

The Journal of the Australian Speleological Federation Inc.

# CAVES

AUSTRALIA

NO. 227 FEBRUARY 2024

**BLIND STEALTH  
PREDATORS**

**FRIENDZONE**

**CHRISTMAS  
ISLAND**

# CAVES

## AUSTRALIA

### CAVES AUSTRALIA

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### REQUEST FOR ARTICLES 2024

JANUARY, APRIL, JULY, OCTOBER

### ISSUE DATES FOR 2024

FEBRUARY, MAY, AUGUST, NOVEMBER

### MAGAZINE SUBSCRIPTION

DIGITAL *CAVES AUSTRALIA* IS INCLUDED WITHIN ASF MEMBERSHIP FEES.

COVER: ENLIGHTENMENT IN DEEP THOUGHT MA10.  
PHOTOGRAPH BY STEFAN EBERHARD WITH ALEX WILLIAMS  
AND MATT DUNWOODIE



Tasmanian Cave Spider in Sassafras  
TAS - Photo by Nadine Muresan



# Table of Contents

<b>Editor's Note</b>	04
<i>Nadine Muresan</i>	
<b>President Report – November 2023</b>	05
<i>Sarah Gilbert</i>	
<b>ASF Updates</b>	06
<b>Awards &amp; Publications</b>	08
<i>Susan White, Bob Kershaw</i>	
<b>Book Review</b>	09
<i>John Brush</i>	
<b>Nullarbor Blind Cave Spider</b>	11
<i>Cathie Plowman</i>	
<b>The Blind Stealth Predators of the Nullarbor</b>	12
<i>Steve Milner, Andrew Stempel, and Jess Marsh</i>	
<b>Surface Work at East Buchan</b>	15
<i>Tim Ziegler</i>	
<b>Mount Anne Project - Closing the Loop</b>	17
<i>Stefan Eberhard</i>	
<b>OGRES on ETNA</b>	22
<i>Bob Newby, Noel Sands and Cathi Humphrey-Hood</i>	
<b>FriendZone</b>	26
<i>Ciara Smart</i>	
<b>IT IS NOT A BAT'S LIFE</b>	29
<i>Clare Buswell</i>	
<b>Bleakfall Cave</b>	31
<i>Janice March, David Butler &amp; Catherine Stark</i>	
<b>Sternes Expedition 2023</b>	34
<i>Kristen Wills</i>	
<b>Christmas Island Caving</b>	38
<i>Daniel Lansom</i>	
<b>A Very Wet Ascent</b>	44
<i>Nadine Muresan</i>	
<b>Animals in Caves</b>	49
<i>Garry K. Smith</i>	



Tom Elms in Scrubby Creek Cave, Buchan VIC - Photo by Nadine Muresan



Deb Hunter in Scrubby Creek Cave, Murrindal - Photo by Nadine Muresan

# Editor's Note



Nadine Muresan in Scrubby Creek Cave 3M-49, Buchan Victoria - Photo by Chris Jewell

Happy New Year! It is fantastic to see so many people getting out there and caving, exploring, surveying and just all the awesome speleological activities that we love. Thank you to everyone who is sharing - keep it coming!

This issue of *Caves Australia* has so much from Cave Animal of the Year, Conservation donations, ASF Conference updates, through to maps and awesome exploration, both locally and internationally!

Having been editor now for a year it's so great to get to know more and more cavers and see what they are doing. I would love to keep this momentum going.

After the Council meeting there are lots of new people in new roles in the ASF and lots of people looking for helpers. These helpers can come from all over Australia so if there is a role that you have an interest in please make contact:

<https://caves.org.au/administration/office-bearers-commissioner-list/>

Looking forward to hearing from you...

Till then, let's go CAVING!

**Nadine Muresan**

# President's Report



Snorkeling in Ewens Ponds, Mt Gambier - Photo by Vince Bolte

Another caving year has begun with our annual Council Meeting held online in January. Thank you to all the Commissioners and Club delegates who attended and added their ideas to the discussions.

One of the main questions discussed was on ASF's need to raise its profile and increase marketing, particularly to promote conservation campaigns. The organisation needs to be easily found on-line, and instantly associated with caving – as a sport, as well as for speleology and conservation. There was a proposal for the adoption of an engaging and recognisable brand name but also concerns for not diluting the ASF's current image. The Exec will continue working in the area and call for further feedback from members.

The ASF would like to welcome Nadine Muresan as the new Media & Communications Commissioner, which couples well with her existing role managing the publication of *Caves Australia*. Also welcome to Bogdan Muresan as the incoming Survey & Mapping Standards Commissioner, to help with a modernisation of the ASF's documentation and standards.

We have a new face on the Executive and would like to welcome Courtney McClymont from WASG who joined the Executive after the Council Meeting in January. A big thank you to Valdi Jonsson for his time on the Executive, especially over the past 2 years as Treasurer and all the work he has done to modernise the ASF accounting practices. The ASF Executive remains largely unchanged in 2024 with: myself (President), Colin Tyrrell (Senior VP), Melissa Hadley (Treasurer), Phil Maynard (General Secretary), Janice March (Executive Secretary), Rod Smith (Membership Secretary), Andrew Stempel (VP), Sil Iannello (VP) and Courtney McClymont (VP). As always we can be contacted via: [asf.caves.info@gmail.com](mailto:asf.caves.info@gmail.com).

This year will be a big year for the Nullarbor, both for research and for karst conservation. Watch this space as the ASF's campaign to stop the industrialisation of the Western Australia Nullarbor kicks off over the next few months. Donations are always welcome both for the Nullarbor and other conservation projects – head to our website to make [a tax deductible donation to the KCF](#).

Wishing you all fun and rewarding caving adventures in 2024, and I look forward to reading all about them in future editions of *Caves Australia*.

**Sarah Gilbert**

# CAN YOU HELP THE ASF'S CAMPAIGN?

## **STOP** THE INDUSTRIALISATION OF THE NULLARBOR

*Donate:*

·\$20.00 to fund campaign representation costs, possible legal costs and material like flyers, our small booklet.

·\$50.00 to fund much needed exploration work.

·\$100.00 to fund the development of the ASF'S National and World Heritage applications

·\$200.00 to fund scientific research and analysis projects.

Your donation,  
no matter how small or large, is valued.

Send to the Karst Conservation Fund:  
<https://caves.org.au/conservation/donating-to-the-fund/>

or direct electronic transfer  
The ASF Karst Conservation Fund, IMB, Wollongong, NSW.  
BSB: 641 800  
Account No: 200 812 379

Donations Are Tax Deductable



Prostrate Pit, Marcia Kaye as model - Photo by David Wools-Cobb



Warbla Cave dome - Photo by David Wools-Cobb



# CAVING IN THE MOONLIGHT

## The 2025 Caving in the Moonlight 33rd ASF Conference is now OPEN for registration!

This conference will host presentations on exploration, conservation, science and much more, mixed in with adventure-filled days of caving, guided cave tours and a chance to explore the natural beauty of the area.

Please book your early bird registration online, remembering this pricing includes all the awesome presentations, delicious food, a T-Shirt and much much more!

<https://www.asfconference2025.com/booking>.

Also now taking abstract submissions at <https://www.asfconference2025.com/contact-8>

Timetable below shows the caving that will be taking place both before and after the conference.

**Can't wait to see you all there!**  
**09th - 20th January 2025**

	THURSDAY 9th	FRIDAY 10th	SATURDAY 11th	SUNDAY 12th Day 1	MONDAY 13th Day 2	TUESDAY 14th Day 3	WEDNESDAY 15th Day 4	THURSDAY 16th Day 5	FRIDAY 17th DAY 6	SATURDAY 18th DAY 7	SUNDAY 19th	MONDAY 20th
Morning 1		CAVING 1	CAVING 2	ASF DELEGATE CAVING Show cave 1	Welcome presentation Talks/Posters	Talks/Posters	Activities Day All day	Talks/Posters	Talks/Posters		Caving 2	Caving 3
Morning 2				Show cave 2						SPELEO ACTIVITIES	Show cave 2	Show cave 1
Afternoon 1		Caving 5	Caving 4	Registration open		Show Cave 3 Caving 1	ASF meeting	ASF meeting Show cave 1	SPELEO ACTIVITIES	CAVE RESCUE	Caving 4 Caving 5	Caving 1 Caving 5
Afternoon 2				Welcome BBQ	Scientific posters			Show cave 2	Cave diving demonstration			
Evening	Debrief for caving				Evening Activity	Evening Activity	Evening Activity	Evening Activity	Evening Activity	Cavers Dinner		

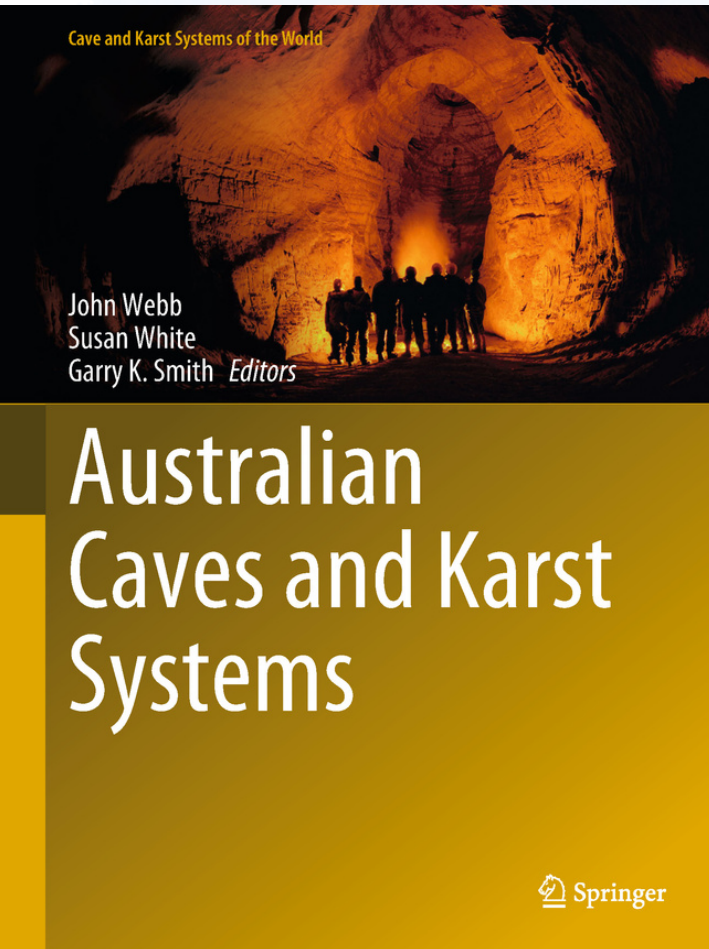




# BOOK REVIEW - AUSTRALIAN CAVES AND KARST SYSTEMS

John Webb, Susan White and Garry K Smith (Editors)

Reviewed by John Brush, Canberra Speleological Society Inc



Cover of *Australian Caves and Karst Systems*



Fig. 4 Jenolan Caves are renowned for their high diversity of speleothem and mineral types. A anthodite clusters, B delicate calcite crystals, C cave pearls, D an unusual calcite ball (~5 cm diameter) known as "The Palantir", E rim pools, F helictites. Photos Andrew C. Baker

most of the bedding and consequently cave development has been largely guided by the major joints in the marble (Osborne 2004). Wombeyan marble is highly attractive and polished exposures are visible in many of the caves, revealing its colours and textures. The marble has been quarried for building stone and this has exposed cavities and in-filled caves that demonstrate the karst-forming processes (James et al. 2004).

Multiple phases of karstification have occurred over hundreds of millions of years (Jennings et al. 1982; Osborne

*Australian Cave and Karst Systems*, edited by three highly-regarded Australian cave identities, is an exceptional publication that should be in the personal library of every inquisitive speleo and karst researcher in Australia.

Published by Springer Nature (Switzerland), the book is part of its series on Cave and Karst Systems of the World. The series currently comprises 25 books, either published or announced. All share the same cover design, which is rather bland and does little to promote the visual delights that lie within the Australian volume. However, a quick scan reveals it is profusely illustrated with many spectacular cave and karst landscape images, as well as some superb maps and informative diagrams.

The text is comprehensive and should be an easy read for any speleo, especially with the aid of the glossary covering technical terms used in the book. The subject matter is grouped under six major headings:

- People and Caves (3 chapters covering humans and their use of caves, cave diving and conservation);
- "Hard" Rock Karst (7 chapters, based on geographic areas: Tasmania; Eastern Victoria; NSW & S Queensland; NE Australia; NT & W Queensland; NW Australia; and South Australia);
- "Soft" Rock Karst (5 chapters covering the Nullarbor, the Otway Basin, Cape Range, Christmas Island and the dune limestone' karsts of southern coastal areas);
- Non-carbonate Caves (3 chapters, two of which cover volcanic caves and one on everything else);
- Cave Contents (3 chapters, covering minerals/speleothems, sediments and vertebrate fossils); and
- Cave Biology (2 chapters covering bats and everything else).

Twenty-two authors contributed to the volume, including editors Susan White and John Webb who authored or co-authored 15 of the book's 23 chapters. Garry Smith, the third editor, authored a chapter as well as sourcing, selecting and editing most of the book's photos, maps and diagrams.

The text is very easy to read and while the writing style varies a little from chapter to chapter - hardly surprising given the number of authors - this is far from distracting and only became apparent when I read the book from cover to cover. I did this while waiting in airport lounges and sitting on long international flights. The book is even more approachable if it is dipped into one chapter at a time. I was pleased to see an Australian flavour to the text with inclusion of words like bushwalking and flying-fox (of the aerial ropeway variety) that were not erased by any international editing process.

Each chapter has an extensive list of references to assist those who wish to delve more deeply into a particular issue. There are also three indexes covering caves, stratigraphy and everything else. I found this a little annoying at first, but soon came to appreciate its advantages.

There are a few minor typos and spelling inconsistencies but these do not significantly detract from the book's professional feel.

Is the book perfect? In my view, no. The visual impact of some photos is diminished by their small size (quite a few are single column, quarter page - meaning that eight would fit on a single A4 page). Some photos and several cave maps suffer from low resolution, making it difficult to discern detail. I have been advised that high resolution maps and photos were supplied to Springer, but it decided to produce the pdf version at 72dpi. The printed version, which I have not seen, is apparently being produced at more than double that resolution, so that may overcome the shortcomings of the pdf version.

I thought the coverage of non-carbonate caves, aside the chapters on volcanic caves, was a little disappointing and the reasons for this are noted in the preface.

In conclusion, the book is comprehensive, visually stunning and easy to read and I can thoroughly recommend it to all speleologists who are interested in Australian caves and karst. As noted above, we should all have a copy, printed or digital, in our personal libraries. However, the main stumbling block for some of us is likely to be price\*. The pdf version, which can be downloaded from the Springer link website ([Australian Caves and Karst Systems | SpringerLink](#)) is €139 including GST, or approximately \$A220. The price for a hard-cover printed copy is €170 (approx. \$A270), including GST and postage. The Springer Website foreshadows release of a soft cover version in September this year and I thought that might offer a degree of price relief. However, on looking at Springer's pricing on other volumes in the cave and karst series, the majority currently have no differential between the hard and soft cover versions.

### Footnote

\*As I was compiling this review, I became aware that Cathi Humphrey-Hood, the ASF Librarian, was negotiating with Springer to purchase an eBook copy in pdf format for the ASF library. Negotiations were successfully completed late in December 2023. The ASF Library copy is now available to all ASF members for research purposes via an AWS (Amazon Web Services) login. ASF members who do not already have an AWS login should contact Cathi ([asf.caves.library@gmail.com](mailto:asf.caves.library@gmail.com)) to request one.

This is tremendous news for cash-strapped ASF members, but as noted above, the lower resolution of the pdf version may warrant serious speleologists and researchers considering the purchase of a printed copy from Springer.



