very healthy. Don't know what they eat, given the lack of rabbits these days.

DARYL CARR

Large doline

KEN BOLAND

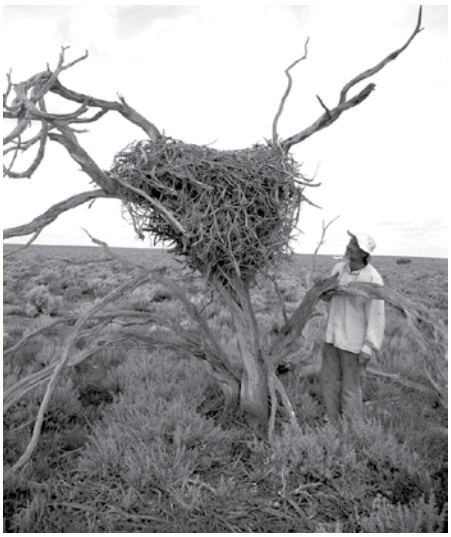
Kestral

Doline:

1. At one end of the scale, a very large walled hole in the ground that encloses its own totally separate ecosystem, quite different from the saltbush and bluebush communities on the more exposed surfaces. With a diversity of plants and insects sheltering from the wind, you need to detour around huge Golden Orb spider webs, and other unexpected and fascinating obstacles. And how come nobody found something this big earlier? Surely it would have shown up on the aerial photos?!
2. At the other end of the spectrum, can look suspiciously like old rabbit warrens, or Chateau Hairy-nose Wombat undergoing renovations.

Dunny tent - spring loaded:

1. An absolutely essential and much-loved piece of equipment for most of the trip, given that there aren't any bushes higher than knee-high to hide behind out there.
2. The most detested piece of equipment at packing up time, when we discovered that the instructions for bullying this "easily packed" (AARRGGGHHHHH!) item back into its cute little carry bag didn't work! The prolonged (over several hours!) individual and doubles tag wrestling matches, surrounded by a tight rugby scrum waiting to pick up the pieces (of the cavers, not of the damned dunny tent) have provided some excellent photographic character studies which will undoubtedly be produced at times of maximum potential embarrassment to all participants.
3. *Stop Press:* Late instructions have now been acquired from the supplier about how to put the rotten thing away (hooray!) — which makes you weep when you realise it IS actually easy when you know how. If ONLY someone had given us decent instructions from the start!



DARYL CARR

Eagles:

1. What can one say? Stunning, majestic, huge, soaring... you just HAVE to stop and watch.
2. Don't know how they manage to fit such huge nests in such tiny little twiggy trees, though.

Fires:

1. Used because you've got enough of a load in your vehicle without adding umpteen extra containers of whatever fuel your stove runs on. Even though there isn't any firewood locally, so you have to collect it before leaving the treed area, then carry it all with you. If you run out, someone has to take time off to go and gather more.
2. A definite challenge for those not used to cooking on them - like me!

GPS:
1. A magic device that enables Ken to pinpoint a feature with great accuracy (often within 50 metres) while simultaneously flying a fast plane at umpteen hundred metres above the spot.
2. Something that is equally handy for refinding Ken's original spots, and getting an even more accurate ground fix on them.
3. But they ALWAYS start to run out of batteries on the only day you forgot to carry any spares!
4. And if you don't all agree on which navigational datum you're ALL going to use right from the start, you can create a fair bit of embarrassment!

Heat:
1. Given that we went before Easter (rather than after, as usual), there was a period when the daytime temperatures had way too many therms for some of the group. Come to think of it, some of those nights were a bit too hot too — especially if (like Daryl) you'd brought your ski-touring sleeping bag on the assumption that the nights would be as freezing as they are AFTER Easter.
2. Something that some of us would like more of in our cooking, except there's always someone who really doesn't like spicy food. Drat! I think we need to change the selection criteria for participation on this expedition!!

Kite:
Large, pink, Rudy for the use of. Goes straight up with hardly any wind, stays up to point the way home to camp for the wanderers, and has to be tied on to a vehicle to avoid its owner becoming airborne.

Nullarbor:
A whopping great area of limestone that looks flat on the map, looks flat when you're looking at it, yet is unbelievably lumpy and spiky when you drive over it. Known to severely rearrange front ends and other essential vehicle parts. Also specialises in wrecking trailers.

Nullarbor belay:
Sometimes there just isn't anything natural to tie off on. Either nothing at all, or the holds are all upside down, or it's all just too rotten to trust. Enter the 4x4 bullbar and towbar ...

Nullarbor helmets:
Look like ordinary sunhats, but are undoubtedly (ahem!) reinforced internally like old-fashioned pith helmets. Just as well they only (usually?) get worn while checking very small blowholes ...

Packing:
There's only one thing as bad as packing for an expedition and that's getting home and having to clean it all up (assuming you can find it all!), then trying to work out where the heck you had it stored before!

Pumpkins:
See cabbages. But at least you can roast them too.

Punctures:
See Bluebush, Boxthorn, Compressor, Rabbit warrens, Rock blades, Trailer, Tyres.

