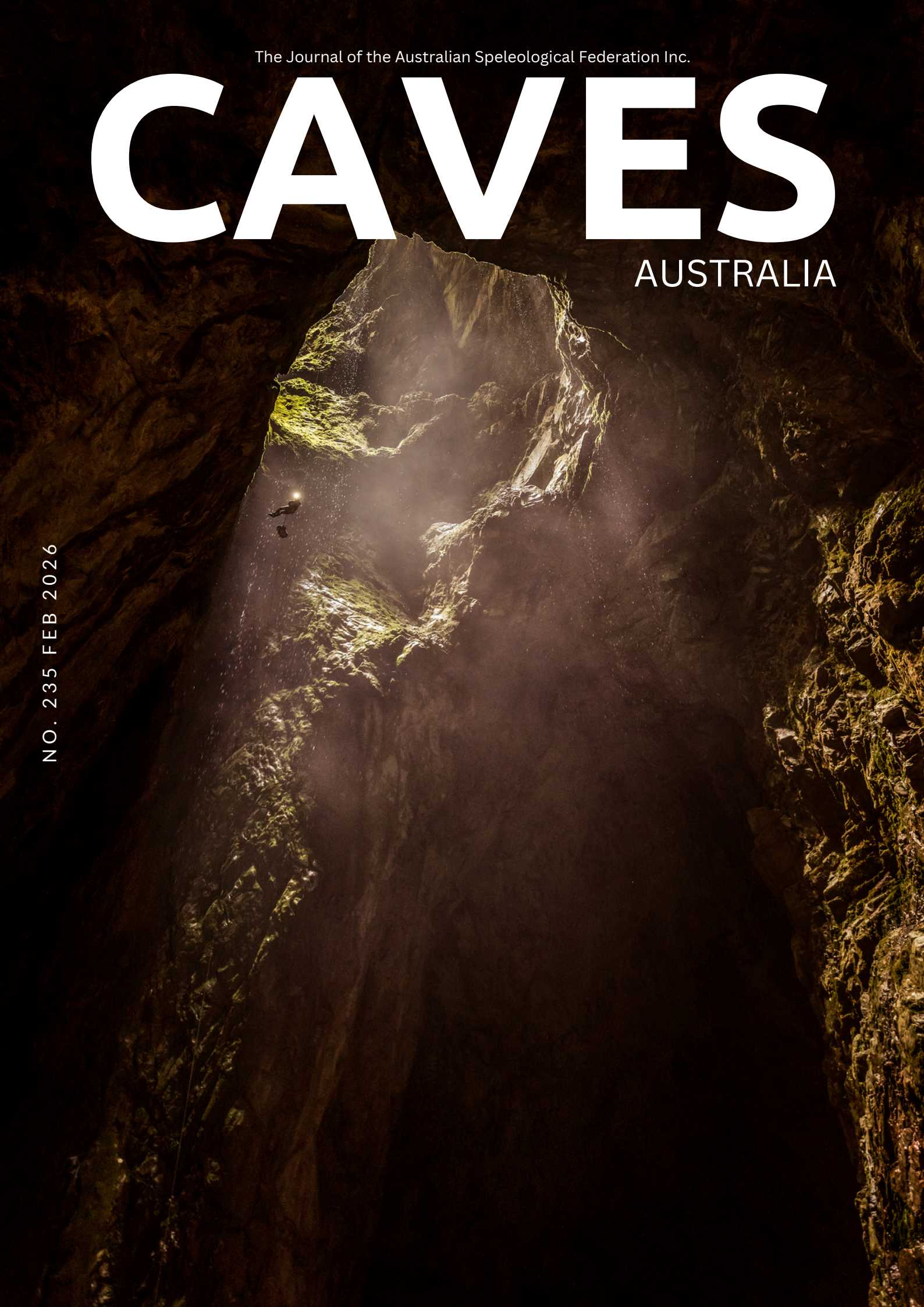


The Journal of the Australian Speleological Federation Inc.

CAVES

AUSTRALIA

NO. 235 FEB 2026



CAVES AUSTRALIA

CAVES AUSTRALIA

CAVES AUSTRALIA IS THE JOURNAL OF THE AUSTRALIAN SPELEOLOGICAL FEDERATION INC. AND IS PUBLISHED QUARTERLY.

THIS WORK IS © COPYRIGHT 2026, AUSTRALIAN SPELEOLOGICAL FEDERATION INC., ALTHOUGH COPYRIGHT IN ARTICLES, PHOTOGRAPHS AND ILLUSTRATIONS REMAINS WITH THE AUTHORS. ASIDE FROM ANY FAIR DEALINGS FOR THE PURPOSES OF PRIVATE STUDY, RESEARCH, CRITICISM OR REVIEW AS PERMITTED UNDER THE AUSTRALIAN COPYRIGHT ACT 1968, NO PART MAY BE REPRODUCED WITHOUT THE WRITTEN CONSENT OF THE AUTHOR AND/OR PUBLISHER AND THE INCLUSION AND ACKNOWLEDGEMENT OF THE SOURCE.