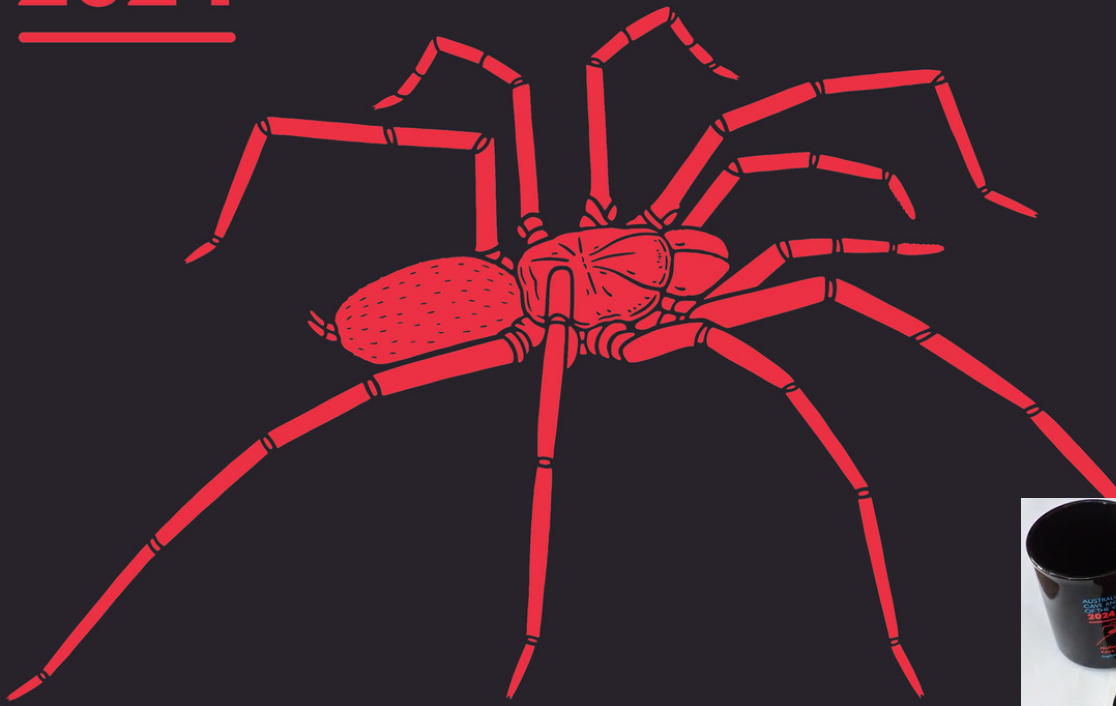
Pleasure Dome, Kubla Khan Cave, Mole Creek, Tasmania. Photo by Garry K. Smith

Extracted Page V from *Australian Caves and Karst of Systems*



Extracted Page VIII from *Australian Caves and Karst of Systems*

# AUSTRALIAN CAVE ANIMAL OF THE YEAR **2024**



## Nullarbor Blind Cave Spider

*Troglodiplura* genus

**Nullarbor Blind Cave Spider - Cathie Plowman**

You **can** help promote the wonders of the Nullarbor!



The *Troglodiplura* genus was chosen as the 2024 Cave Animal of the Year to help promote public awareness about cave animals and the wonders of the Nullarbor.

We've got our usual range of fabulous products to help raise the profile of cave animals: striking posters, textured bookmarks, stickers and tea/coffee mugs.

You can help the effort by putting up a poster in a public place. So far, the 2024 posters have made their way to outdoor shop fitting rooms and counters, school libraries and public libraries, a politician's shop front window, a Girl Guide hall and some show cave sites. Where can you display one?

Bookmarks and stickers can be distributed by outdoor shops, maybe your local bookshop or a favourite café. The mugs make great presents. Posters, bookmarks and stickers are free of charge (paying for postage is helpful). Mugs are \$12, plus postage. Postage is very economical if covers order products as a group or club. The more we display and promote the products, the more we're promoting cave conservation and, at this crucial time, the wonders of the Nullarbor.

Thanks for getting involved. To order products, please email: [hello@caveanimaloftheyear.org.au](mailto:hello@caveanimaloftheyear.org.au)

Learn more at: [www.caveanimaloftheyear.org.au](http://www.caveanimaloftheyear.org.au)

# Cave Animal of the Year

## – Genus *Troglodiplura*

### The Blind Stealth Predators of the Nullarbor

Steve Milner, Andrew Stempel and Jess Marsh

Very few people have seen a live blind spider of the Nullarbor, indeed until recently, the genus *Troglodiplura* was known to science only from juveniles or fragments of dead animals.

*Troglodiplura lowryi* Main, 1969 was described over 50 years ago by Barbara York Main from fragments of a single specimen found in Roaches Rest Cave, and subsequently thought to be widespread across the Nullarbor albeit very rare. In 2020, careful studies (Harvey et al. 2020) on spider fragments collected by cavers and stored by the WA Museum and the SA Museum led to the realisation that the population of *Troglodiplura* comprised not one species but five, and perhaps more, each separated geographically across the Nullarbor.

The blind cave spiders of the genus *Troglodiplura* are large and show a number of adaptations to an underground existence, including elongated limbs and a complete lack of eyes. Unusually for troglomorphic animals, they have retained their ancestral pigmentation.

*Troglodiplura* belong to a primitive group of spiders, called the Mygalomorphae, which includes the tarantulas, trapdoor spiders and funnel-web spiders, amongst others. These mygalomorph spiders have several distinctive features, including fangs that stab downwards rather than towards one another, like those of other spiders. The fangs of *Troglodiplura* are up to 8mm long, presenting a fearsome stealth predator. While we do not know the potency of their venom to humans (there are no records of a person being bitten, and it is unlikely anyone has been, given the spiders' rarity), the sizeable fangs of *Troglodiplura* could probably pack a punch. However, in life they appear to be calm and non-defensive towards humans; even when they are poked and prodded by excited people in the name of science. This is very different to some of their relatives, which are quick to rear up and bare their fangs at even the slightest disturbance.

#### Importance

The genus *Troglodiplura*, the blind spider of the Nullarbor, is a vulnerable animal, only relatively recently emerging into the lens of science. Isolated

and untouched for millions of years, we are now learning about its biology, its habitat, its behaviour and its role in fragile cave ecosystems.

Now, with intriguing observations of a live population of these rare troglobionts, new goals for both biodiscovery and conservation are emerging.

#### Islands Underground

The Nullarbor is one of Australia's iconic natural places, an ancient treeless plain with an immense network of caves. The Nullarbor extends approx. 750km east to west across SA and WA; it is one of the world's largest arid karst landscapes, comprising approx. 200,000 square kilometres.

The Nullarbor caves, out of sight and out of mind, provide insight into past geological times when the limestone was formed, changing sea levels and continental movement. When the Nullarbor gently emerged from the sea for the last time 14 million years ago, the sediments turned to limestone rock and the landform changed with vast eucalypt woodlands dominating the landscape.

A warm, wet episode occurred around approximately 5 - 3 million years ago, and the climate reached its present level of dryness around one million years ago.

It seems likely that the ancestor of *Troglodiplura* entered the Nullarbor cave systems sometime during the drying period with the divergence of *Troglodiplura* into the known species of today occurring across the vast Nullarbor karst landform in 'islands', probably underground.



*Troglodiplura* with 5 cm Scale Bar - Photo by Steve Milner



*Troglodiplura beirutpakbarai* in natural environment, 2021 BushBlitz Caving Team - Photo by Steve Milner



Anastomosing Tubes - Photo by Steve Milner



2021 BushBlitz Caving Team - Matt Shaw - Jess Marsh - Andrew Stempel - Steve Milner - Benjamin Stanley - Photo by Steve Milner

### Spider-sized Nullarbor Caves

Recently in 2021, we investigated the distribution of *Troglodiplura* in South Australia and targeted caves where fragments of dead spiders had been collected in the past with the hope of seeing live animals.

For the first time we were able to observe live populations of *Troglodiplura beirutpakbarai* Harvey et al. 2020, and were able to undertake detailed studies of their habitats and behaviour.

In this study, we found *T. beirutpakbarai* across multiple caves, each separated by 10 - 27 km. The extremely low genetic divergence and thus apparently interconnected populations was unexpected (Marsh et al. 2023).

The structure of the cave systems of the Nullarbor Plain may explain this finding; the potential for inter-cave connectivity via anastomosing tubes and blowholes, each providing a possible entry point for ingress of water, and energy inputs (food) presents a possible mechanism for genetic exchange. That is, spider-sized caves!

### Conservation

Cave environments are fragile ecosystems, which face a range of threats from anthropogenic sources including mining, groundwater extraction and contamination, impacts from above-ground development (such as the proposed Nullarbor green energy project) and climate change.

Substantial threats exist to *Troglodiplura* across all of its known distribution. The spiders are likely to be vulnerable to fluctuations in temperatures and humidity caused by climate change, and predation by foxes and cats. In addition, humans potentially pose direct threats to troglomorphic spiders, both from damage to the cave environment, and through the potential collection of specimens for the pet trade, a particular concern for large and charismatic mygalomorph spiders.

### A Delicate Balance

The geology, palaeontology, cultural history, and biology of the Nullarbor caves reveal a wealth of distinctive features, but the Nullarbor is much more than the sum of its parts.

Karst landscapes are integrated systems, with the surface, caves and deep aquifer intrinsically linked. An impact on any one aspect affects all others.

The Nullarbor is the land of the Mirning people. Their Dreaming, associated with the Great Australian Bight, recalls oral histories of changing sea levels. The Mirning have actively traversed the plain for millennia. Their artwork in its caves; extensive flint mining and artefacts scattered over its surface provide evidence of their presence.

Raising awareness of the values of the Nullarbor is critical for its conservation. We thank the ASF Karst Conservation Fund and the selection committee of the Cave Animal of the Year for its recognition of the genus *Troglodiplura*.

### Acknowledgements and References

We would like to acknowledge the Mirning who are the Traditional Owners of the land in which we conducted our surveys, and thank the Cultural Monitors who accompanied us on our surveys. We thank the Australian Government's Bush Blitz initiative, which funded the field trips which led to these exciting findings.

Harvey, M.S., Rix, M.G., Hillyer, M.J. and Huey, J.A., (2020). The systematics and phylogenetic position of the troglobitic Australian spider genus *Troglodiplura* (Araneae: Mygalomorphae), with a new classification for Anamidae. *Invertebrate Systematics*, 34(8): 799-822.

Main, B.Y. (1969). A blind mygalomorph spider from a Nullarbor Plain cave. *Journal and Proceedings of the Royal Society of Western Australia*, 52: 9-11.

Marsh, J.R., Milner, S.J., Shaw, M., Stempel, A.J., Harvey, M.S. and Rix, M.G., (2023). A Case for Below-Ground Dispersal? Insights into the Biology, Ecology and Conservation of Blind Cave Spiders in the Genus *Troglodiplura* (Mygalomorphae: Anamidae). *Insects*, 14(5), 449.

**Quote Jess:**

“For field scientists there are those moments that stand out, that stick in your mind - that are, and that become, the driving force for you doing what you do. I have studied spiders for years; been on my fair share of surveys in spectacular, challenging and wild locations. For me, our surveys of the Nullarbor caves, that first time we saw a living female *Troglodiplura*, was one of these stand out moments and one which I will never forget. I feel immensely privileged to have been able to witness these large, graceful and rare spiders in their natural environment. Spiders that have become so adapted to a life in the dark that they have lost their eyes; whose existence is threatened by human activities, by development, by changes to the climate. More research is urgently needed, to help us understand and protect these animals and the intricate systems they depend on.”



Jess Marsh

**Quote Andrew:**

“It is rare in one’s life that you are able to stand in a single moment and realize this is where you were meant to be; this is how I felt when I first encountered *Troglodiplura*. I was a super nerd child that carried a clipboard around to take notes of animal behaviour at the zoo, and grew up to be a scientist specializing in retinal cell biology. Somewhere in there I developed a bad (OK, VERY bad) caving habit. Those worlds collided when I was asked to be a rope monkey on a biological survey of the SA Nullarbor caves. Little did I know that this would combine a life’s worth of knowledge into one incredible experience. As an eye scientist, ironically, we were after an elusive, big and beautiful critter with no eyes! And I was the luckiest person in the world! The Nullarbor needs our help to protect this beautiful landscape and its massive blind, yet elegant spiders.”



Andrew Stempel

**Quote Steve:**

“The Nullarbor stands out in my mind for its rich cultural heritage, its natural beauty and world class natural heritage values. When asked by the Bush Blitz Species Discovery Program to provide technical support for cave access in one tiny segment of the Nullarbor, I jumped at the opportunity. The excitement and enthusiasm of the invertebrate scientists in their quest for the blind spider (and other animals) in caves was exceedingly infectious, and the reward by simply helping them out was reward indeed. In a follow up field trip, we returned to the area to investigate other caves we thought might harbour *Troglodiplura* and were amazed to find more populations in different caves. This was doubly rewarding for me as, after a considerable absence, I was getting back to real science.”



Steve Milner

**Caver Citizen Science Request**

Should any caver observe *Troglodiplura* in its natural environment, please record the event, the date, the cave number, and the precise location in the cave (if encountered, please minimise any disturbance of the animals). It is more likely that cavers will encounter dead specimens, if so, please don’t touch them because they are so fragile, but take a photograph and record the same details. Please send any observations to the team at [troglodiplura@gmail.com](mailto:troglodiplura@gmail.com), any sightings, dead or alive, will contribute to our understanding of the distribution of these animals and support conservation efforts.

# SURFACE WORK AT EAST BUCHAN TO RELOCATE PIONEER FOSSIL LOCALITY

Tim Ziegler

Apart from initial geological surveys (Howitt, 1876; Stirling, 1889), the early credit for European investigations of vertebrate fossils in the caves of the Buchan area has been primarily attributed to the energetic Frank Moon, both independently and as a guide to visiting scientists. However, the earliest report of Pleistocene megafauna at Buchan, in December 1906, was made not by the commonly cited parties, but by children of a local family. Their report, not previously acknowledged in the area's scientific history (e.g. Haldane, 2007), sparked a storm of interest from Melbourne institutions, and demonstrated for the first time that Victorian caves preserved the remains of the gigantic Pleistocene marsupials commonly grouped as Australian megafauna.

On Wednesday 6 December 1906, on Kingsleigh Station, East Buchan, the four sons of tenant Mr Alexander Fraser McRae expanded a foot-wide cave entrance around 50 yards from the property's homestead, revealing a 15-foot passage leading to a large chamber. Within it, they reported discovering "the skeleton of an unknown animal, larger than a bullock", and broke off a portion of bone as proof (*Argus*, 6 December, 1906). McRae, Sr. soon after visited the cave himself and substantiated the boys' claim, describing the cave's contents as "a great number of bones of various shapes and sizes cemented into rock", including large jawbones with well-preserved teeth (*Leader* [Melbourne], 15 December, 1906). A telegram was sent to the National Museum of Victoria (now Melbourne Museum), and its Director Walter Baldwin Spencer promptly solicited the aid of a University of Melbourne Lecturer in Geology, Thomas Sergeant Hall, to inspect the cave. Hall arrived within a week, reporting that the bones were "few, and scattered" from multiple animals, but noting also that the "jawbones of an extinct kangaroo" were present (T.S. Hall, *Argus*, 20 April 1907, p.6).

An extensive record of newspaper reports, personal correspondence and museum archive materials details the opening of a cave, discovery of a partial fossil skeleton, and its excavation, retrieval and presentation in Melbourne. But today, no specimens retrieved by Hall at Kingsleigh are known.