Quarantine:
The reason you can't take the fresh food supplies you want into the WA Nullarbor. No fresh fruit, and very few veggies are allowed through from the SA side. If you want to eat, you have to find some way of getting a few long-lasting basics sent across from the far side of WA. This can make life very difficult if you intend sitting out in the middle of nowhere for a number of weeks!

Rabbit warrens:
Well tunnelled traps for drivers who don't keep their eyes open. If hit at speed, they've been known to devour tyres, destroy front ends, and do very unfunny things to axles! Alas, Chateau Rabbit always seems to remain even when the rabbits don't.

Redback spiders:
These ones are on steroids - the biggest you've ever seen! Down tight blowholes (what's that right in my face? aargghhh!), marching across your inside tent wall just above your pillow, everywhere. Even spider lovers were seen committing determined arachnicide all over the place!

Rock blades:
An alternative method of slicing tyres for drivers bored with bluebush skewers.

Saltbush:
Not to be confused with bluebush. For drivers, saltbush = good, bluebush = bad! You very quickly learn the difference!

Satellite dish:
Oi? Wot?? Out on the Nullarbor??? Which Peter would do that?

Sharing the work:
If something needs doing, you do it. The designated cook hasn't got back to camp yet? Rats - better start on the food preparation. Another wrecked tyre? Somebody will help. Dunny hole full? Then someone had better start digging another one. Cave needs drawing up and you don't know how? Time to learn! All expeditions are full of GROUP jobs which have to be done, and you learn very quickly that everyone has to do their share, rather than just looking after Number One.

Sky:
You'll never see so many stars as clearly as you do out here. Astronomers, eat your heart out!

Sock protectors:
Worth their weight in gold! They keep out seeds, burrs, boxthorn prickles, and all that sand and gravel you can't wash out of your socks because you don't have enough water. Foot savers!


DARYL CARR

Stumpytails:
Middle-sized harmless lizards that seem to spend an inordinate amount of time crossing the track just as cavers arrive and have to try to not run over them. The radio call of "Stumpy on road!" is frequently heard from the lead vehicle in a group — which seemed to confuse our overseas visitor somewhat.

Sunglasses:
Something that Nick forgets to take off when he goes underground (and he's not the only one, is he Miles?), then complains about dim caving lights, and people who never told him he still had them on.

Trailer:
A device for carrying spare water, extra petrol, SPARE spare wheels, and all sorts of other stuff, providing even more tyres for the bluebush to nobble.

Tyres:
Disposable artefacts attached to wheels, with the apparent major purpose of competitively acquiring more holes, slashes and stakes than everybody else's.

UHF radios:
1. Really useful thingies when scouring an area, looking for some elusive feature that

takes everyone out of shouting reach from everyone else. Good for conveying (in smug tones) that YOU'VE finally found the rotten hole that nobody else could.
2. Not very useful when half the group heads out without them, then wants to say something important to everybody else at the far reaches of the horizon. Like "Come back, we're leaving!"

DARYL CARR

Ultralight:
1. A magnetic device that sucks in everyone with a camera every time it takes off, lands, gets put together or pulled apart. Especially if it starts doing Red Baron stuff over camp!
2. A very small but powerful miniplane that makes it much easier to find all those blowholes and other karst features which maybe you'd locate yourself if only you walked around to the other side of that bush - but you didn't. (Oh quit kidding yourself - some of those features are 20-30 km away in the direction you weren't going to go in.)
3. A machine that mostly has Ken Boland grinning like the proverbial Cheshire Cat - except for when the carburetor gets cranky and the exhaust nearly asphyxiates the entire camp.

Washing:
1. Something that you take into "town" when you run out of knickers and socks.
2. If you're Sue you go to Eucla rather than Border Village - then discover too late that all their washing machines are out of order, and you have to have a very VERY long shower trampling all your nasties underfoot before they escape and start terrorising the grey nomads. Maybe it would have been worth the extra 25 km round trip to go to Eucla, even with the extra inspection at the quarantine post?

Water:
Something you have to fit too much of into your car, to cover absolutely all of your drinking, cooking and washing needs. A precious item to be severely rationed. And at the end of every damned trip, you somehow wind up pouring out extra you didn't know you had, which you could have used for washing your hair with!

Willy willy:
A mini whirlwind that always waits until unsuspecting campers have their tents wide open, enabling it to spring into action to drop the entire contents of the Nullarbor's sand supplies into their sleeping bags.

Wind:
1. It almost always blows on the Nullarbor. You'd always get your washing dry out here — if only you had the water to spare for it, and (if you did) the wind stopped blowing your line down into the dirt so everything gets grotty again.
2. At least no tents got blown down or broken this time. And the dunny tent stayed up too - hooray!

DARYL CARR

Windbreaks:
1. Something that got put around the fire and eating area, so that the wind could change and sneak in from the other direction and freeze us to death while we weren't looking.
2. Then there was the splendid construction of Peter Rob's, which obviously could withstand anything. Except for the little squall which bent the great big metal poles which held it up.

Zeal:
For the place, for the experience, for the opportunity—despite all the dead tyres and other occasional annoyances. Watch out, or this could happen to you too!