THE VIEWS EXPRESSED IN CAVES AUSTRALIA ARE NOT NECESSARILY THOSE OF THE EDITOR OR PUBLISHER (THE AUSTRALIAN SPELEOLOGICAL FEDERATION INC.) OR ITS EXECUTIVE, COMMISSIONS OR COMMITTEES.

EDITOR, PRODUCTION AND ADVERTISING MANAGER:

NADINE MURESAN
EMAIL: ASF.CAVESAUSTRALIA@GMAIL.COM

PROOFREADING:

KEVIN MOORE
ALAN JACKSON
GREG MIDDLETON

ASF: ASF.CAVES.INFO@GMAIL.COM
FOR ALL ASF PUBLICATIONS: ASF.CAVES.SALES@GMAIL.COM
EDITORIAL CONTRIBUTIONS ARE WELCOME!
FOR CONTRIBUTOR GUIDELINES, CONTACT THE PRODUCTION MANAGER.

ADVERTISING

CONTACT THE PRODUCTION MANAGER FOR COMMERCIAL, CAVING COMMUNITY AND CLASSIFIED RATES. RATES RANGE FROM \$5 TO \$400 FOR FULL PAGE MONO BACK COVER. DISCOUNTS APPLY FOR PLACEMENTS OF 4 ADVERTS AND AN UP-FRONT PAYMENT.

REQUEST FOR ARTICLES 2026

JANUARY, APRIL, JULY, OCTOBER

ISSUE DATES FOR 2026

FEBRUARY, MAY, AUGUST & NOVEMBER

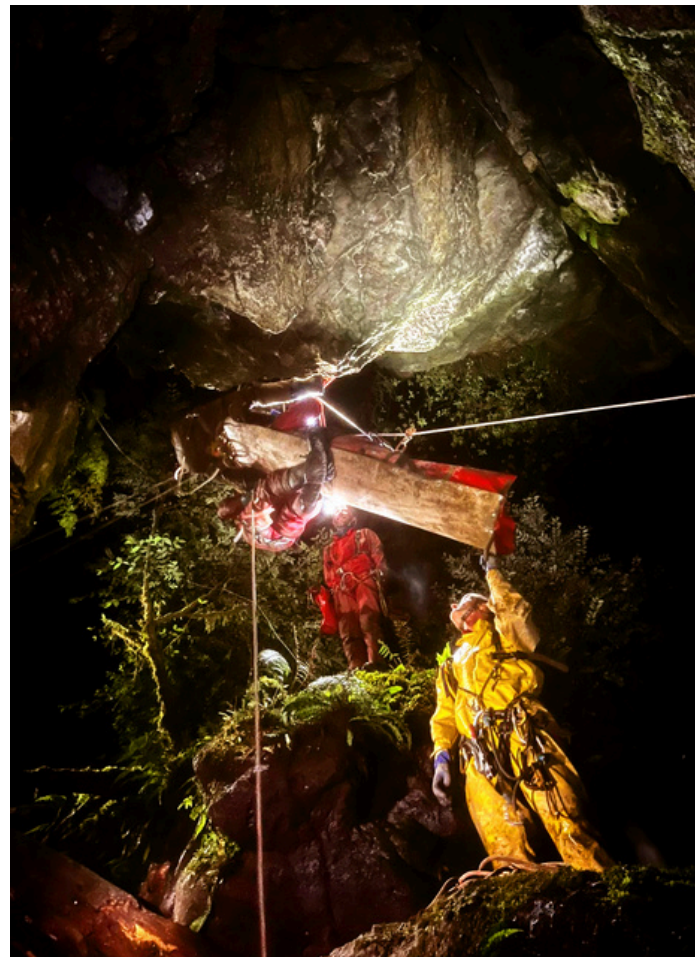
MAGAZINE SUBSCRIPTION

DIGITAL CAVES AUSTRALIA IS INCLUDED WITHIN ASF MEMBERSHIP FEES.

COVER: "DIDN'T DIE, WOULD REPEAT" - HARWOODS HOLE TAKAKA HILL, AT 183M, IS THE LARGEST SINKHOLE IN THE SOUTHERN HEMISPHERE LET ALONE NEW ZEALAND - PHOTO BY ADAM GEARING



Bones in M99 = Smelly Pot Buchan - Photo by Nadine Muresan



Cave Rescue Exercise Khazad-Dûm Tasmania - Photo by Allison Irvin

Table of Contents

| | |
|---|----|
| President's Report <i>Andrew Stempel</i> | 04 |
| A Day Trip to Cape Volney <i>Peter Ackroyd</i> | 06 |
| Tenure and Significance of Ningbing Range, East Kimberley Region, WA <i>Denis Marsh</i> | 09 |
| Tasmania Training Camp <i>Nadine Muresan</i> | 13 |
| Limestone Caves in the Mount Royal Range, NSW <i>Garry K. Smith</i> | 17 |



Mole Creek cave Harvestman (*Hickmanoxyomma gibbergunyar*) - Photo by Deb Hunter



Wobble Bubble Straw in Baldocks Cave - Photo by Deb Hunter



'The Light Side' AU-011 Moondyne Cave - Photo by Daniel Lansom

President's Report



STC sarX in 2019 - Photo unknown

Welcome to 2026! I hope everyone had a festive holiday season filled with new caving gear, good food, and plenty of time catching up with family and friends. I also hope your New Year's resolutions are still going strong - with caving at the top of that list.