Mandible of an unprovenanced fossil skeleton of the giant marsupial *Palorchestes azael*, housed at Melbourne Museum (Registration NMV P157144).

Of possible candidates, a degraded associated skeleton of the extinct 1-tonne marsupial *Palorchestes azael* is a viable candidate for the initial find: after archive and collection-based efforts, it is the only such fossil lacking an origin. However, without positive provenance, the identity of this first megafauna discovery cannot be confirmed.

In the absence of any further records, an alternative approach is to relocate the cave in which the McRaes' find was made, to search for residual fossil remains or evidence of an excavation. Surface prospecting is usually done with the aim of discovering new caves, not old ones. But I hope that in relocating this original cave, I might find traces of the excavation or even fossil remnants. Drawing on newspaper records in particular, a small doline field on a hilltop roughly south of the original (now demolished) homestead site. The present landowner generously provided access, helped locate historical landmarks and cleared vegetation. Initial visits were spent systematically exploring caves on the hill to exclude those with insufficient development or whose structure was too dissimilar to the historical reports. A surface map of the area prepared by John & Kim Van Dyk with Glenn Baddeley, who was a great help in this.

In 2021-2022 our attention focused on the most conspicuous entrance on the hill (3EB-77). It was blocked by loosely packed paddock soil, rocks and rubbish around two metres into an open vertical shaft. While upper soil contained modern rubbish, the sediment transitioned to a cleaner character, with antique glass, bones of European domestic animals and those of wallabies, wombats and small fauna. After a few digging sessions, in April heavy rain washed open one corner of the dig area to expose 2-3 metres of vertical development. Deeper in the dig, we found larger rocks that needed to be strapped with tape and hauled up. In October 2023 with Tom Aberdeen, Liz Cameron and Sarah Baeffel, we finally removed the blockage, with Tom securing a bolt to the largest boulder for an anchor point. Sarah kicked her way through the last of the rubble, and boldly squeezed down a diagonal rift, finding... a small, undisturbed chamber with an earth floor. Not our cave.

Eventually we got Sarah back out, and so our search continues. Another plausible candidate has been identified from an early plan northwest of the homestead: it could represent one of several contemporary finds, some of which were modern, rather than fossil, in provenance. Investigating this site, and resuming desktop and archival research, will form the next phase of this project.

This is an updated version of an article originally printed in Vol. 51 of *Nargun: The Journal of the Victorian Speleological Association*.

Haldane, R. (2007) 'A caving pioneer: Frank Moon and the caves of Buchan', in *Association of Cave and Karst Management in Australasia Conference Proceedings, 2007*.

Howitt, A.W. (1876) *Notes on the Devonian rocks of North Gippsland, Progress Reports of the Geological Survey of Victoria*.

Stirling, J. (1889) 'Preliminary report on the Buchan Caves', *Reports of the Mining Registrars for Quarter ending 31st December 1889*, pp. 65-68.



Newspaper clipping reporting the discovery of fossil bones at Buchan, 6 December 1906  
(*Fremantle Evening Herald*)



Entry to EB77 before being cleared - Photo by Liz Cameron



Sarah in the lowest part of Letterbox - Photo by Liz Cameron



# MOUNT ANNE PROJECT - CLOSING THE LOOP

Article and images by Stefan Eberhard

*“Each generation has a purpose that is inherited from past generations, shaped by present generations and accountable to future generations.  
How can you better honour those who came before you?  
How can you lay groundwork for those who are coming after you?”  
-Dr David Drake, The Moment Institute.*



Ropes, Camera, Action in Kellers Cellar MA2



Mount Anne, Southwest National Park, Tasmanian Wilderness World Heritage Area.

As an enthusiastic 19-year-old caver I enjoyed reading the trip reports written by the previous generation of cave explorers. I was particularly enthralled and inspired by the physically demanding yet characteristically understated explorations led by Brian and Jeanette Collin, and their contemporaries, who spearheaded major explorations into the rugged and remote karsts of Tasmania's southwest wilderness.

Sometime after the search for John Boyle was called-off (see *Caves Australia* No. 226), Brian Collin and fellow Tasmanian Caverneering Club members cut a track to the dolomite ridge on Mount Anne where several large dolines had been sighted from aircraft. Most of the dolines were found to be blocked by frost-shattered rockfall, however one shaft - Kellers Cellar - had an estimated 400 foot entrance drop, and this was first descended on ladders in 1971.

In 1981 I made plans to visit the dolomite ridge as soon as my first-year university exams finished. Rather than tedious study I wanted to experience the thrill of abseiling into Kellers Cellar, and to do this with ropes instead of ladders. With potential on the ridge for significant vertical cave development I also daydreamed about discovering a new deep cave system. As soon as exams were over, I was off to the ridge, which had not been visited by cavers for a decade.

The route directions I had were vague, and the location of Kellers Cellar was unknown to me. When I finally reached the top of the ridge it was shrouded in dense mist and visibility was less than 20 m however I soon reached a precipice which marked the upper contact of the dolomite. I couldn't see far into the precipice, but it seemed to be the upper rim of a large doline - shaft. I followed the rim around to a vantage point on the lower side, from where a spectacular overhanging headwall loomed more than 30 m above.

In the base of the doline was a large collapse chamber which appeared to be completely blocked,

however hidden in a corner I found a remnant of original cave passage which led to a short drop needing a rope. I was very excited because it was situated at the highest point on the ridge with maximum potential for harbouring a deep cave, and the enticing draft indicated that a significant cave lay beyond. Later scrutiny of the early trip reports led me to believe that this hole had been looked at previously, when it had been reported as pinching-off at the base of the short drop.

I returned soon with other Tasmanian Caverneering Club (TCC) members. A systematic survey was commenced, and further exploration turned up two promising leads. I immediately shared the news with the Australian caving community by publishing a trip report and preliminary map in TCC's monthly newsletter *Speleo Spiel*. I named the cave Annakananda, an unusual name for a Tasmanian cave. The name pays tribute to the free-spirited and resilient Duna tribesmen of Papua New Guinea's southern highlands who call caves 'kananda' which translates as 'stone house'. We had just returned from the 'Muller 82' expedition to PNG led by Julia James and Al Warild.

It was clear that more rope and expedition-style tactics would be needed to properly explore and map Annakananda, so we immediately made plans for the next major push with additional TCC members during Easter 1983. Unknown to us, members of another caving club, having seen my trip report and map, promptly made a clandestine trip to the cave and pushed our main lead. We were informed of this only afterwards when they claimed to have 'bottomed' the cave at a depth of -300 m. I was shocked!

After this unconscionable act, our Easter trip continued as planned. To my relief and delight, Annakananda yielded more secrets via a separate series of deep shafts which we explored to an impenetrable end point at -373 m, thus eclipsing Ice Tube (-345 m) which we had explored in the Florentine Valley the previous year.

In 1984 a team from the Victorian Speleological Association (VSA) claimed to have extended the first main lead in Annakananda to a new Australian depth record -396 m (*Nargun* 17(5), 1984). This was retracted to -345 m when they followed-up with a survey the following year (*Nargun* 18(4) 1985).

A series of trips initiated by Jeff Butt in 2002 resurveyed substantial parts of the cave and found a link between the two main shaft series which improved understanding of the cave structure and hydrology.

After the exploration and mapping of Annakananda, focus shifted to other parts of the ridge. Several traverses of the ridge were made, and a few caves were explored and mapped by TCC. The Sydney University Speleological Society (SUSS) organised a large expedition in January 1986, with helicopter support and sponsorship from Australian Geographic. The SUSS team concentrated efforts on systematically exploring and documenting other parts of the dolomite ridge. I joined in for part of the SUSS trip. Many blocked dolines were found as well as quite a few caves, most of which were numbered, surveyed, or sketched. The most exciting finds were Deep Thought MA10 and Potatoes MA21.

During March 1987, a strong and experienced group of Czechoslovakian cavers (Speleoclub Alberice) focused their month of exploration efforts on the end of the ridge, where they found and mapped a suite of generally small and shallow caves that proved to be geomorphologically very interesting due to their degree of perched horizontal development which may relate to the past influences of glaciation.

#### **Mt Anne Project – Goals and Progress to Date**

- 1.The goals of the Mt Anne Project, and progress to date are:Collate existing cave survey and cave location data - completed.
- 2.Transcribe earlier analog data into digital formats for Compass and GIS - mostly completed.
- 3.Complete a digitised map of Annakananda - in progress.
- 4.Record accurate GPS locations and elevations of known caves - in progress.
- 5.Develop digital maps and 3D models of the ridge showing all known caves and terrain relationships - in progress.
- 6.Search for new caves and document them - in progress.
- 7.Publish findings.



Keith Chatterton on-rope in MA10

#### **Mount Anne Project - Recent Exploration and Research**

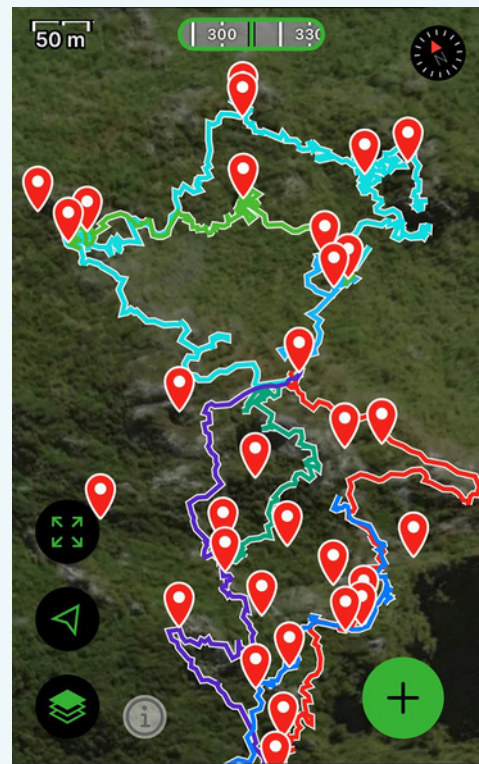
In 2020 I initiated a desktop mapping exercise with Peter Bell. Adopting a similar approach as we used for the digital models of the Mole Creek System (see *Caves Australia* No. 223) we collated existing cave survey and location data and transcribed this into digital form for use in Compass Cave Survey Software and GIS software. The VSA kindly provided us with a copy of their 1984 Annakananda survey data. Keir Vaughn-Taylor also kindly provided the scanned logbooks and survey data from the 1986 SUSS expedition and this has greatly helped our current project. Unfortunately, the SUSS surface survey data could not be located. Much time and effort were invested in reworking and plotting Vicki Bonwick's 1986 theodolite traverse however despite Vicki's and our best efforts there remained some intractable anomalies, so this approach has been shelved in favour of field GPS going forwards. The desktop exercise demonstrated that extensive fieldwork would be required to obtain accurate coordinates and elevations of cave entrances.

I commenced systematic field work in early 2022 and undertook multiple trips through autumn, winter, and summer 22-23, and more trips again this summer. Numerous caves found in the days before GPS have now had their locations and elevation more precisely recorded. Obtaining reliable elevation data, essential for plotting vertical relationships, has proved challenging in the very steep and densely vegetated terrain. A systematic series of exploration and documentation trips are planned during this year and every year following until the project goals are completed.

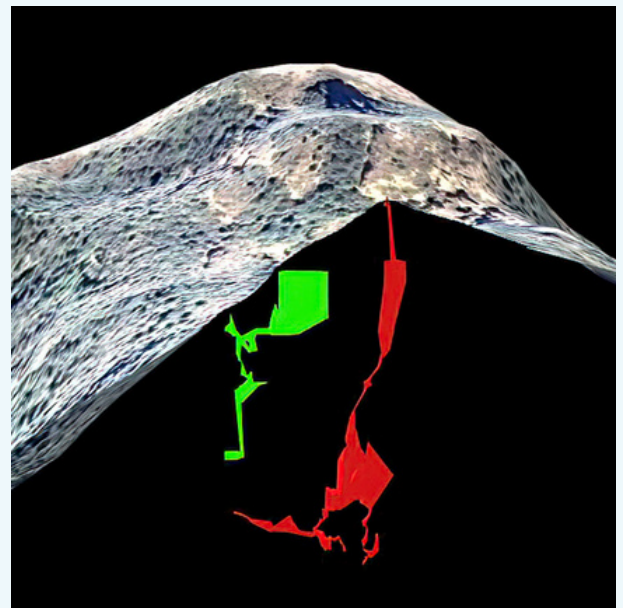
With Peter Bell we are in the process of compiling a complete digitised survey of Annakananda, a complex cave with more than three kilometres of interconnected passages. This is well underway and has proved challenging as it involves a tangled web of survey junctions and loops from separate surveys by different teams over several decades.

Our goal is to produce an integrated digital map and DEM model of the cave systems on the ridge, which will greatly enhance visual appreciation and scientific understanding of cave development and relationships. Cave development on the ridge is especially interesting because it has been strongly influenced by multiple Pleistocene glaciations, which in turn has influenced the hydrology and subterranean ecology.

An extended traverse of the ridge was undertaken during summer 2022-23 to sample caves with permanent water which might harbour *Anaspides*, an ancient shrimp-like crustacean that has colonised caves and highland water bodies in Tasmania. Interestingly, *Anaspides* were not found in caves in the middle and far end of the ridge, instead they were only found in one cave MA10 at the south end of the ridge. Their absence from the other caves raises interesting research questions about cave colonisation. In contrast, a species of troglobitic harvestman, *Hickmanoxyomma eberhardi*, occurs in caves along the entire ridge. For both rare cave-limited species, past glacial and inter-glacial periods are likely to have strongly influenced their colonisation and adaptation to subterranean existence. In the case of *Anaspides*, phylogenetic studies are underway with colleagues Stefan Richter and Christoph Höpel at the University of Rostock, Germany, to better understand the timing and evolutionary mechanisms involved.



Screenshot showing karst features and exploration routes recorded on the north end of the ridge 2022-23



Preliminary DEM displaying the vertical relationships between MA21 (green) and MA10 (red). DEM by Peter Bell, cave survey data SUSS 1986, entrance location data SE 2022.



Cave modified form of *Anaspides* mountain shrimp, possibly a new species, known only from one cave on Mt Anne



The alpine vegetation includes cushion plants and herb fields which are easily damaged by camp sites and trampling underfoot

### Conservation

The discovery and exploration of Annakanda played a big part in my early caving career. I feel a strong connection and hold deep reverence for this ruggedly spectacular, physically challenging, and beautiful mountain karst.

The Mt Anne karst is in the Southwest National Park and the Tasmanian Wilderness World Heritage Area. It deserves to be treated with utmost care and respect. This alpine environment is not the place for large or inexperienced groups. The alpine vegetation includes cushion plants and herb fields which are easily damaged by camp sites and trampling underfoot. Soils and vegetation in the dolines and access gullies is even more fragile and rapidly damaged by repeated foot traffic.

### Postscript - Then and Now

The best bush navigation aids available in the 1980's was magnetic compass and 1:100,000 scale maps where one square kilometre of country with 40m contour intervals was crammed into one square centimetre of map. Only very large or deep contour depressions were marked on maps by cartographers, and stereoscopic air photos, typically black and white, rarely revealed anything exciting.

Finding caves involved more instinct and luck than technical aids. This entailed walking the ground, following gut feelings, and hoping to stumble across something. Off-track in dense Tasmanian scrub the process of calculating one's position relied upon dead reckoning. After a cave entrance was found there was the challenge of finding it again on future visits, and to determine its location coordinates. In dense forest, with no landmarks for triangulation, the only way to plot a cave entrance on a topographic map was to undertake a long and time-consuming surface survey from a mapped landmark such as a road junction, using a 50m measuring tape, compass, and clinometer.