A Star is Born

Scurion Headlamp Review

Alan Jackson
Southern Tasmanian Caverneers

TYPE 'HEAD TORCH' or similar into Google and you'll soon find that there is an enormous range of torches available, particularly with the recent revolution in LED technology. Unfortunately, despite claims to the contrary by the manufacturers, the vast majority are useless for caving, especially proper caving (the wet, muddy stuff you get in Tasmania, not those pretend caves you get on the mainland). Amongst the array of shithouse lights there are a handful of genuinely good caving-specific models. There is now one that stands out from the pack – the Scurion.

If it's hard technical data you want on this light then go to the website (http://www.scurion.ch). I don't understand half of it myself, so it is not my intention to dazzle you with numbers and specifications. This review simply aims to list the good and bad points this light has to offer, primarily via a vague comparison with (in my opinion) its nearest rival, the Stenlight.

Both the Stenlight and the Scurion are impressively bright and user friendly, though the Scurion certainly wins in all out brightness. The main differences between the two lights are in their more subtle features.

A few comparisons:

The headpiece

I prefer the Stenlight in terms of construction and size. It is very small, compact and lightweight.

The Scurion is a bit bigger and ungainly looking, but still small compared to the once mainstay of cave lighting, the Oldham style headpiece.

The switch

The Stenlight is smart in terms of sealing (watertightness) by having no moving parts that breach the seal.

The switch uses a magnet to communicate with the circuitry to change brightness level. This, however, creates a big problem — magnets and compasses don't mix.

The magnetic field generated by the Stenlight switching mechanism is very strong and essentially requires removal of your helmet to get a true compass reading while surveying.

Ric Tunney and Janine McKinnon (Southern Tasmanian Caverneers) did some testing with various lights which demonstrated that a minimum separation of 170 mm between the Stenlight and a compass was required to prevent interference (see full report in *Speleo Spiel* 356:18).

The Scurion, on the other hand, has been designed with this in mind and uses no magnetic switching and all stainless steel and alloy components.

It has absolutely no effect on compasses from any distance when not illuminated and has a very small effect when the lamp is on full power (but only when within 40 mm).

One would be unlikely to have the compass within 40 mm of the lamp while surveying, and even less likely to require the lamp on full power to illuminate the dial.

The headpiece is still very effectively sealed and meets current European standards for splashing and brief submersion. While not really designed with diving in mind, the headpiece has been successfully tested to -50 m. Watertightness is not an issue!

The battery

This is where Scurion really surges ahead.

China shaft illuminated by Scurion only

Like Stenlight, Scurion uses the latest and greatest Li-ion rechargeable batteries which, when combined with the efficiency of LED technology, gives amazing battery life (we're talking hundreds of hours on lowest settings).

The difference is how the two systems package their batteries.

Scurion uses a machined alloy hardcase (all one piece, with the exception of the 'lid') which is designed to permanently mount to your helmet with two stainless steel bolts.

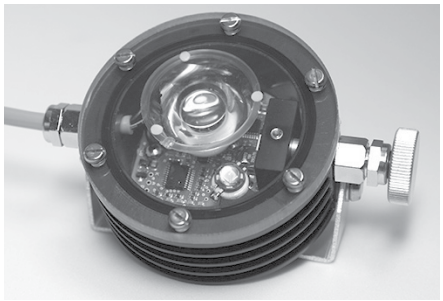
The lid piece seals well and only failed at a depth of -20 m in diving tests (again, it isn't designed for diving use).

The result is a sturdy, highly water-resistant battery case that can take a real pounding and which securely attaches to the helmet.

The Stenlight really falls over in this department. The batteries are contained in several layers of 'heavy duty' heat shrink and affixed to the helmet with a Velcro equivalent (the stuff with a sticky side that sticks to the helmet and the battery).

Velcro and cave mud are sworn enemies and it is hardly a long term solution.

Also, where the cable emerges from the batteries has proven to be a problem. Five



Headpiece comparison: the Scurion (left) and the Stenlight

members of STC have Stenlights and I believe all five have had to fix fretting and splitting of the heat shrink in this area that has required taping or gluing back in place. One has had connection problems underground as a result.

The price

This is Scurion's main weakness. It is a seriously expensive bit of gear, even when compared to the quite expensive Stenlight. The other problem in this area for Australian consumers is the currency exchange rates.

With the A$ almost at parity with the US$, a basic Stenlight kit comes in at around A$300-350 plus postage. The stock-standard Scurion is €348 which, at current exchange rates, is around A$570 plus postage. But the old adage holds true – you get what you pay for.

General use

The two units are much of a muchness in regard to general use. The Stenlight, as previously mentioned, is a little smaller and also a little lighter.

It is also more flexible at its attachment point (it swivels up and down a long way on its conventional 'blade-mount'.

The Scurion also has good movement but I have found that it doesn't go quite as low as I would like. I noticed someone on the online forum (hosted on the Scurion website) also complained similarly.

This appears to be specific to helmet design as other members of STC have great headpiece movement. To get around this problem I intend simply grinding off the rear heatsink blade. In all but the hottest of environments, this will not lead to overheating of the unit — it is only one of about eight blades (and as if I ever intend lowering myself to caving anywhere other than deliciously cold Tasmania!)

Another option would be to insert a washer or spacer to provide more swinging room. I believe the latest versions come without the rear heatsink blade due to the number of queries and complaints in this area.

The Scurion also has some pretty advanced circuitry/processors that allow for various light settings to be customised.