The introduction of GPS devices, high resolution contour mapping, satellite imagery, LIDAR, smart phones with integrated GPS, mapping software and geo-referencing cameras has profoundly revolutionised the way things are done, and importantly also, what can be done. Likewise for cave mapping, fibreglass tape, Suunto compass and clinometer has been superseded by far more accurate, versatile, and low impact instrumentation like the DISTO X.

All these modern tools, along with mapping software, have made finding, measuring, recording, and displaying caves immensely easier and quicker. I wonder what marvellous tools the future generations of cavers will have, and how they will honour the groundwork of past generations.



*Hickmanoxyomma eberhardi*, troglobitic harvestman described by the late Dr Glenn Hunt, endemic to Mt Anne caves

# OGRES ON ETNA

Bob Newby, Noel Sands and Cathi  
Humphrey-Hood



A view of the main planting area (centre) and Limestone Ridge (left), August 2023, beginning to see some regrowth after being almost wiped out by the 2018 fires - Photo by Cathi Humphrey-Hood

The caving region just north of Rockhampton includes Mt Etna, Limestone Ridge and Camoo Caves, the Capricorn Caves, and several smaller areas on private property (including Karst Glen, owned by CQSS member Richard Ladynski, and Dodd's Caves). The Capricorn Caves are also privately owned and offer excellent commercial tours and education programs. As many Queensland members of the ASF are aware, good caving areas in the state are few and far between. The spectacular Chillagoe and Camooweal Caves are fairly well known, but the caves of the Mt Etna region are not as familiar, even to cavers. Tourists find the Capricorn Caves are a great place to visit, and they are well promoted locally. The wild caves of Mt Etna and Limestone Ridge, however, are often overlooked in spite of their quality.

The caves themselves owe their continued existence to the dedication of a small band of QLD cavers and their supporters in the caving and conservation community who fought a long-running battle against the commercial market for cement<sup>1</sup>. From the 1960s to around 1990, this ecosystem - including the endangered Ghost Bats (*Macroderma gigas*) and the Little Bent-winged Bats (*Miniopterus australis*), the caves, the forests and insects that feed them, was threatened with complete destruction by limestone mining for cement. Limestone Ridge had also been mined for guano over many years, with the largest cave system, Johannsens Cave, suffering significant damage. The Mt Etna National Park that was established (through the efforts of cavers) to finally include Mt Etna in 1999 following the end of mining was heavily degraded in many ways, with much of the original vegetation destroyed and vast barren areas bull-dozed into rubble. Mt Etna itself was ringed with mining benches that in some places were completely devoid of vegetation.

The caves have developed in thick beds of early to mid Devonian limestone. The area contains a number of faults and outcrops of serpentinite, tuffs and andesite<sup>2</sup>. Rockhampton is considered to be subtropical and falls between the monsoons of the north and the cold fronts of the south, and as a result rainfall is lower than in other areas of North Queensland<sup>3</sup>. As James and Rogers put it, "The limestone bedrock, harsh terrain and drier climate create an unusual habitat that is reflected by the composition of vegetation species."<sup>4</sup> But this vegetation has been deeply disrupted, and it needs dedicated management if it is to recover.



Gabe Naylor caving at Limestone Ridge in 2023, the second pitch in 4J-26, Elysium Cave - Photo by Cathi Humphrey-Hood



Semi-evergreen Vine Thicket growing around the tufa dams near The Caves, a small township next to the Mt Etna National Park, in April 2022. The dams are usually dry - Photo by Cathi Humphrey-Hood

In a short period leading up to 2017, a series of projects funded by [Greening Australia](#) and the [Fitzroy Basin Association](#) saw over 8000 thousand trees planted across 5.5ha on the old mining sites around Mt Etna<sup>5</sup>. The overall aim of the revegetation project was to establish green corridors across the park, with the hope they would spread and help restore the natural ecosystem. The original vegetation was Semi-evergreen Vine Thicket (SEVT) and care was taken to source plant material of local provenance.

Semi-evergreen Vine Thicket is a type of 'dry rainforest'. Unlike the lush, dripping landscapes of tropical rainforests, SEVT is found in areas with less than 1000mm of rain per year, which gives the plants quite distinct characteristics, including a low canopy with trees having smaller leaves and more thorns and spines (typical caving vegetation!) and lots of tangled vines<sup>6</sup>. Because they are drought resistant and don't have a flammable understory (grass is not a natural part of it), stands of SEVT can act as natural firebreaks<sup>7</sup>. Once found almost everywhere across central Queensland, there are now only small pockets of it left.

When funding for the main re-vegetation projects ended, an informal group of retirees who styled themselves "Old Guys Restoring Ecosystems" or "OGRES", decided to continue maintaining the re-vegetation sites by watering and controlling the

weeds which threaten young growth. The Queensland Parks and Wildlife Service supported them with fuel and herbicide. Weeds can not only quickly overwhelm small areas of SEVT that have not had time to become properly established, but they also add considerably to the risk of destruction by fire. Indeed, this is what happened in December 2018, when a massive wildfire swept through the area, burnt through most of the National Park and destroyed all the planting areas. Watering stopped because the whole system of irrigation pipes and hoses was incinerated. It appeared as if all the hard work of restoration had been reduced to ashes, and everyone was devastated. Signs of recovery were soon noticed, however, and, with financial help from QPWS, a new watering system was installed. The OGRES have since planted 3000 new trees (with some help from the Fitzroy Basin Association). A warm wet summer in 2023 has reinvigorated the area and their efforts are paying off with lots of healthy new growth. So - who exactly are the OGRES?

The OGRES are a dedicated crew of volunteers who are committed to seeing the native vegetation restored to Mt Etna and the surrounding area. Since 2017 they have been giving up their time one morning a week to assist in the revegetation of the National Park. This small group brings with it extensive knowledge, skills and experience, as well as an aptitude for very hard work.



A photo taken during the conservation campaign in the late 1970s showing the mine in operation and the damage being done to vegetation covering the hill. (CQSS Collection, ASF Library).



2022: The OGRES on the slopes of Mt Etna - Photo by Bethlea Bell

**Steve Elson** is a local expert on the plants of the Mt Etna region and has been making recommendations for its revegetation since the mid 1990's. In 2018 he won a Volunteer Award from Greening Australia in recognition of his work at Mt Etna (among many other activities)<sup>8</sup>. Steve played a major role in co-ordinating the OGRES and determining which plants were to be selected for the revegetation areas. Steve's partner Cheryl Greene often helps out as well.

**Dr Robert (Bob) Newby** is an Adjunct Research Fellow and former Senior Lecturer from Central Queensland University, where, as an entomologist, he researched the things that eat plants. Since retiring Bob has become more interested in the plant side of insect/plant ecology, particularly the role of ecological restoration. He is secretary of the local branch of Native Plants Queensland and a life member of Capricorn Conservation Council. In 2023 he received an Environmental Achievement Award from Rockhampton Regional Council as part of their Australia Day events.

**CQSS caver Noel Sands** was personally involved in the campaign to save the caves. He is passionate about plants and committed to restoring the Mt Etna landscape. An excellent cave guide, he loves to show off the re-vegetation area to visitors and introduce them to things like the delightfully named "snotty-gobble" (*Cordia dichotoma*) and the batwing coral tree (*Erythrina vespertilio*), which has leaves perfectly shaped for a caving area! Noel also plays a major role in sorting the fossil deposits from the Mt Etna Caves and together with Queensland Museum researcher Dr Scott Hucknull, has made a number of important discoveries.



Jan 2024: CQSS caver Noel Sands wields a mean whipper-snipper - anything to reduce the weeds between the native plants. It all looks very manicured now, but, if kept free of weeds in the future this plantation will become a jumbled mass of trees and vines. Mt Etna dominates the horizon - Photo by Noel Sands.

**John McCabe** is a retired landscape & ecological consultant with experience in forestry management. He has a long history of involvement with Mt Etna, the OGRES and ecological conservation, and was the Capricorn Conservation Council co-ordinator during the battle to save the caves from mining. He is heavily active in turtle conservation.

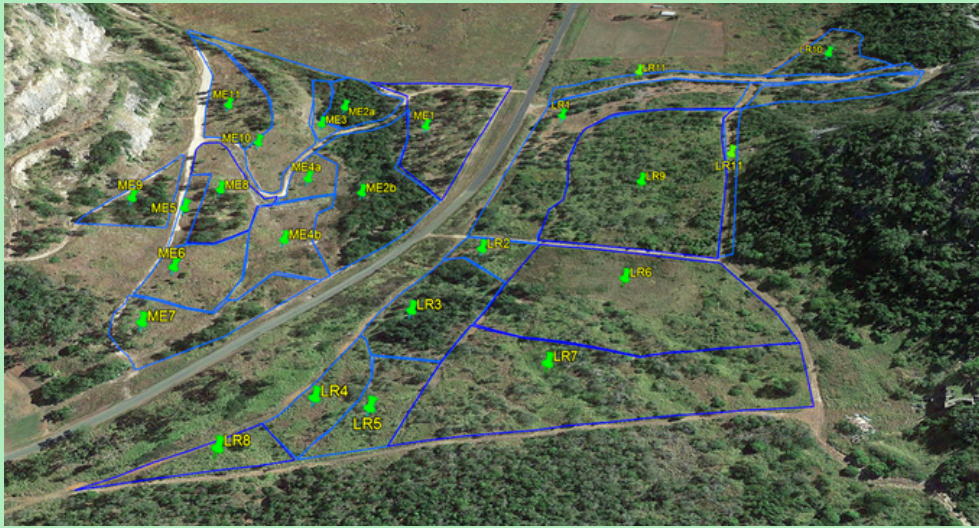
Other active members of the OGRES include **Michael Herring, Dianne Hoy** and **Phil Esdale**.

The OGRES now look after all of the planted areas, ensuring they get enough water and that the weeds are kept to a minimum. The biggest weed threats are Guinea grass (*Megathyrsus maximus*) and Johnson grass (*Sorghum halapense*), followed by *Leucaena leucocephala*<sup>9</sup>. This is not even recognised as an invasive plant because it is heavily used by the cattle industry. A mildly toxic plant, it produces heaps of seeds, and without heavy grazing it chokes out everything around it - the Mt Etna caves area is literally infested with it. Madeira vine (*Anredera cordifolia*) is a serious problem around the Capricorn Caves. Gradually though, the native trees are coming back, and the birds and animals are returning. A Tawny Frogmouth was recently noticed nesting amidst the re-vegetation area and echidna scats ('protected faeces' according to Noel Sands) show the animals are moving back into the area. Observations like these inspire the OGRES to continue their work.



Jan 2024: Steve Elson amidst the planting area at Limestone Ridge. A wetter season than expected at the end of 2023 and the beginning of 2024 has brought a lush burst of new growth. The OGRES are thinking about expanding the planting into new areas - Photo by Noel Sands.





Planting area outlines courtesy of Steve Elson, 2024. Looking North, with Mt Etna on the left and Limestone Ridge on the right. Active planting is being undertaken in LR6 and ME2, but planting is expected to expand into areas labelled LR4, 5, 7 and 8 in 2024.

While the OGRES are 'old guys' and 'old gals' (in years only, certainly not in body or spirit!), they have been getting more help from younger members of the community, which is something they are keen to encourage. School and university groups often help out, gaining valuable insight into ecological regeneration processes in return. Cavers can help too by lending a hand with watering and weeding when visiting the area on caving trips. So next time you are planning a trip up north, have a think about dropping into Mt Etna and doing some weeding - you will be helping to repair a karst landscape that has seen many battles and is deserving of all the attention we can give.

Much of the original text for this article was taken, with permission, from Robert Newby, 2023, "*The Mt Etna OGRES*", a post by Capricorn Conservation Council 23rd February 2023. Thanks Bob! Noel Sands is a wonderful advocate for the re-vegetation campaign and provided much information on its background and history.



Steve Jacobs on Last Ridge looking at Mt Etna

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# Friendzone: A major new discovery in Tasmania's Junee-Florentine

Ciara Smart





Dogtooth Spar - Photo by Ciara Smart



The team on the day of discovery: Petr Smejkal, Stephen Fordyce, Henry Garratt, Ciara Smart, Michael Glazer

In September last year, cavers from the Southern Tasmanian Caverneers had a breakthrough discovery in the Junee-Florentine karst area. The Junee-Florentine is famous as the home of Australia's deepest caves, including JF-237 Niggly, aka 'Australia's deepest cave.' While the caves are vertically impressive, aesthetic they are not, being composed of various shades of brown, brown and darker brown. Sometimes we encounter curious, geometric mud formations, but significant speleothems are few and far between. Those that exist are generally coated in a thick layer of ancient brown mud.

In mid-September, Stephen Fordyce, Henry Garratt, Michael Glazer, Petr Smejkal and myself headed into JF-387 Porcupine Pot. Porcupine is a very large cave, although not immensely deep for Tasmanian standards, at a little over 200m. Access to the base level is via a series of annoying squeeze pitches, which prevents visitation by novice cavers. Steve was there to make a second attempt at diving the sump between Porcupine, and Gormenghast, an adjacent cave (see 'The Asterisk Connection' in previous issue for details). The rest of us were there as the usual dogsbodies to lug his gear.

While Steve grovelled through a horrible sump, the four of us went off to investigate a promising lead near the base-level stream. Porcupine has been known since the 1980s, but like many caves in the area, it still holds a few question marks. On the way to one of these question marks, Petr pointed to a small hole in the passage wall. This wasn't the lead we were looking for, but it seemed like we ought to poke our heads up. What followed was a major discovery, the stuff of exploration dreams – at least in Australia anyway. Although we didn't break any statistical records, we found nearly 500m of new passage, much of which is exceptionally decorated. The passage contains a plethora of speleothems: large freestanding columns, crystal pools of dogtooth spar, pristine flowstone banks, and the usual stals, straws, and shawls. Perhaps the most impressive stand of formations is a wall covered extensively in sizable anthodites. These clusters of needle-like formations are of an extremely high quality and quantity, arguably the best in Tasmania. The passage also contains some unusual heligmite spikes anchored in regular flowstone, but defiantly growing against gravity.



Helictites - Photo by John Oxley



Excellent decorations - Photo by John Oxley



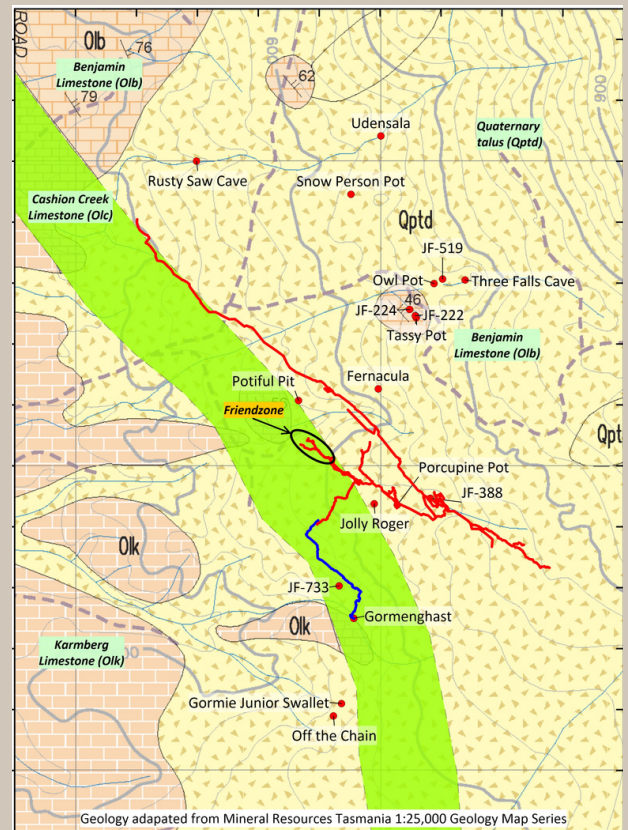
Helictites - Photo by John Oxley



Excellent decorations - Photo by John Oxley

We settled on 'Friendzone' as a name for the whole extension, and it has since been surveyed and photographed. The passage's existence can be explained by a geological quirk. There are three limestone bands in the Junee-Florentine: the Karmberg limestone, the Cashions Creek limestone, and the Benjamin limestone. The Benjamin limestone hosts most of the caves, while the Cashions Creek limestone is a narrow, but high-quality band which has yielded a handful of other decorated karst sections. Friendzone sits within this band, although the rest of the cave does not. The fact that Friendzone is so dry, and not subject to flooding, has enabled the growth of significant mud-free formations.

This new passage is a milestone discovery for the Junee-Florentine, the calibre and quantity of its decorations are exceptionally unusual for the area. Unlike the remainder of the Junee-Florentine, the pristine formations are not tainted by mud. A few other cavers have since visited and justified the hyperbole, confirming that the passage holds the most extensive decorations in the Junee-Florentine. A discovery of this significance, in a cave known for decades, goes to show that it is always worth revisiting known caves with brighter lights and fresh eyes - there might just be a rock you haven't looked behind.



Friendzone Geology by Russell Fulton



Excellent decorations - Photo by John Oxley



Extended Straw - Photo by John Oxley



Dogtooth Spar - Photo by Ciara Smart

# IT'S NOT A BAT'S LIFE

Clare Buswell - Chair, Conservation Commission



Southern Bent Wing Bat in flight. Photo: Steve Bourne.

Bats, as we know don't get a good press. They are not up there in the furry and cuddly creature departments, and it is often up to speleos and batters to promote the importance of these mozzie eating, pollenating critters.

Windfarms and bats don't mix. It is as simple as that. The Hills of Gold windfarm, located near Trundle, and near Timor caves, may well have reduced the number of turbines it is hoping to erect, but for the bat population that may well be of little comfort. In order to find a home in increasingly hostile environments, heat waves, habitat loss etc, bats have, of course, become opportunists. They take advantage of disused mine sites, people's houses and sheds, and caves filled with rubbish. Anything that provides accommodation.

But then they've got to fly around the joint to get some food and it is here that wind turbines create yet another hazard. Research has found high correlations between bat flight behaviour and what they eat.<sup>1</sup> Thus high-flying aerial-hawking species, such as *Tadarida australis*, common across most of Australia, tend to have high fatality rates, as they fly around 200-300m above the ground<sup>2</sup> Relating that to wind turbine blade heights puts wind farms right in the flight and eating paths of many bats species. For example, the blade height of the turbines planned for the Nullarbor are reported to be at 200-300m: top of blade to ground. For those planned for the Hills of Gold windfarm they are 230m top of blade to ground.

[1] Aghababian. Seta Carol., *Bat Behaviour at Commercial Wind Turbines as Revealed By 3-D Thermal Videography*. Master's Thesis. University of Colorado. 2020.

[2] Reardon T. B., & Flavel. S., *Bats of South Australia*. South Australian Museum. Adelaide. 1987. p. 58.

Recently the Willatook wind farm in Victoria, hit a major hurdle because of impacts on the habitat of the Southern Bent Wing bat and broлга nesting sites. The restrictions placed on the Willatook wind farm included a five month ban on construction work every year, and increased buffer zones that effectively reduced by two thirds, 58 to 18, the number of wind turbines planned.<sup>3</sup>

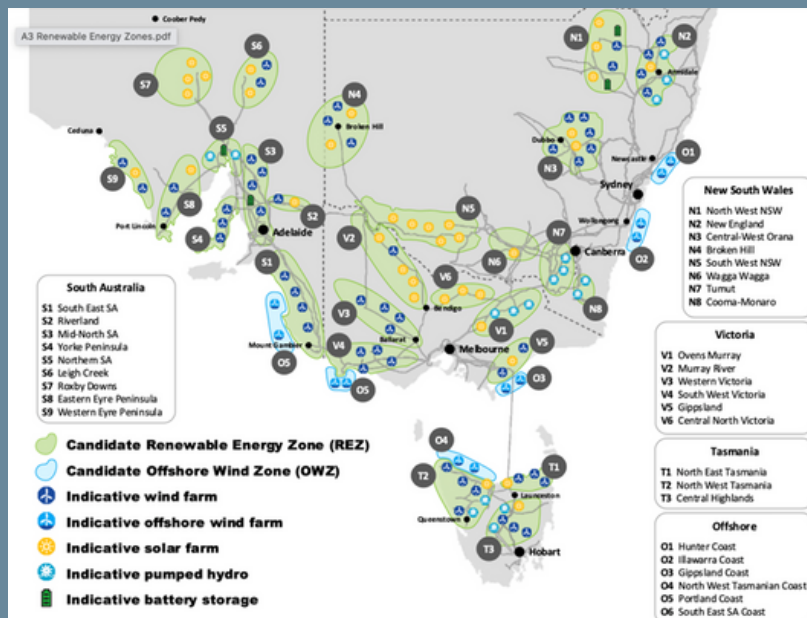
To say that some renewables are on the nose in Australia is a bit of an understatement. Rural communities are not happy about their businesses and land having to accommodate substations, powerlines, kilometres of solar panels, and wind turbines. The renewable energy industry is smarting over both the length of time needed to obtain approvals and the inconsistent planning processes required by each state and territory.

Local Councils are demanding more time to develop policies that resulted from the Federal Government declaring certain areas of the country, Renewable Energy Zones, or Offshore Wind Energy Zones<sup>4</sup>. All of this is driven by the time imperative of reaching the government declared 82 percent renewables target by 2030. A deadline, I am sure a lot of us want to see met.

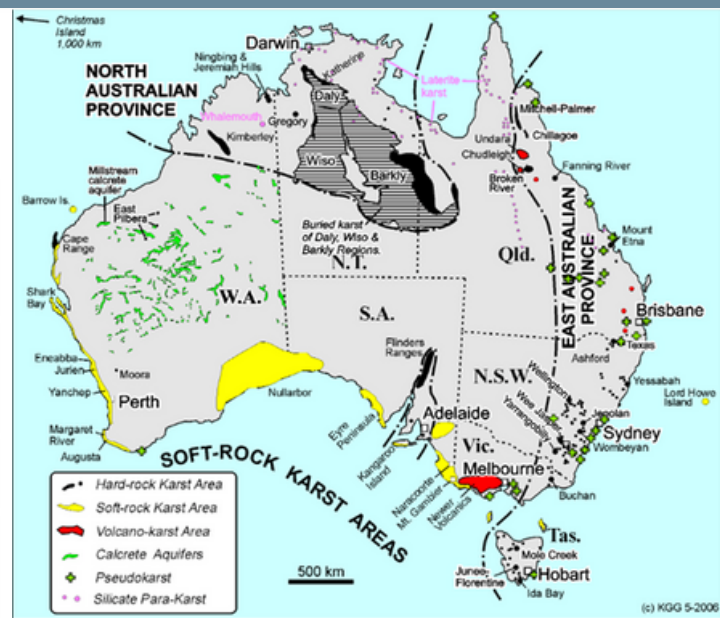
[3] Macdonald-Smith. A., 'Broлга and Bat Ruling a Death knell for Victorian Wind Farm'. *Australian Financial Review*. Aug 4th, 2023. Published on-line, 5am.

<https://www.afr.com/companies/energy/brolga-and-bat-ruling-a-death-knell-for-victorian-wind-farm-20230801-p5dt2l>. Accessed 4.2.2024.

[4] See for example the <https://aemo.com.au/-/media/files/major-publications/isp/2022/2022-documents/a3-renewable-energy-zones.pdf?la=en>



Australian Energy Market Operator



Grimes, Ken., Karst Areas of Australia. In Finlayson, B. and Hamilton-Smith, E., Beneath the Surface. UNSW Press 2003. Available from: <http://stlasflib.net>ASF-M-00027>

From the ASF's point of view, what does this mean for Australia's karst landscapes? We know the possible impact in relation to the Nullarbor, but then there is the rest of the country. Looking at the REZ map for NSW, Vic and SA, there could be a bit of a problem around Wellington NSW, parts of Western Victoria and along the Limestone coast of SA, to name but three areas.

All this raises the question, that if NIMBY over-rides some of the proposed areas in the eastern states and these developments are moved to rangelands and arid areas, the Nullarbor, will be part of that frontier. As such, placing the proposed Western Green Energy Hub on the Nullarbor, will help meet the need to replace export dollars lost from the closure of the gas and coal industries. This is the other side of the renewable energy debate, economic security rather than trying to save the planet. History tells us which is the more important. We live in interesting times.

Grimes, Ken., Karst Areas of Australia. In Finlayson B and Hamilton-Smith, E., Beneath the Surface. UNSW press 2003. Available from: <http://stlasflib.net>ASF-M-00027>

The ASF's 'Stop the Industrialisation of the Nullarbor' campaign is continuing to take form, and the Conservation Commission asks all ASF members to:

- Talk with all you know about the how special the Nullarbor is. Talk with your neighbours, bushwalking club, work associates.
- Your help is needed to raise money (Bunnings BBQ anyone?), to help fund all the aspects of this campaign. (See Advertisement in this issue of Australian Caver)
- Explore new areas of the Plain, noting when you do, anything from Aboriginal heritage artefacts, to bats, blowholes and new caves.

- Take Bat detectors out on your Nullarbor trips. They can be obtained from Landscape Boards as they lend them as part of their citizen science work.
- Exploration of the area northwest of Madura is particularly important as we are missing data from this area.
- If anyone flies an ultralight and or has a drone, then please get in contact with both the Conservation Commission and the Nullarbor Special Interest Group, (NSIG) as it will help us coordinate this urgent exploration work.
- Help is needed with the application to list the whole of the Nullarbor, not just bits of the SA side, as a National Heritage site and then work on a World Heritage listing.
- We are looking for photographers to take high resolution photos and video that can be used in our media work.
- Your help is needed to maintain the Commission's website, which is in WordPress.
- If you are a graphic artist, then you are wanted. A team is needed to ease the workload.

The ASF's campaign is cognisant of the long game and timelines that will be played out in relation to the WGEH and mining interests. WGEH has 2027 as the financial closure date, for example. The ASF, as Australia's peak speleological organisation, has been the lead agency in many battles to protect Australia's caves and karst. As such we are professional in our dealings with stakeholders and foster ways that meet our aims. This campaign will continue that work.

**Get involved with us.**

# Bleakfall Cave CP-252

## trip report

Janice March (Northern Caverneers), David Butler (Northern Caverneers), Catherine Stark (Mole Creek Caving Club)



Dave points at the cave tag



Cave narrows at the bottom



Dave under overhanging wall in doline

On January 20-21, 2024, I planned to tag and survey an unexplored cave with a spectacular entrance in Tasmania's northwest. The name Bleakfall Cave did not excite many other cavers to commit to a weekend trip to the Mt Cripps karst area, or perhaps it was just too far for Tassie cavers to drive? The cave was found on a creek line in steep open rainforest by Lochlan McLaren, a former member of Northern Caverneers while on a winter bushwalk in June 2021. In January 2023, an SES group and Southern Tasmanian Caverneers member Gabriel Kinzler had a quick look at the cave as far as the pitch and gave a glowing report but could not fully explore it with only one caver in the group and limited gear. GPS coordinates had been confirmed and entrance photos taken.

My small last-minute team drove west on Friday night. Savage River Caving Club (SRCC) members Paul Darby and Lyndsey Gray met us along the Cradle Link Road in their campervan to show us the campsite from where we could make an early start on the 2 hour bushwalk on Saturday morning.

The walk began along a disused forestry road overgrown with moss and myrtle saplings. After a log loading area at the end of the road, we followed a taped route left by Lochlan.

Our packs were fully laden with 150m of rope, two drills, rigging gear and personal gear, enough that we could have made it half way down a Junee Florentine cave! As we descended 300m down the steep slope through beautiful forest, we did not relish the walk back up with 15-20 kg on our backs.

The 5 m waterfall at the upstream end of the doline was obscured by tree ferns but the 10 m high overhanging limestone wall beckoned us into the gaping darkness beneath it. Surveying as we climbed down the wide open ex-creek bed, we found the before-mentioned pitch after 25 m. Using handy naturals to rig off, we descended 7 m to the wetter lower cave where the water reappeared as a trickle along the side of the passage.

Alas, after carefully clambering down the slippery mud-coated infill boulders for another 40 m, we came to a narrow muddy horizontal end. Dave and Catherine took turns having a look at the terminal sump, a narrow three meter long pool which we did not enter as it was down another four meter drop. Coming to terms with our disappointment, we looked around for any redeeming features and found a small shawl, a 10 cm long straw, some large crickets and some interesting mud formation on the walls.



Paul Darby SRCC and Tall Potato Orchid  
(*Gastrodia procera*)

We were back on the surface for a late lunch after only two hours cave exploration using only 10% of the rope we'd carried. We took disto shots around the impressive doline which turned out to be nearly as large as the cave itself.

With cups of tea and generous slabs of homemade fruit cake, Paul and Lyndsey welcomed us back from the 2.5 hour return trek awaiting the news of our discoveries. And the news: the cave is a swallet in almost vertically bedded limestone. It takes all the drainage from the creek and water appears to fill most of the lower cave in flood conditions, with the narrowness of the sump acting as a dam. It was 75 m long, 48 m deep with a 7 m pitch about 25 m from the entrance.

On Sunday morning we woke at the SRCC hut (known as Th'ut) and did a bit of track clearing work on the road then admired a remarkable 1.42 m Tall Potato Orchid, *Gastrodia procera* and the world's tallest self-supporting moss, about 15 cm tall, the endangered species *Dawsonia superba*. It was a wonderful weekend in the lush forest with warm hospitality from SRCC. Lyndsey greatly appreciated the survey as she finalizes the collection of the full 246 caves and 108 features discovered and documented in the Mt Cripps area over the past 36 years.