You can have between three and ten different light stages (each with any of the many combinations and permutations of wide angle and spot LEDs — each LED can be set to four different brightness levels within each of the ten primary settings).

Some would say this is unnecessary bullshit, but I've found it very useful. You can set your light up to suit the kind of caving you do; as we all know, not all caves are the same.

The Scurion battery pack

You can keep it simple or fiddle to your heart's content.

There is now a new version available with the latest P7 LED also fitted (which allows photography and underground filming to be done, i.e. it's very bright!)

There are various other accessories and options available (UV light, 9V backup adaptor, a variety of pleasant anodised colours, blade mount option, 'head up' display for battery charge indicator, long lead for non helmet-mounted battery). A comprehensive user manual is supplied with the unit.

Probably the best feature of all is the customer service. R&D and manufacturing is completed solely by two passionate Swiss cavers, Rolf Siegenthaler and Martin Melzer.

I have lost count of the number of emails I've sent them prior to and during the 6 months I've had my Scurion, asking them various questions. Every email has received a detailed response.

The online forum is also a great resource with all queries explained by either Rolf or Martin.

I even went so far as to state recently that what Rolf and Martin actually provide is a first rate customer service business with a superb caving light as an optional extra, not the other way around.

So all in all, I think the Scurion is a superb light and I'd recommend it to anyone who takes their caving seriously.

The Stenlight is also a good light but doesn't have the icing on the cake like the Scurion. If you're a part-time caver, then it probably isn't worth the extra expense of the Scurion. But why would you be a part-time caver?

WWW.SCURION.CH

Caverns of Literary Exploration

Book Review by Jeremy Buxton
Quadrant Magazine

A LONG, discursive and fascinating essay by Hal Colebatch, *Caverns of Magic — Caves in Myth and Imagination,* is far more than a survey of caves in human history and mythology. In little more than 100 pages it takes the reader down many subterranean passages of literature where fine imaginative writing will be recalled or discovered, whetting the appetite for more.

Hal Colebatch reveals a lifelong fascination with the caves of his native Western Australia that he first encountered at the age of seven, and helped explore in later years. As we absorb his enthusiasm for the mysterious and sometimes alarming beauty of cave systems drawn from both life and literature, we can only agree with his statement "speleology tends to bridge the gap between the so-called two cultures of science and art".

The author knows his subject well and imparts his scholarship deftly. We learn the significance of caves in Arthurian and other traditional mythology; the unique nature of sea caves and cave fauna are described, along with legends of troglodyte outlaws; there is a succinct history of cave tourism and of speleology; and a scholarly dissertation on the fate of the cave-dwelling Neanderthals, illuminated by such differing fictional perspectives as William Golding's *The Inheritors* and Jean Auel's *The Clan of the Cave Bear.*

Many thousands are now familiar with Tolkien's epic *Lord of the Rings* but fewer will know the poetic descriptions of the Caves of Aglarond quoted from The Two Towers in Chapter 1 — reminding film-goers that the book has its own unique rewards.

Seamlessly we are soon treated to a long quote from the columnist Michael Wharton "who manages to both send up the literature and myths of cave exploration and celebrate them".

One of the book's themes is the role of the cave as a treasure house of natural wonders and fictional hoards, and indeed it is full of nuggets from literary classics, high culture, fantasy, and those traditional adventure stories that are today banished from far too many school and public libraries.

Thus we learn of the importance of caves in several adventures of W.E. Johns' famous aviator Biggles, along with a little known but deeply evocative and believable short story of a cave-dwelling menace by Conan Doyle.

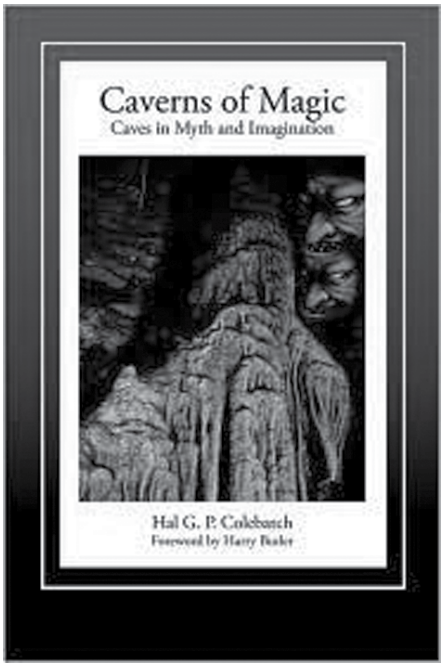
This welcome disdain for literary snobbery is part of an intellectual curiosity that points to the links between the Morlocks of H.G. Wells' *The Time Machine* and Tolkien's creation of Mordor and Gollum.

There are reminders of the quality of the writings of Geoffrey Household, clearly overdue for a popular revival, with an entertaining thumbnail of the weird imaginings of H.P. Lovecraft, and an introduction to such intriguing if lesser-known fantasy writers as Alan Garner and Ivan Southall.

H. Rider Haggard, scorned by the past literary establishment and ignored today, is given recognition through some powerful quotations from both *She* and *King Solomon's Mines* that demonstrate his ability to create vivid description and enduring myth.

This is a powerful contrast and antidote to the latest 2004 telemovie remake of *King Solomon's Mines* with an American hero (a conservation-minded single father with custody issues), an introduced white heroine, and the evil witch Gagool transformed into a kindly, glamorous Tina Turner look-alike: no doubt to avoid offending the sensibilities of twenty-first century South Africa.

Hal Colebatch dryly points out how modern political correctness, using Aborigines as an excuse, not only prevents access to the "burial cave" at Yanchep that he visited as a child, but also removes its name and location from reference books, a blotting out of memory.



In a fascinating Appendix he tells us of the romantically lost Namban Caves, relatively close to Perth, discovered nearly a century ago by senior officials who had them sealed for protection.

Today, alas, their location is forgotten and their entrances buried under desert sands.

The book concludes not with a standard plea for conservation, but rather for the preservation of something "beautiful, ancient, mysterious and unsafe", to be enjoyed without the nightmare of futuristic "solitude vouchers".

In another telling phrase, Colebatch remarks: "Perhaps there has been little cave-poetry because people who live poetry do not need to write it".

■ *Caverns of Magic* is published internationally by Cybereditions.com (see notice on Amazon.com website).

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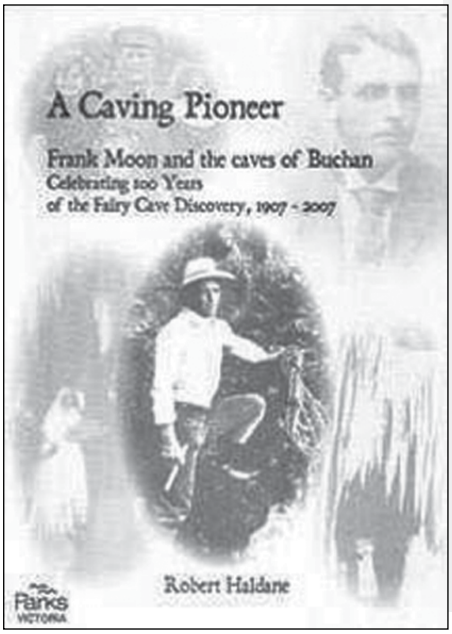
Celebrating a centenary

WITH THE centenary of the discovery of Fairy Cave at Buchan occuring on 18th March 2007, a spate of material on the cave related history of Buchan has occurred over the past year. This has included a heritage reproduction of five postcards, a short book by Robert Haldane on Frank Moon and the caves and a reproduction of the 1908 Tourist Guide to the area.



A CAVING PIONEER

(2007) by Robert Haldane
Published by Robert Haldane in association with Parks Victoria.
28 pp. soft cover, illustrated.
ISBN: 9780731183661, RRP $10.

THIS IS an interesting and readable little book on the early discoveries at Buchan by not just Frank Moon but others such as Albert Kitson, a geologist with the Victorian Geological Survey.

It outlines the discoveries by Moon and his work in publicising them. It discusses the work of Harold Bulmer, the Bairnsdale photographer, whose photos were an important part of the publicity of the caves and East Gippsland, as well as F. J. Wilson who established the pathways and handrails in both Fairy and Royal Caves.

The book is illustrated with a number of photos and maps. These are all relevant to the story but the limitation is that the resolution of the scans of the photos is perhaps not as good as possible and the maps are also rather faint and have been reduced to a point where reading them is very difficult.

A very worthwhile small book on the discovery of Buchan Caves. Available from the author or Parks Victoria (Buchan Caves Reserve, Buchan 3885). ***—Susan White***

Guide to the Gippsland Lakes and Buchan Caves

Issued by the Cunninghame Progressive Association (1908); reproduction published (2007) by Parks Victoria to mark the centenary of the discovery of Fairy Cave.

THIS WAS produced for attendees at the ACKMA conference in Buchan in May 2007, but there is no ISBN.

I have been unable to find out where it is obtainable or its cost but if it is still available, it is probably available through the Parks Victoria office at Buchan.

This book was published in 1908 and is an excellent example of the guidebooks produced during the late 19th and early 20th centuries.

The photographs by Norman Caire and Howard Bulmer have reproduced well although the maps are not as good and are hard to read.

The illustrated advertisments such as Irvine's Grape Brandy and the Sale Steamboat Company which ran summer excursions to the Gippsland Lakes, add to our understanding of the times.

In particular excellent photos of Slocombes Cave, The Pyramids, the Snowy River, and Fairy Cave are included, but of course none of Royal Cave which was not discovered until November 1910.

An excellent facsimile of the times. ***—Susan White***

Buchan Caves pictorial postcards

THIS IS a facsimile set of postcards in black and whitefrom postcards produced between 1907 and 1939 illustrating Buchan Caves. The postcards are titled (photographer in brackets):

Dreams in Fairyland, Frank Moon in the newly discovered Fairy Cave, March 1907 (Howard Bulmer)
The Big Stalactites, Frank Moon in the newly discovered Fairy Cave, March 1907 (Howard Bulmer)
Victorian Railways postcard of inside Fairy Cave, 1908 (photographer unknown)
The road to Buchan, advertising postcard for Dr Sheldon Drug Co., c1908 (J.H.Harvey)
The Beautiful Buchan Valley, c 1912 (George Rose)
The Bridal Chamber, Fairy Cave, Buchan, April 1930 (Howard Bulmer)

The postcards and come in a custom printed envelope. They can be used as postcards or just kept as memorabilia.