Tallest self-supporting moss in the world  
(*Dawsonia superba*)



Young sassafras and giant myrtle trunk



Bobby fungi in doline



David Butler, Catherine Stark after the cave



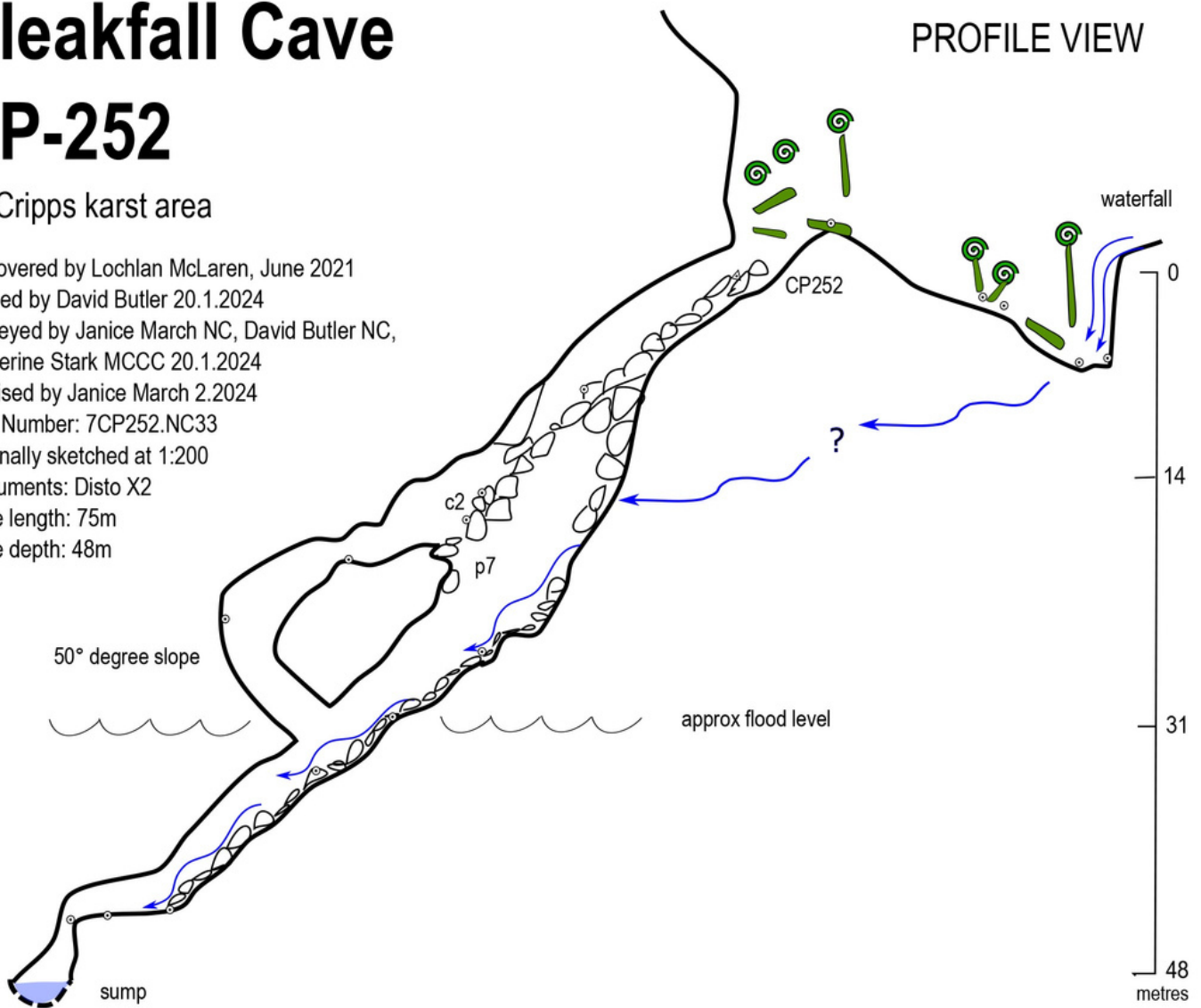
# Bleakfall Cave

## CP-252

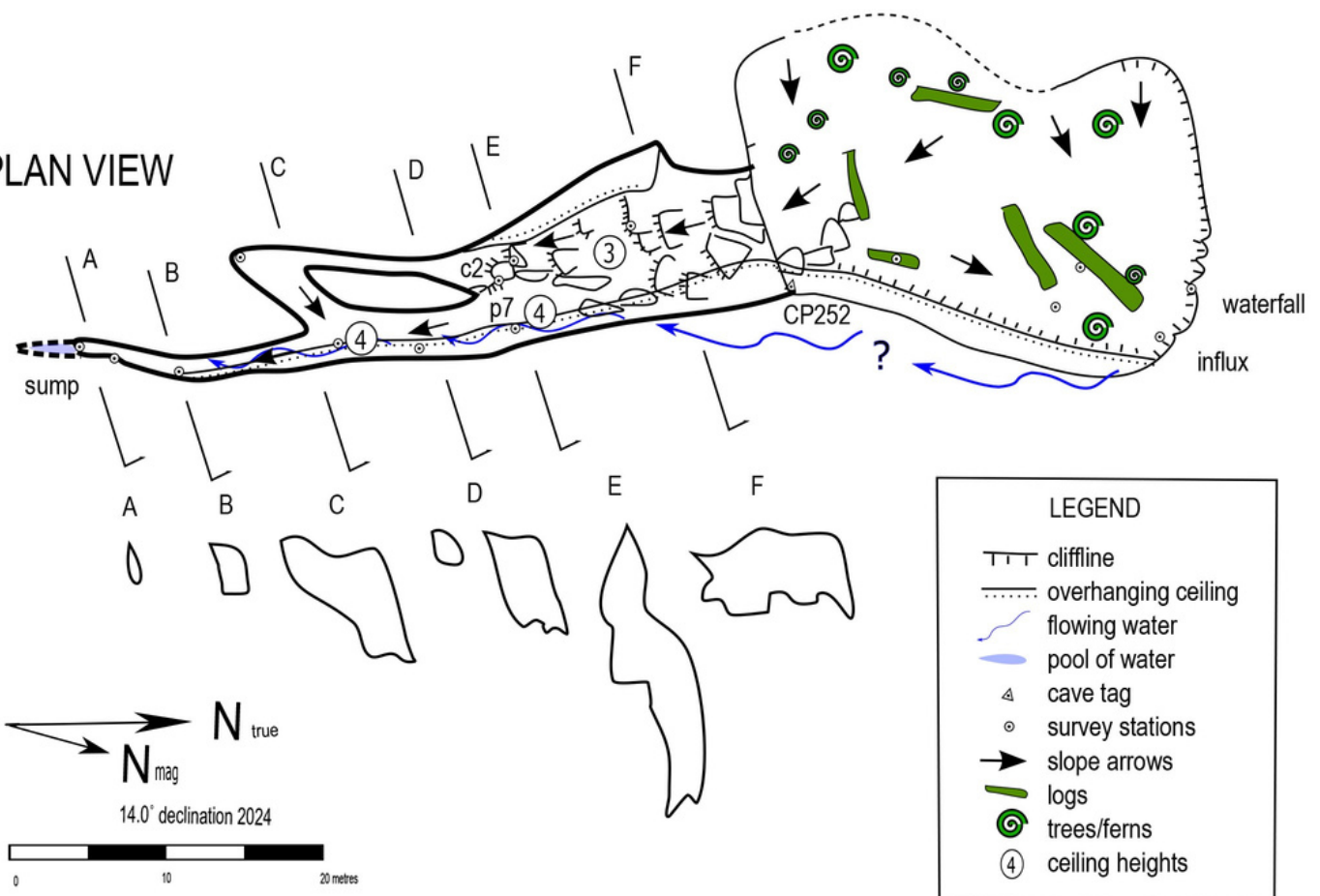
Mt Cripps karst area

Discovered by Lochlan McLaren, June 2021  
 Tagged by David Butler 20.1.2024  
 Surveyed by Janice March NC, David Butler NC, Catherine Stark MCCC 20.1.2024  
 Digitised by Janice March 2.2024  
 Map Number: 7CP252.NC33  
 Originally sketched at 1:200  
 Instruments: Disto X2  
 Cave length: 75m  
 Cave depth: 48m

### PROFILE VIEW



### PLAN VIEW



# Sternes Expedition 2023

Kristen Wills - All photos attributed to members of  
Sternes Expedition 2023

Organised by Speleological Association of Crete (SPOK)

Sternes 2023 was supported by the International Union of Speleology (UIS); the European Speleological Federation (FSE) and their partner Aventure Verticale; the National Speleological Society of the USA (NSS); and individual donors.

## 28 Aug 2023, 3rd day of expedition:

Antigony and my first foray into Sternes and down to -240 m. In this section the cave is a 'rope highway', which means if you aren't crossing rebelayes or redirects you are only a few steps from the top of the rope at the next pitch. For a time we watched as another group set up the telephone lines and handsets throughout this section. This line of communication ran from within Sternes to the campsite. These wires and even the ropes can be damaged by snow melt if left rigged, so the well-oiled set up takes place each year.

## 31 Aug 2023, 6th day of expedition:

Antigony, Colin and I resurveyed from -240 m for approximately 70m to Damocles, a stone the size of a small truck hanging above the middle of a chamber, using the permanent survey stations already in the cave. This was to check the accuracy of the survey in that section. Our team continued to -400 m to build our vertical fitness. On our way down we encountered a small series of tight meanders which is what we in Victoria call regular cave passages.

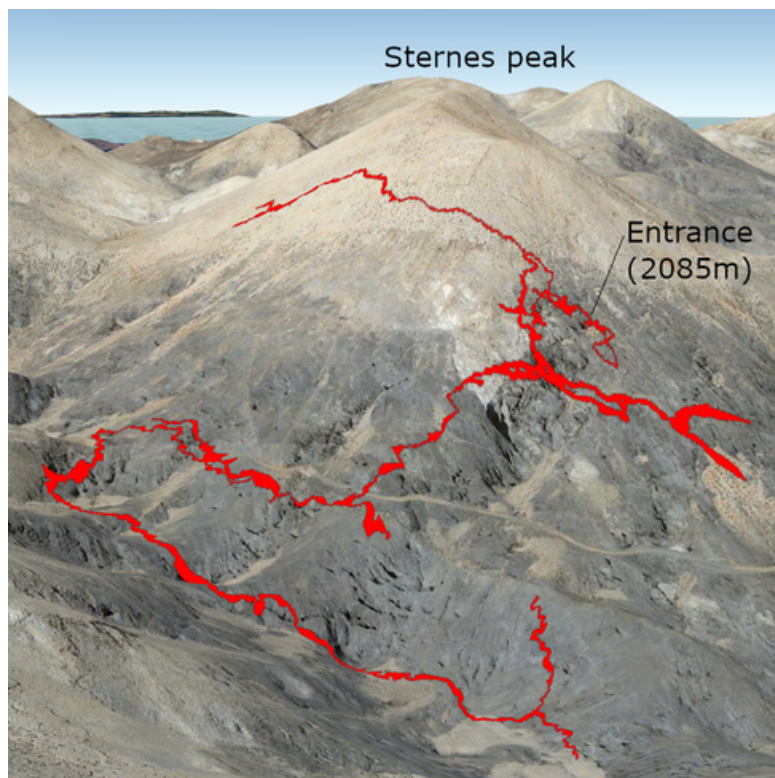
## Expedition Outcomes:

Added 3 km of horizontal passage.

Bumped up to 3rd longest cave in Crete behind Ano Peristeras and Tafkoura.

## 7th Sept 2023, 3rd last day of expedition:

This morning it poured rain. We found out later that an extreme weather event hit Europe and missed Crete by a hair. Being still on the periphery of the storm, we received heavy rain and high wind the night of the 6th and throughout the morning of the 7th. Soaked through, we headed into Sternes which had already begun to reflect the downpour. Dry pitches had become waterfalls. Nearing camp we encountered passages and rooms heavily decorated with a single type of speleothem: aragonite. White tipped clusters sprayed and arched as we looked up and peered around corners. We, now covered head to toe in the increasingly wet and clingy mud, endeavoured to dodge and balance around these delicate formations. Having successfully descended deeper than either of us had ever been, we huddled into a very warm and cozy bivvy tent. This was heated by a little stove constantly cooking coffee or dinner and an abundance of tea light candles. Whether this cubbyhole was atmospheric or just steamy from our drying thermals, we dried off and hopped into comfy sleeping bags. The guys were real gents and let us girls have the air mattresses as they rested on the floors which were tiled with interlocking foam squares. We had no sense of time as an alarm went off and we headed out to survey a looping section of the cave. Finally ascending a multitude of pitches for our last time in Sternes.



Map of Sternes projected onto surface imagery. Image courtesy Stelios Zacharias

Location: 2085m altitude, Lefka Ori Masif, Crete, Greece  
Length: 5.6km  
Depth: -616m

# Lakgonia Report

## 2 Sep 2023, 8th day of expedition:

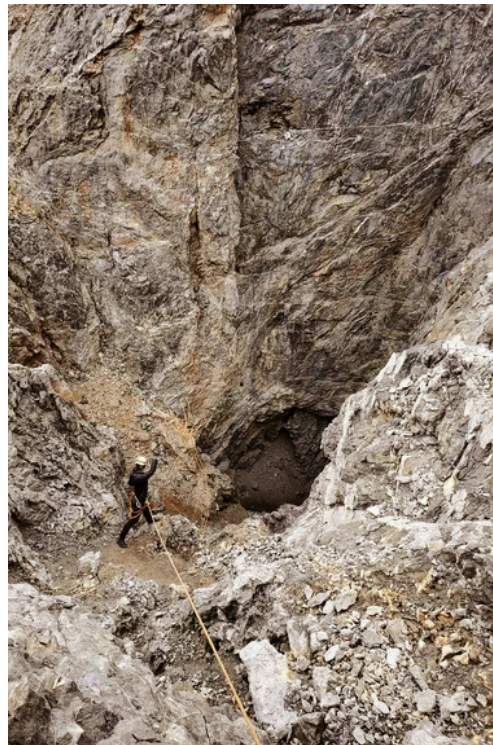
Antigony and I watched as Petie rigged down into a large doline filled with scree and listened as rocks tumbled down into the cave with each step. We located the drip line to start our survey and marked it out. Upon realising that the lazer was invisible in the large light filled doline, we resolved to return later in the dark when we could see it. Once in the twilight zone of the cave, the survey became slightly simpler and as we rounded into the first chamber a stunning daylight hole lit up the thick metres of firn below it. Firn is partially compacted névé, a type of snow that has been left over from past seasons. Our survey was cut short as we realised our hands and noses were getting quite numb from the cold. We notified the rest of our party and proceeded back out of the cave to bask in the stunning spring sunshine.

## 4 Sep 2023, 10th day of expedition:

I stood sheltered behind a right angle bend just in the twilight zone of the cave, watching as rocks shot around the corner; bend their path 90 degrees and coast down the left-hand side of the main chamber. This cacophony broadcasted Antigony's progress down the doline as it had done with mine moments before. Moving forward, the cave passages narrowed as we slipped between bedrock and a wall of ice to reach the first vertical pitch. We would be on rope for most of the time as the cave consisted mainly of ice slopes. We passed a small nook of ice formations: stalactites, stalagmites and an overflowing pool carved into the ice by snow melt at around station 16 of our survey. Shortly, we descended down a cascade of firn into the terminal chamber. Here the ice acts as a plug, forbidding further access to whatever is beneath.



View into first chamber.



Kristen rigging Lakgonia's entrance doline



Antigony Haikalis ascending the ice plug in the terminal chamber

# Camp Life

Sternes Expedition 2023 consisted of people from 7 countries across 4 continents



Image to the left: Each morning, we relaxed into a filling meal of hardboiled eggs, bread, honey, cheese, tahini and vegemite (courtesy of the Australians). To be frank, the vast majority of our new Greek and European friends were underwhelmed by the taste that puts a rose in every cheek. It became clear why as I indulged repeatedly in the most delicious tahini, that is not sold in Australia, and local honey combination.

Shortly, people got down to the business of collecting gear and setting off for the day. For those still at camp surveys were worked on; trip reports were written and for some hair was brushed.



Antigony and Kristen being taught how to make dumplings by Kristina

## 27 Aug 2023, 2nd day of expedition:

Armed with sunnies and sunscreen, Antigony and I joined a walk out to a junction point to see a bit of the landscape (Image below right). The hills are mainly grey, golden and rocky. Shrubs such as thyme and malotira grow sporadically. Trails are cuts into the hills and very well marked for local foot-traffic. In a protected spot we saw a shepherds hut, as everything in the area it was built from the local stone. Goats roam freely over the hills, and we frequently heard their bells in the distance.

Once at camp, Antigony and I assisted with vegetable cutting and making little dumplings for dinner (Image above centre). It ought to be noted that there was genuine concern when we realised that we would miss out on one of Kristina's excellent dinners the night we did camp in Sternes.



Image to the left: The campsite is situated on a slope of Mt Sternes. All through the mountains grows shrubs including native thyme and malotira. The thyme produces a wonderful fragrance as one walks past and the malotira is collected by locals to make a herbal tea that we frequently enjoyed in camp.



Petie returning from caving



Antigony returning from caving for dinner



Trekking out and about



Expedition group photo



Camp in Sternes



Expedition group photo

Most evenings were awash with chatter, food and drinks which lasted late into the night as cavers dribbled into camp. One night we were waiting up for a group to come out of the cave and as the night drew on, Stelios cooked semolina halva, a sweet brown rice pudding like dessert which was paired expertly with warm raki mixed with local honey. It would be a lie to say that raki didn't become the staple most evenings. Though caving was why we travelled to Greece in the first place, experiences such as these nights provided ample time to fall in love with the the warm, kind, fun and generous people on this expedition and will definitely be my reason for returning.