—Susan White

Available from Elery Hamilton-Smith, PO box 36 Carlton South Vic, 3053.

RESOURCES

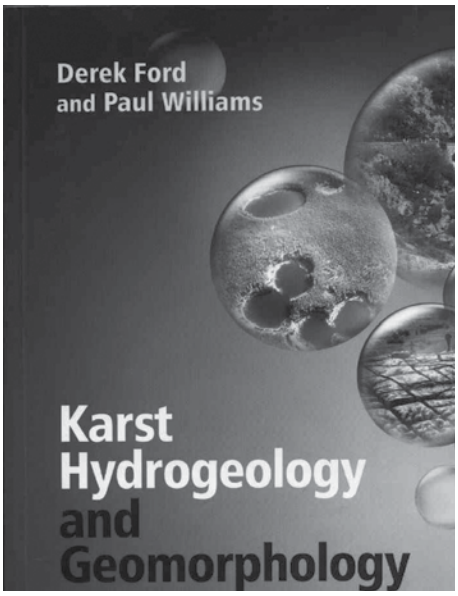
Two new textbooks merit attention

Karst Hydrogeology and Geomorphology

Ken Grimes

Ford, D. & Williams, P., 2007: Karst Hydrogeology and Geomorphology. Wiley, UK, 562 pp., Paperback. ISBN 978-0-470-84997-2.

Cost: US$140.00 HB, or $55.00 PB (+ postage) from Speleobooks, www.speleobooks.com.



THIS IS a "heavy" book, aimed at academics and people with a solid scientific or engineering background. It is a long awaited, complete rewrite of their 1989 textbook.

They have covered in depth all details of karst and karst caves and there is also some discussion of pseudokarst and non-limestone karst scattered through the text; but biological discussion is limited to its influence on speleogenesis and chemical deposits.

The emphasis is on science, but there is also a lot of technical and practical detail on applied topics such as chemical tests, aquifer tests, bore-hole analysis, hydrographs and water tracing. The two final chapters deal with karst management.

The chapters cover:

- Introduction [Terminology and classifications]
- The karst rocks [Limestone, evaporites, silicates, and their structural features]
- Dissolution [Chemistry, geochemistry, biochemistry — all very heavy!]
- Distribution and rate of karst denudation [and solution]
- Karst hydrogeology [Both pure hydrology and the development of karst drainage systems — parts of this overlap with the later speleogenesis chapter]
- Analysis of Karst drainage systems [A lot of practical information here]
- Speleogenesis [All aspects of cave development and shape, including breakdown and non-limestone caves]
- Interior deposits [Clastic sediments, speleothems and ice, and the dating of deposits]
- Karst landform development in humid regions [This is mainly about surface karst features in the "normal" humid situation]
- The influence of climate etc [This continues from the previous chapter but looks at karst in the special climates — arid and cold]
- Changing climates and changing sea levels etc, including several Australian examples
- Karst water resource management [A practical chapter, with good examples and not too technical]
- Finally, Human impacts and environmental rehabilitation [More management, but mainly of aspects other than water]

All this is very detailed and generally well done. However, I got off to a bad start in the first page where I disagreed with their basic definition of karst which refers to "... well developed secondary (fracture) porosity", but not to conduits!

Everywhere else in the book they refer (correctly) to the three porosity types (matrix, fracture and conduit) so this must have been a temporary lapse, but it is unfortunate that it happened in the definition which is likely to be quoted by all and sundry for the next 10 years!

I then discovered that there are major problems with the index. Indexes are a pain to compile and seldom perfect, but this one definitely needs redoing.

Many terms are not where you would expect them in the main list, but embedded as sub-terms under general terms such as "caves" and "karst" (e.g. for "pseudokarst" see "karst, pseudo").

Additional confusion is found under "caves" where the full column of sub-entries has accidentally been split into two alphabetic lists—the first runs from "bathyphreatic" to "water table cave" and the second from "branchwork" to "syngenetic".

Other bugs are that the sub-entries found under "Bypass passage" should be under "Calcite crystals" and the sublist under that term should be moved to "Calcite speleothems"!

Even worse, many of the cited page numbers are wrong.

The index appears to have been compiled before the page layout was finalised and several sections have moved. If you do not find your term at the stated page try flipping back one or two pages and it will probably show up.

I have been told that a second printing has fixed some of the bugs in the index, so if you have not yet bought the book you may get a better version.

Australian examples get frequent mention and some form the basis of major discussions (e.g. the West Kimberley and the Nullarbor – see under "Australia" in the index).

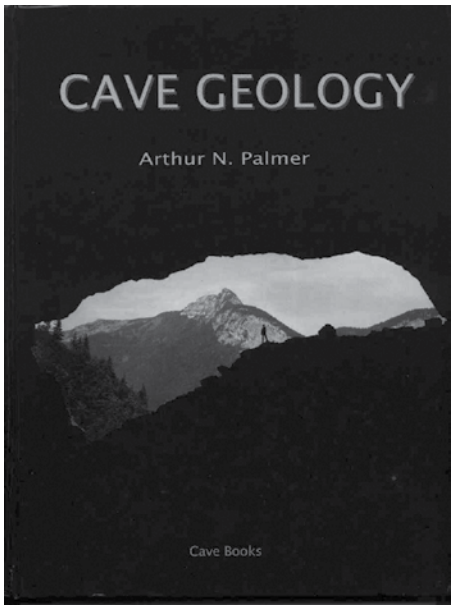
The Nullarbor discussion has missed two recent papers that introduce major new ideas (James et al, 2005 and Webb & James, 2006).

Cave Geology

Ken Grimes

Palmer, A.N., 2007: Cave Geology. Cave Books, Ohio. 454 pp. Hardback, ISBN 978-0-939748-66-2

Cost US$38 + postage (Hard back, there does not seem to be a paperback version) from Speleobooks.



AS INDICATED by the title, this book concentrates more on caves than does Ford & Williams, but it also describes surface karst landforms and karst (and pseudokarst) processes in general.

In the opening page, Art Palmer says "Speleology is often considered as much a sport as a science. This book focuses on science, but most speleologists enjoy both". Art obviously enjoys both and the book has much for cavers as well as scientists—e.g. the use of geological interpretation to guide exploration for new passages.

He also emphasises that "a great deal of important speleological field work is done by non-scientists".

He caters for them with many practical tips and procedures—within the text or provided as separate sections, complete with examples. These cover topics such as cave photography, estimating stream flows, chemical tests and interpreting scallops.

There is a whole chapter (Ch 14) devoted to tips on the general scientific method and specific techniques and devices for cave surveying, and geological and geophysical studies that can be used by amateurs and scientists. His many excellent photos provide good examples of lighting techniques and composition, as well as illustrating the cave geology. Thus, the book is aimed at both intelligent laymen (i.e. cavers) and at scientists. This is good for most cavers and also for most cave managers, but of necessity it results in some frustration for the scientist with a lack of detail and over-generalisation in places.

The author has had some difficulty keeping a consistent level of treatment, which ranges from very simplified to quite complex—it is impossible to simplify the karst water chemistry and processes which are the background to understanding cave genesis and patterns, but his use of numerous detailed examples helps clarify the science and mathematics.

Fortunately, the complex parts can be easily skipped by the uninterested, and for those who want more detail, there is a reasonable supply of references to other books and reports.

The book opens with introductory chapters on Speleology (terms, an overview of cave types (including pseudokarst) and practical aspects of their exploration, mapping, photography etc) and Cave Country (surface karst features are summarised here, then the distribution of caves in the world and North America); and a necessary background on the Cavernous Rocks.

The text then becomes fairly heavy as it describes in detail the nature and movement of water in karst, and the chemistry and physics of limestone solution.

These are necessary background to the following chapters on firstly the characteristics of solution caves (passage types, patterns, sculpturings and sediments); and then the important, and most interesting chapters on cave formation and the control of cave patterns by hydrology and geology. This is Art's speciality, so these discussions are very up-to-date and detailed, with many excellent examples and photos.

Next, chapters on special topics: Cave minerals and speleothems; Caves in volcanic rocks; Cave meteorology and internal weathering (including condensation corrosion and biogenic weathering). A chapter on Caves and Time deals with the dating of caves and their deposits, paleoclimates and paleokarst, and the evolution of karst areas over time. Chapter 14, Geological Studies of Caves, is a practical chapter for both amateur and professional scientists. A final chapter covers cave and karst management and resources. There is a seven-page glossary.

Apart from a summary of cave life on pp. 164-5, discussion of biology is limited to its influence on speleogenesis and speleothem development—a planned companion volume by K. Lavoie will cover Cave Biology.

Brief Australian examples occur in many places (see index, and add "Yanchep, p. 207") but there are no major discussions.

So which should you buy?

I WOULD suggest Palmer's book for cavers and cave managers who want an overview of how caves form and work, without the need to struggle with excessive details and complexities – it is also cheaper!

However, for karst managers the two management chapters (64 pages) in Ford and Williams (F&W) are more detailed than Palmer's 18-page treatment and are not too technical.

Specialist cave and karst scientists and engineers will prefer the greater detail and breadth in F&W, but will get good value from both books.

For a study of speleogenesis and cave patterns I suggest using both books to cancel the bias shown by the authors to different models: F&W emphasise the "four state" model (now expanded to six) based on joint-density, whereas Palmer emphasises the high discharge/length ratio model — read both to attain the true Middle Road of Buddhist doctrine!

Palmer has a complete chapter on lava caves, which are ignored by F&W; but surface karst features (dolines, karren, etc) get much better coverage in F&W. Neither book says much about cave biology — apart from its role in speleogenesis and management.

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Webb, JA. & James, JM., 2006: Karst evolution on the Nullarbor Plain, Australia, in Harman, RS. & Wicks, C [eds] Perspectives on karst geomorphology, hydrology and geochemistry. *Geological Society of America, Special Paper* **404:** 65-78

Note: This review has also appeared in *Nargun* (VSA) and the *ACKMA Journal* in slightly different form.

CREG Journal

What is it and where can you get it?