Delicate formation coming down from the ceiling of the Phantasmigoria Chamber

# Christmas Island Caving - WASG Expedition

Daniel Lansom

## Introduction:

Christmas Island is a small, dog shaped, tropical island situated in the middle of the Indian Ocean off the coast of Western Australia. For the typical Aussie, most think that the island is no more than a detention centre and know it for the annual migration of the Christmas Island Red Crabs.

What they don't realise is that above the sheer limestone cliffs that line the island, more than two thirds of the land is national park which contains an abundance of endemic plants, birds and other wildlife. For us, it's a speleologist's playground littered with numerous karst features.

Prior to the COVID19 Pandemic, WASG members had been talking about heading back to the island following the last expedition in 2018. This never eventuated due to the uncertainty of flights and lockdowns. The suggestion was made again about a potential trip to Christmas Island, and an email was sent to Parks Australia (federal land management for the national parks on the Island).

## Saturday (Day 1)

While half of the group had been on the island since Tuesday, most of their caving equipment didn't actually arrive with them... In fact, it didn't even make it onto the plane! Due to this, limited caving activities were undertaken until the second flight of the week which arrived with the rest of the group AND the bags.

Our plan for the day was for the group to split in half. Group one was going to head out and accurately GPS locate Grimes Cave whilst group two were introduced to the tropical island caving



Luana Dwyer & Paco Murray Marvel at the size of the main water chamber in CI-008 Bishops Cave

by visiting the Daniel Roux Cave systems. In the afternoon, we would all meet at Freshwater Cave at the bottom of the island to push some leads at the end of the cave.

The Daniel Roux Caves were different in that the upper cave was dry and formation rich, whilst the lower was mostly water passage in which entry was gained by descending a series of ladder systems. Both of these caves are well known to the locals on the island, and unfortunately had been subjected to vandalism over the years. However, much of the delicate formation in Daniel Roux upper does remain untouched.

We returned to our vehicles as group one emerged from the jungle. They had been unsuccessful in their goal to locate Grimes Cave from the land, but instead had found a smaller sea cave nearby.

Following lunch, both groups made their way across the island to the Blowholes and Freshwater cave.

Freshwater Cave has a large doline collapse entry that leads down to a crystal-clear tidal pool of water. We had arrived at low tide, so were able to negotiate our way through the cave with ease. However, in the past, a number of people have become lost with the tidal changes.

The cave is around 150 m in length and is a well-developed stream passage cave with several rockpiles thrown in for good measure. We reached the extents of the cave and poked around at a few leads to see if we could push the cave further. None really went, so we turned around and made our way back to the awaiting Coconut Crabs (known as Robber Crabs) at the surface.

### **Sunday (Day 2)**

A few members of the group departed early Sunday morning in an attempt to access Lost Lake Cave from the land instead of by boat. It was a long and hard

slog for them, however, they returned victorious! The group had managed to cut a path through the pandanus and track mark along some grikes until they found the perfect opening into the ocean. From there, a line was rigged over the edge and into the depths below. Once offline, the swim was only a few metres from the cave entrance, which made it perfect for multiple trips to be held into Lost Lake over the duration of the holiday.

Whilst they were out battling the jungle, we spent the morning hiking to Dolly Beach to watch the Robber Crabs tear coconuts apart as if they were soft grapes. In the afternoon, we caught up with a few of the others and went for a snorkel in the crystal-clear waters of Flying Fish Cove.

### **Monday (Day 3)**

On Monday morning, five members of the party made an early start, with the goal being to make it to 'The Waterfalls' of Lost Lake Cave. For context, the waterfalls are located at the far reaches of the very long cave. The cavers were gone for most of the day and returned late at night. Whilst slightly disheveled, they thoroughly enjoyed themselves.

The rest of the group had a slightly slower morning before gearing up and heading across the West White Beach track to visit Smith's Cave. We hiked along the two km track and descended a couple of ropes and ladders before heading across the jungle to the cave entrance. What we didn't realise was that there was more than one entry to the cave... Naturally, we had chosen the harder, less obvious way in and had to guesstimate our way through the cave until we found the main passage.

Smith's Cave is another large stream passage cave. It is heavily decorated and requires some swimming, crawling and scraping before heading into 50 m or so of dry, sharp passage where it finally chokes off. The group moved through the cave relatively quickly, only stopping for a few photos, before returning to the



Mel Supanz in the stream passage of Smiths Cave

entrance (heading out was much easier, we could see the big gaping daylight hole at the top!)

Following the cave visit, we walked down the rest of the track to West White Beach for a late lunch and refreshing snorkel. We then started the two km journey back up the hill to our cars and returned to our accommodation.

Once cleaned up, we grabbed a couple of drinks and made the drive across to 'The Grotto', a popular tourist destination near the township.

The Grotto Cave entrance features a beautiful tidal pool that is around five metres long and five metres wide and opens out to the ocean. On a really calm day you could squeeze through the hole and out into the ocean, but we did not make the trip. We noticed that the cave also went inland a few metres, however, due to the constant rise and fall of the tide, you would need an extremely calm day to get in and out safely.

### **Tuesday (Day 4)**

Five of us had an early start today as we embarked on the journey to Lost Lake Cave, with the goal to photograph the 'Phantasmagoria Chamber'.

We were collected from our accommodation and drove towards West White Beach where we parked on the side of the road, a few kilometres away from the walking track. From there, we hiked about two kms through the jungle (by pure luck we had managed to find a smooth sandy path, avoiding the limestone outcrops), before descending down a short valley and across the grikes. The crew that visited the other day were ever so kind and left flagging tape for us to follow, which made the traverse much easier for us as we could focus more on our foot placements and less on the navigation.

Before we knew it, we were at the abseil take-off point. After descending a short 15 m over the edge with a simple rebelay, we landed in the ocean and

perched ourselves on a nice rock. From there, we had to battle the swell timings to swim across and enter the cave (lucky for us it was a lower tide, and the swell was relatively kind too). Once out of the ocean, we crawled our way through a maze of wet passages and followed numerous amounts of flagging tape until we reached the first large dry chamber.

In this chamber we took off our harnesses and had a well-earned morning tea break. We left our harnesses and any unnecessary gear on the rock pile as we knew that they would be safe from the tides. After taking a few photos, and following some issues with one of the flashbulb triggers not operating correctly, we continued our journey deeper and deeper into the cave.

Lost Lake Cave was a bit of a labyrinth of passages with each direction looking quite the same as the last, with a couple of known 'features' confirming that we were headed in the right direction. A memorable feature was a bottle of whiskey that was sat on top of a small pile of rocks, as well as some fishing line that had been laid in a few sections.

After a couple of hours, we finally made it to the junction. If we went left, we would continue swimming toward the waterfalls. To our right was the passage that would take us in the direction of the Phantasmagoria Chamber; our goal for this trip.

This section of the cave became more like a rift. There was very soft, crumbly, and somewhat questionable rock with a number of possible entryways. However, only one of them would lead us to the chamber...

I attempted to push one of the 'leads' but was met with extremely unstable rock and sand. I retreated from the attempt with haste, and we eventually found what looked to be the correct way up into the chamber.





Christmas Island Robber Crab

Getting into the chamber was quite an ascent. We navigated our way through a good 10 to 15 metres of rockpile and delicate helictites before popping out into a giant chamber filled with pristine, clean and active formation.

After washing our boots at the boot wash station, which was left by yesterday's group to help preserve the amazing formation, we entered the chamber. We were immediately met by 'The Phantasm', a giant 10 m high hunk of calcite.

From the Phantasm, we descended a few metres into the base of the chamber, before proceeding to the right to more heavily decorated sections of the cave. The whole area was just littered with helictites, stalactites, shawls and flowstone. Everywhere we looked was just amazing. Photographs really do not do it justice... It was breathtaking to sit still and slowly cast our eyes from one side of the chamber to the other, taking in every single small detail that was within.

Unfortunately, time was our enemy, and it sure did just slip away while we were taking in the sights. It was about 2:30pm when we began the journey back to the entrance, but fatigue was starting to kick in as the group hadn't really had a break since morning tea in the first chamber. The trip back to the entrance was relatively straightforward albeit a little slower.

The swell and tide had increased since we made entry, and we could hear the gurgling as we neared the entrance. From there we took a timed dash from the cave entry to the rope, where we fumbled to get the line in our ascender as the tide was coming in. Once on the rope, we made a quick ascent back to the land.

After the last member ascended the rope, we began the hike back to the car. Instead of taking the route that we walked to get to the cave, we opted for the

more direct route straight back to the road (we had initially hiked on an angle toward the valley). This was a huge mistake as we stumbled upon every single limestone outcrop between the ocean and the road! Eventually, at around 9pm, we returned to our accommodation and slept very, very well.

### **Wednesday (Day 5)**

After yesterday's antics we decided to sleep in and have a rest day, whilst some of the others went jungle bashing around the Detention Centre and other parts of the island.

### **Thursday (Day 6)**

On Thursday half of the group headed to Bishops Cave to do some surveying and check out the stability of the entrance, whilst the rest of us decided to make the attempt to locate and visit Grimes Cave. Local knowledge had advised that if we followed a line from Daniel Roux Cave out to the ocean, we would find a nice ledge that was a small descent into the ocean.

With this in mind, we headed out with a rope, caving ladder, flagging tape and snorkeling gear. Once we located the ledge, we rigged a caving ladder to assist us when ascending from the ocean (the ledge was undercut, so the only way for us to get back onto land without the ladder would have been to swim a bloody long way back to Flying Fish Cove!)

One by one we plunged into the deep blue where a short swim took us to the huge gaping entrance that was indeed Grimes Cave. I, however, was skeptical at first and swam right past it. How come the others didn't see this thing!? It was huge! Assuming that it was not the entrance, we continued swimming for a few hundred metres. With no luck, we came together and agreed that it must have been the correct entrance and we headed in.



Mel Supanz in the stream passage of Smiths Cave

The entrance to Grimes Cave was about 10 m wide and 15 m high. Stalactites and flowstone lined the sides of the chamber, which eventually narrowed to a small crack at the rear. Across to the right there was a series of short climbs and holes that we corkscrewed our way through until we reached a nice flat section of rock and flowstone. From here the cave went perpendicular to the entry chamber, littered with dry gour pools and fantastic cave pearls that glistened with our headlamps.

The cave was mostly a sandy crawl, I ended up heading back to the entrance to admire its beauty and snorkel around the area while the others explored the full expanse of the cave.

### Friday (Day 7)

Today half of the party continued the search for caves on one side of the island, whilst we decided to make the drive to The Dales. The Dales are a popular tourist attraction and are a series of gorges that have active watercourses flowing through them out to the ocean. We explored a number of these and located a couple of features. Unfortunately, due to the swell, we were unable to enter the features to see where they went.

The gorges started from stunning waterfalls which made their way across the land and into some deep chasms before opening out to pools where the fresh water was met with salt water.

In the afternoon we attempted to access 10 Entrances Cave, but required some additional rigging gear to be able to safely abseil in. Following the short adventure, we visited a small natural spring before returning to Flying Fish Cove for the night.

### Saturday (Day 8)

A relatively early start had the whole contingent heading into the jungle to visit Strangler Cave and Bishops Cave. The team that had visited Bishops Cave on Thursday had noted that there was some

unsurveyed passage that needed to be checked out once the tide had dropped. Having a large group meant that for the few hours that the tide was low, we would be able to push the leads and survey it relatively quickly.

We pushed forth in the jungle, avoiding various coloured crabs and pandanus, until we made it to the rough vicinity of Strangler Cave. We located a few holes, but they didn't match up with what had been mapped. Unfortunately, as time was of the essence, we ended up pushing towards Bishops Cave and commencing our decent.

Bishops Cave has a large opening and entrance chamber which is filled with rock boulders and some formation. From the entry chamber it was a steep descent of roughly 30 odd metres to the pools below where the cave continued. One by one we gingerly zig zagged our way down the slope, carefully following the best route possible until we reached the pool.

We arrived a little earlier than expected and the tide had not yet lowered enough for the team to be able to access the unsurveyed areas, so lunch was had whilst we waited.

Once the water was low enough, we roof sniffed our way one by one under a couple of stalactites and commenced the survey.

The areas of cave that followed turned out to be quite extensive, taking us a couple of hours to push all of the leads. The rock was very clean, but sharp. Put your foot in the wrong place and you would be in a whole world of pain. Once we were satisfied that we had pushed as far as each passage would go, we returned to our bags and made the ascent back to the entrance.



Christmas Island  
direction sign



Jess Ridout in the Grotto



Daniel Lansom abseiling into  
the Ocean

### Sunday (Day 9)

There had been reports from the rangers that a cave had been located some years ago and was recently explored by a few locals. We had a GPS coordinate for its location, but no caver had actually visited the site. The rangers had advised us of the easiest way to access the cave. They said that we would know we were headed in the right direction as once we reached a particular cliff edge, we would be able to use some tied up electrical cable as a handline to get us down...

After a couple of kilometres of bush bashing, we located the cave. Surrounded by pandanus grass, the entrance had been left with a short piece of climbing rope to assist us down the first couple of metres.

From the entrance, the cave dropped down several levels and we travelled along a rift. We started following the 'easy' route, however, this choked out with a small pool of water.

Heading in the opposite direction, we clambered further down along the rift until we again reached the water table where we began swimming across a number of pools. There were a few squeezes and a couple of roof sniffs that we had to manoeuvre through.

There was little formation in the cave, however, we did stumble across the most pristine rim pools that many of us had ever seen. The largest of the lot was about the size of a salad bowl and filled with water. The calcite along the edges was layered with different shades of cream and brown, it was fantastic.

We pressed on with our journey attempting to push a few more leads and roof sniffs until the rift closed in to only a few centimetres apart. At the terminal chamber atop a rock sat a bottle of rum - proof that we were not the first to have explored this section of cave. We decided to remove the bottle and returned to our vehicles.

That evening, we headed down to Dolly Beach for a swim. I was caved out, but a few of the others went off to check out Dolly Beach Cave. They weren't gone for very long and returned a lot dirtier than when they left... It looked like I did not miss much at all!

### Monday (Day 10)

On Monday a few members went out to Lost Lake Cave for one final visit. They were able to make it all the way back to the waterfalls at the far extents of the cave, and derigged the abseil on their return. For the rest of us, it was Territory Day!

Territory Day is Christmas Island's annual public holiday in which sovereignty of the island was handed over from the United Kingdom to Australia. It was a day of celebration for the islanders, and we were treated to their festivities as well as their annual raft race.

### Tuesday (Day 11)

Where did the time go?! Today was fly out day. It had been a fantastic 10 days on the island exploring everything above and most certainly below the ground, but there was still time before our flight for one last cave trip.

We chose to revisit Grimes Cave, as it was easy to access and also included a beautiful snorkel in and out of the cave.