David Gibson

The UK-based Cave Radio & Electronics Group (CREG) is a Special Interest Group of the British Cave Research Association (BCRA). It publishes a quarterly journal that is a truly international forum for the publication of articles on cave electronics. The annual subscription is around £10, around US$20 or €15, plus surface mail or airmail outside Europe. An annual subscription gives you four issues. An example of *CREG Journal* contents is below:

***CREG Journal* 67, June 2007**

- *TEDRA, the Development of a Software Defined Cave Radio.*

José Luis Villarroel and his team describe a new SSB cave radio. It is based on 'software defined radio' (SDR) techniques to give future flexibility, operates at 70 kHz to avoid Loran interference and is engineered to enable commercial production.

- eLoran - What Is It?

The Loran C low-frequency radio navigation system has been a problem for cave radio users for a long time. It had been hoped it would soon disappear, but instead it is being enhanced. John Rabson reports.

- *Thermal Imaging Cave Detection.*

In this second of two articles, John Lyles examines the effectiveness of thermal imaging techniques for cave detection and illustrates their use in monitoring bat behaviour.

- *Resurgence Data Logging.*

Stuart France resumed recording hydrological data at Dan-yr-Ogof after the cave resurgence water mysteriously turned a dark brown colour suddenly at various times in recent years.

His previous study on flood pulses terminated with the foot and mouth disease epidemic in 2001 and the new work described here began in late 2005 with a turbidity sensor added.

- *Introducing The Internet of Things.*

Will the Internet of Things influence the future as the Internet has done for the past fifteen years? Mike Bedford reports on this up-and-coming network and muses on how cavers might make use of it.

- *Unusual Photographic Duotone Processing.*

David Gibson describes the digital processing of the 2007 Hidden Earth

Searchable index

Searching for CREG articles: http://bcra.org.uk/creg/jnl/ gives a Contents List of each journal. There is a searchable index as part of BCRA's Science Index. See http://bcra.org.uk/creg/ for details

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Further information

- http://bcra.org.uk/creg/
- John Rabson: creg@bcra.org.uk
- John Rabson, Maré-le-Bas, 58800 CERVON, France.

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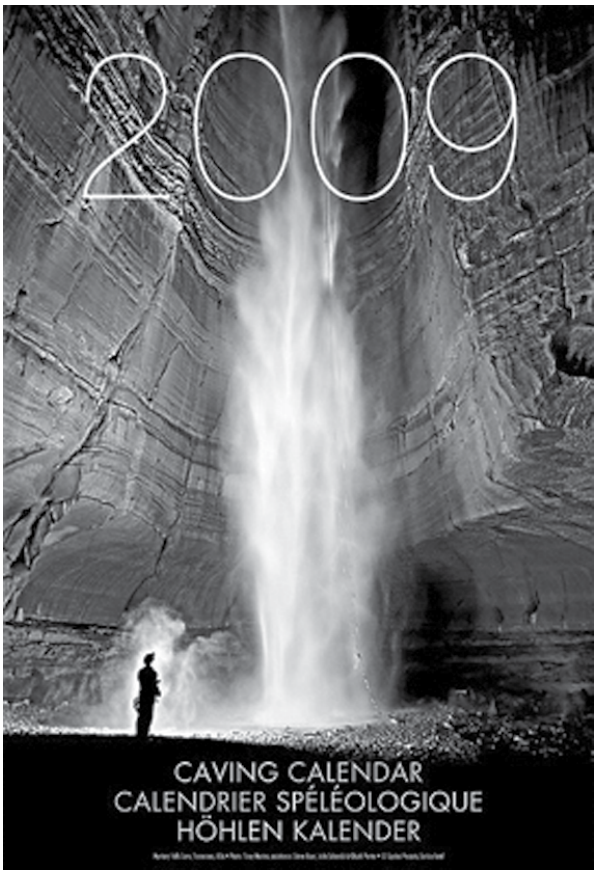

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DUO Range of Headlamps

The DUO range of headlamps provide economical waterproof* hybrid lighting.

DUO LED

The DUO LED comes in two models with either 5 (40 lumens) or 14 LEDs (67 lumens), giving a very white close proximity light and a long burn time, alongside a halogen bulb for long range light (up to 100m).

The 14 LED model has three switchable lighting levels and a long duration survival light function. Uses 4AA batteries in a battery pack carried on the head.

DUOBELT LED

The DUOBELT LEDs are 6V headlamps with dual light source. Available with 5 (40 lumens) or 14 LEDs (67 lumens) and a halogen bulb for long range light (up to 100m).

The 14 LED model has three switchable lighting levels and a long duration survival light function. Includes 4 x C Cell batteries in a rigid, belt mountable pack.

SPELIOS

The Spelios combines an Elios helmet with a fixed Duo 14 LED light. Two sizes: 48-56cm & 53-61cm.

e+LITE

e+LITE Headlamp is a tiny headlamp with illumination from 3 x White LEDs or 1 x Red LED. Waterproof to -1m, range 19m, Duration: 45 hours, Weight: 27g. Supplied with 2 x CR2032 Lithium Batteries and a protective pouch. Small enough to carry as an emergency light at all times.

*Waterproof to 5m using IP X8 standard. These lights are NOT intended for diving!

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Photo: Reseau de Bufo Fret, in the French Pyrenees. © Christophe Levillain