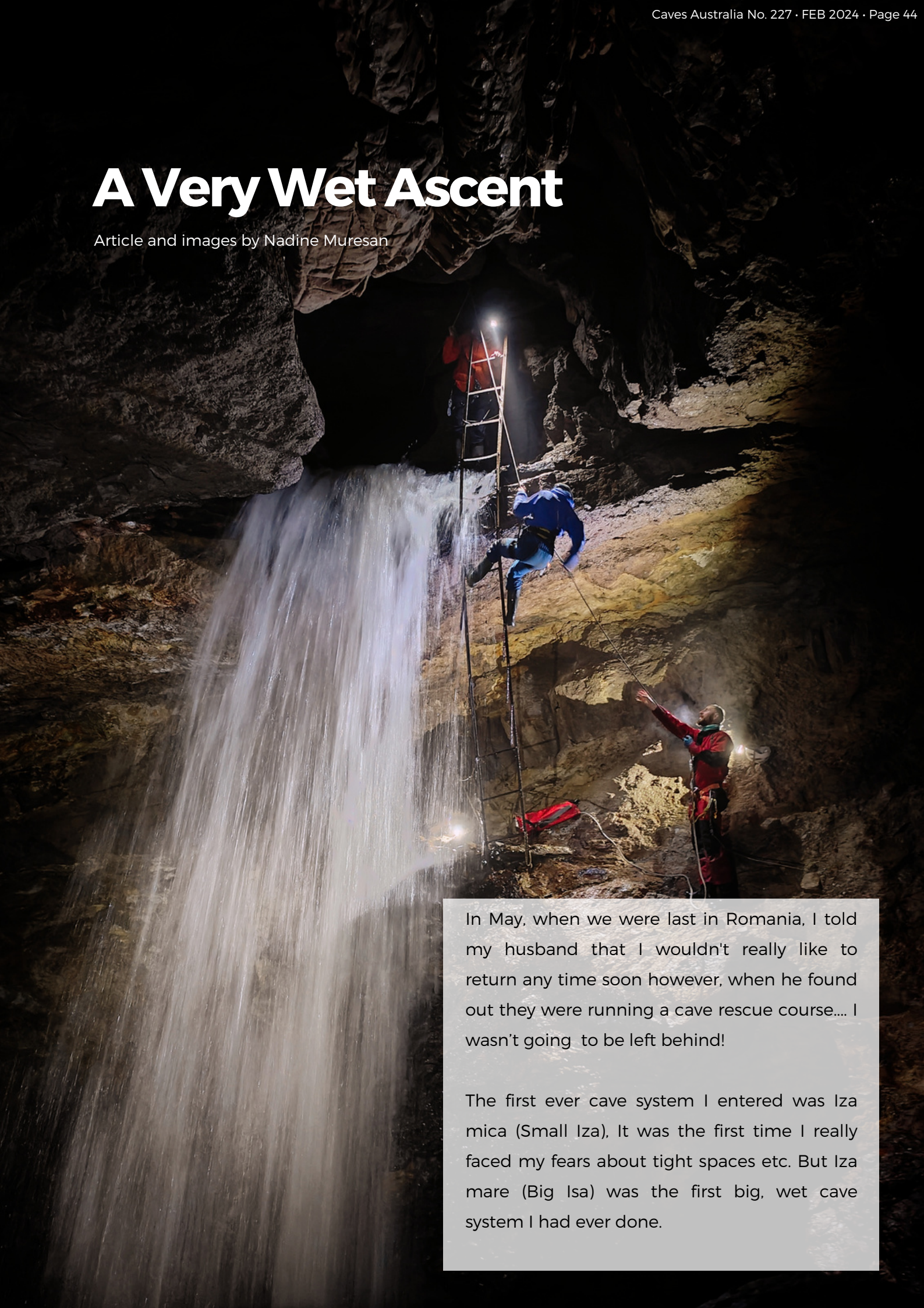
A few hours were spent inside the cave where we enjoyed exploring the upper galleries before we sadly had to return to the island to get ready for the flight home.

### Thank You

I would like to thank all of those who assisted in making the trip possible. Thank you to those who inspired the trip to come into fruition, the members of WASG who over the years have been continually updating the Christmas Island database with descriptions, maps and location data, and finally, the Parks Australia Rangers who provided valuable local knowledge of the island.

# A Very Wet Ascent

Article and images by Nadine Muresan



In May, when we were last in Romania, I told my husband that I wouldn't really like to return any time soon however, when he found out they were running a cave rescue course... I wasn't going to be left behind!

The first ever cave system I entered was Iza mica (Small Iza), It was the first time I really faced my fears about tight spaces etc. But Iza mare (Big Iza) was the first big, wet cave system I had ever done.

With a very active water supply going consistently along the path of descent the 4.5 km cave is mind blowing. Big open spaces, loud waterfalls, lots of climbing up and down over massive boulders, and loads of rope work traverses made it very active caving.

One of my pre-requisites for coming on this trip was that this time I would go back and visit the cave, not go all the way in, just to the main waterfall. However, being an active system with a couple of tighter sections, it is a cave often done in the middle of winter when water levels are consistent. It often makes the trip around 12-14 hrs as the trek to the cave in knee high snow adds extra complications. Coming in November was always going to mean a wet holiday with almost every day showing rain of over 10 mm.

On Wednesday 8th November (still heavily jetlagged) we departed home at 6am (which was fine as we had woken up at 3am anyway) with a 2hr drive ahead of us. It rained almost the whole way, we got changed and the rain paused as we started the hour long trek straight uphill.

When we got to the entrance, it was a surreal feeling. Previously I had viewed it in winter when the entrance had snow and ice all over it, now it had its own waterfall entrance and instead of being able to slide over the tightest entrance on the ice, it was instead fast rushing very cold water.



Bo over the waterfall



Walking through the hail

Through the first section we were all already wet (well not Bo because somehow he had managed to not get wet... go figure). We discussed whether to continue, as I was desperate to get to the main waterfall we pushed on. It is such a different feeling communicating in an active cave. When you get off rope and call "FREE"...you often get "WHAT?!!" In reply... or at least you think that's what they say, so you scream "ROPE FREE" again, they shout back "OK!!!" Everything often pauses for another minute just to make sure and then you keep moving.

When we finally got to the main waterfall it was unbelievable! SO MUCH WATER and so very loud! I had given very clear instructions for the photo I wanted to take as I knew communication would be difficult. I massively underestimated just how difficult. In the end we got what we got and learnt that for our next adventure in January in Tasmania we will need walkie talkies! After about 10 minutes we all decided we were cold and, during the ascent, we would have no choice but to go through the waterfall, and get wet, yet again (once again except for Bo with what seems to be spider superhuman strength).

We did the mad dash of cold cavers out of the cave in a fairly fast time, I couldn't believe it was hailing as we exited the cave! On past trips, after 12-14 hours in the cave, our tracks had been covered in snow making the trip down exhausting but being hailed on was probably worse.

Either way, it was one of those whirlwind trips which was kind of fun, really wet, and overall mayhem.

# Animals in Caves

Article and images by Garry K. Smith

Typically when cavers are asked what animals they see in caves, the usual answer is bats followed by silence. If pushed further for what other life they find underground, then insects such as cave crickets, millipedes and spiders are mentioned.

Yet there are quite a few other animals, (mammals and reptiles) that inhabit or frequently venture deep into the dark zone of caves. These include wombats, platypi, rats, possums and snakes to name a few. Let's look more closely at a few examples and their habits when encountered underground.

## Wombats

Wombats have been sighted in many caves around Australia. Typical examples in NSW include Yarrangobilly and Cooleman Plain (Kosciusko National Park) and Mt Fairy Caves. Obviously small horizontal cave entrances are ideal as the wombats can just walk in and then dig out a small side passage leading from the main passage (Fig. 1), thus escaping from any cool breezes which occur along the main passage as the cave naturally breaths, due to changes in atmospheric (barometric) pressure or temperature gradients. A cave is a ready-made cavity in the rock that provides shelter from the elements and protection from predators. However wombats do like to dig their own burrows in earth, but the terrain in many karst areas has limited soft earth. Even wombats determined to dig their own burrows, may quickly reach solid rock just below the soil surface. Excavation of the earth along a rock surface may continue until they reach deeper soil that is often an in-filled solution tube within the limestone bedrock. Their excavations may then break into open cave passage.



Fig 1 - Wombat in Zed Cave (MF35)  
Mount Fairy, NSW

Wombats have been encountered by cavers up to 50 metres from the entrance, well into the dark zone. Sometimes they can be quite curious and timidly approach a caver (Fig. 2), while other times they will run into a small passage, whereas a defensive instinct they curl up so that their hard rump takes up most of the hole (Fig. 3). Grunts are often made by the wombat to scare off the perceived threat – us humans.

On a humorous note, Hills Speleology Club report that there is no foul air at the Mount Fairy caves. However humid, smelly air is definitely found in some caves, notably those used by large wombats. (Hills 1992).

In karst areas in the Snowy Mountains (Kosciuszko NP) NSW, winter poses additional challenges with heavy snowfalls reducing the availability of food and the ability of young wombats to move about in deep snow. In 1995 on a cross-country skiing trip with eight others we were lucky enough to be in the right place at the right time to observe a baby wombat being carried on its mother's back across the snow.



Fig 2 - Caver meets a curious wombat in  
Main Cave (MF1) Mount Fairy, NSW



Fig 3 -Wombat displays defensive strategy by blocking passage with its hard rump, Zed Cave (MF35), Mount Fairy, NSW



Fig 4a -Baby wombat climbing onto its mothers back Aug. 1995 - near Horsecamp Hut, Kosciuzko NP, NSW



Fig 4b -Wombat baby piggybacks on mother Aug 1995 - near Horsecamp hut

It was carried some considerable distance (more than 20 metres), piggy-back style through the snow to a patch of exposed grass where the baby dismounted and ate the grass (Fig. 4a, b). When they had finished grazing the baby climbed back onto the mother's back and was carried back to their burrow (Smith 1996, Triggs 1996, Woodford 2001). Wombat experts have confirmed that this was the first time such behaviour had been recorded.

### Platypi

Platypi are also frequently found in some caves around Australia. It is well known that they venture a very long way into stream caves to feed, sleep and nest in the sandy banks along the underground rivers. Locations in Tasmania include Gunns Plains tourist cave (PWST 2006) and Croesus Cave, Mole Creek (Rutledge 2002) (Fig. 5). Also, it is highly likely they are venturing into Jenolan Caves, NSW just upstream from the Blue Lake. However, platypi will typically venture out of the cave on a daily basis to feed in the surface streams where food is more plentiful.

### Possums and rats

Rats and possums have been widely reported well within the dark zone of caves (Figs 6, 7). Rats are amazing scavengers and can survive on anything they find, from troglotic insects such as cave crickets, to dead bats through to any food scraps left behind by cavers. This is why it is important that cavers don't drop any food scraps underground. We don't want to encourage rats to take up residence in caves.

Possums can be found nesting well within the dark zone of a cave. Their nests typically consist of a mixture of vegetation that they have carried a long way into the cave's dark zone (Fig. 8). A cave provides a safe haven out of the weather, however possums must come out of the caves each evening to feed above ground.

### Reptiles

Snakes can typically be found in relatively warm caves in tropical areas of Northern Australia where there is an abundance of food i.e. bats. An example is the Brown Tree Snake (*Boiga irregularis*) also known as the banded tree snake that is found in the Ningbing Range caves of far north Western Australia (Fig. 9). In the dry season (winter) the cave temperature range is typically 28-30° C, but in the summer the temperature in some caves can reach >38° C due to air flow from the surface.



Fig 5 - Platypus swims in crystal clear water about 1km inside Croesus Cave, Mole Creek, TAS



Fig 6 - Brushtail possum about 25m insides GL-12, Gloucester Caves, NSW



Fig 7 - Australian bush rat (*Rattus fuscipes*) in Cascade Cave, Gloucester, NSW



Fig 8 - Brushtail possum on nest of vegetation in Black Shawl Cave, Mole Creek, TAS

In other areas of the Kimberly region, Western Australia, Childrens Pythons (*Liasis childreni*) have been observed and photographed catching and eating bats in caves (Shine 1991). An unidentified species of snake was observed attempting to eat a large green tree frog in 'Whacked-Out Crazy Maze' cave in the Kimberly (Eberhard 1999).

Children's Pythons have also been recorded at Mt Etna Queensland in Bat Cleft Cave (Anon 1979, Symons 1985, Beale 1987, BBC 2009), catching Little Bent-Wing and Eastern Bent-Wing bats (*Miniopterus australis* and *Miniopterus schreibersii*). The Children's Python (*Antaresia childreni*) was named after John George Children, an English naturalist. They are typically reddish brown with smooth-edged darker brown blotches along the length of the back and have a cream-coloured belly. The average length is 75 cm. These pythons are commonly found in Queensland, Northern Territory and northern Western Australia.

The Spotted Python (*Antaresia maculosa*), shares many similarities to the Children's Python, including preying on bats. According to S.K. Wilson (2022), "Antaresia maculosa has become famous for its habit of aggregating to capture bats emerging from clefts at Mt Etna, north of Rockhampton".





Fig 9 - Northern Brown Tree Snake waits for bats in KNI159, Ningbingis, WA



Fig 11 -Gecko lizard (*Phyllurus cornutus*) in the twilight zone of YE-13, Yessabah, NSW

The snakes enter the caves and wait in crevices and on ledges, for the bats to exit or enter the cave for their nightly feeding. The snakes hang from the ceiling or walls waiting for the unsuspecting bats to fly past. In total darkness the snakes lunge at the bats flying past, guided by their infrared thermal radiation sensing organs in the front of their head. Different snakes can detect radiant heat at wavelengths between 5 and 30  $\mu\text{m}$ . Infrared sensors allow these snakes to strike prey accurately in total darkness, and detect warm (infrared radiating) objects from several metres away.

The pythons grab the insectivorous bats as they fly past and quickly curl their body around to suffocate their prey while clinging to the rocks with their strong tail. The snake then grips the bat with their fangs on alternate sides of their jaw, moving one side of the jaw and then the other along the prey till it can swallow the bat whole. It produces lots of saliva to help slide the prey down its throat and along the digestive tract. Python ribs are not anchored to its sternum (as in other animals), thus allowing the ribs to stretch apart as the food moves along the snake's body. The pythons have relatively small scales and very stretchy skin, which allows the body to expand as the prey moves along the snake's body in the digestive tract.

Gecko lizards (Fig. 10, 11, 12) are often found in the twilight zones just inside the cave entrances. This area provides shelter and a relatively safe environment to live. There is also an abundance of insect life around the entrance chamber. However, occasionally other types of lizards that normally live above ground may wander too far into a cave and become lost (Fig. 13) and if they don't find their way out in time, may starve to death.



Fig 10 - Gecko lizard (*Underwoodisaurus millii*) in twilight zone of Hill Cave, Timor, NSW

### Accidentals or incidentals

There are other instances where animals and reptiles are found in caves, however many of these have not entered the caves by choice. Examples are kangaroos, cows and dogs, that have accidentally fallen into a cave and can't get out (Vincent 1994, Murphy 2016). If they survive the fall and can't get out, they usually perish. At Gloucester Caves in the Hunter Valley NSW, it is common to find Eastern Snake-necked turtles (*Chelodina longicollis*) also known as the Eastern Long-necked turtle, that have been washed down the blind valleys into the caves by flood water (Fig. 14). They can survive for months wandering around in the depths of the cave's stream passages. On many occasions members of NHVSS have rescued turtles from the two main caves and carried them to the surface for release into nearby dams.

Underground streams, often contain an abundance of aquatic life including, freshwater crayfish, fish, eels and shrimp. However, this topic is best covered in a separate article.

### Acknowledgements

Thankyou to Bob Kershaw for supplying several references relating to snakes in caves, and Katerina Fulton for proof reading.



Fig 12 -Gecko Lizard ( most likely *Gehyra xenopus*) at top entrance of KNI090 - Ningbing WA



Fig 13 - Dragon Lizard (*Gemmatophora muricata*) well into the dark zone of Main Cave (PH-1), Pilchers Mountain, NSW



Fig 14 - Eastern Snake-Necked Turtle (*Chelodina longicollis*, Subfamily- *Macrochelodina*), washed by flood-water, more than 100 m into Cascade Cave (GL-1), Gloucester NSW

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A black and white photograph of a person standing in a cave. The person is wearing a helmet and a jacket, and is looking towards a waterfall. The cave walls are dark and textured, and the waterfall is illuminated by a light source, creating a bright contrast. The overall mood is adventurous and rugged.

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