The ASF new year kicked off on 11 January with the Council Meeting and a chance to reflect on the year that was. Once again, it was fantastic to see solid representation from clubs across the country, with very few proxies thanks to the magic of Zoom. While it may lack the post-meeting pub discussions, it certainly helps get people around the virtual table.

A couple of highlights from the meeting: Cave Rescue Victoria was admitted to the ASF as a Corporate Member, and the RMIT Outdoor Club - Caving (ROCC) joined as a Provisional Member. Congratulations and welcome to the ever-growing team. It's always great to see new groups joining and helping bring more cavers into the incredible underworld we all enjoy.

Council also passed a motion to progress towards transitioning our membership database services to RevolutioniseSport. If everything lines up, this should help streamline quite a few administrative processes across our steadily growing organisation. A big thank you to Rod Smith for the research behind this, and to Mike Lake and David Connard for their expertise and thoughtful input.

There was also some early discussion around establishing an ASF Training Commission, largely in response to the increasing access and competency expectations we're seeing around the country. Council generally supported the idea as worthwhile and something that deserves further investigation. More work will happen throughout 2026, with outcomes expected to come back to Council in 2027. Stay tuned.

On another positive note, Cathie Plowman has continued her fantastic work with the Cave Animal of the Year project, including launching a brand-new website: www.caveanimals.com.au. It's a great platform to showcase the fascinating animals that share our caves and help raise awareness about cave conservation. I encourage everyone to have a look and share it around.

It has also been a big year for several clubs. MSS celebrated 60 years, while CEGSA reached the impressive milestone of 70 years. Congratulations to both clubs - those are incredible achievements. I'm sure there are other anniversaries I've missed, so please let the Executive know. We love celebrating these milestones. The ASF is slowly creeping toward a big birthday, with our 75th anniversary coming up in a few years. The 2029 Conference might be a perfect opportunity to celebrate, so if you have any bright or slightly outrageous ideas, please send them through.

There was also strong interest in Executive positions this year, with seven nominations for four vacancies. It's genuinely encouraging to see that level of enthusiasm to support the Federation. I'm very pleased to report that Sil Iannello was re-elected, and we welcomed Tim Hodge, Liz Irvin, and Nadine Mureşan to the Executive. Congratulations - I'm really looking forward to working with you all this year.

I would also like to send a gigantic thank you to Phil Maynard and Colin Tyrrell, who have stepped down after an incredible combined 30 years of service to the ASF Executive. Over the years, Phil has served as Vice President, Executive Secretary and General Secretary, while Colin has served as Vice President, Membership Secretary and Senior Vice President. Their knowledge, dedication and steady leadership have helped shape the Federation enormously. On a personal note, thank you both for your support of this relatively young President - it has been greatly appreciated, and you will both be missed.

Due to reporting commitments and the timing of the Chillagoe Conference (June 2027), the next Council Meeting will be held on 10 January 2027, again via Zoom. The minutes from the recent Council Meeting have been circulated to club representatives, and the ASF Annual Report is now available on the ASF website for anyone who enjoys some excellent bedtime reading.

As I work my way through the Annual Report each year, I'm always reminded of just how much time, effort, and expertise our Commissioners and all of our volunteers contribute to this Federation. The ASF simply wouldn't function without you, and it really is something special to be part of.

As I write this report, I'm packing for an upcoming ACRC event focused on improving cave rescue preparedness across Australia, followed by a rescue exercise coordinated by STC. It's yet another example of the incredible skill set within the Federation and how well we work together when it matters most.

Cheers to the New Year. Hopefully, I'll catch many of you underground at some point during 2026!

Andrew Stempel

A Day Trip to Cape Volney

Peter Ackroyd



Gerhard Noss in Seal Den's main chamber on 13th December 1997 -
Photo by Peter Ackroyd

Author's note: this article was written many years ago and has languished unpublished in a desk drawer until now.

Introduction

Victoria has many sea caves. To the south-east of Melbourne are lava caves exposed by wave action and to the west are limestone caves, similarly exposed. Of these, the marine caves at Cape Volney are, without doubt, among the best.

They present exciting access conditions, steep access walks, a few cliff climbs and, sometimes, the adrenalin rush that comes from dodging huge waves coming in off the Southern Ocean. However, there is a reward when the caves are reached — moderately sized caverns and passages, often with good decoration.

Cape Volney

Cape Volney is located in the Otway Ranges area, 15 kilometres south-west of Lavers Hill. It is the next cape to the west after Cape Otway. A trip to the area in November 1997 turned up many caves, some of which I was able to survey.

There was one cave I was only able to visit in a rush, just before the tide cut off access. During that brief reconnoitre I was able to establish this was a significant cave that housed many seals and deserved to be surveyed.

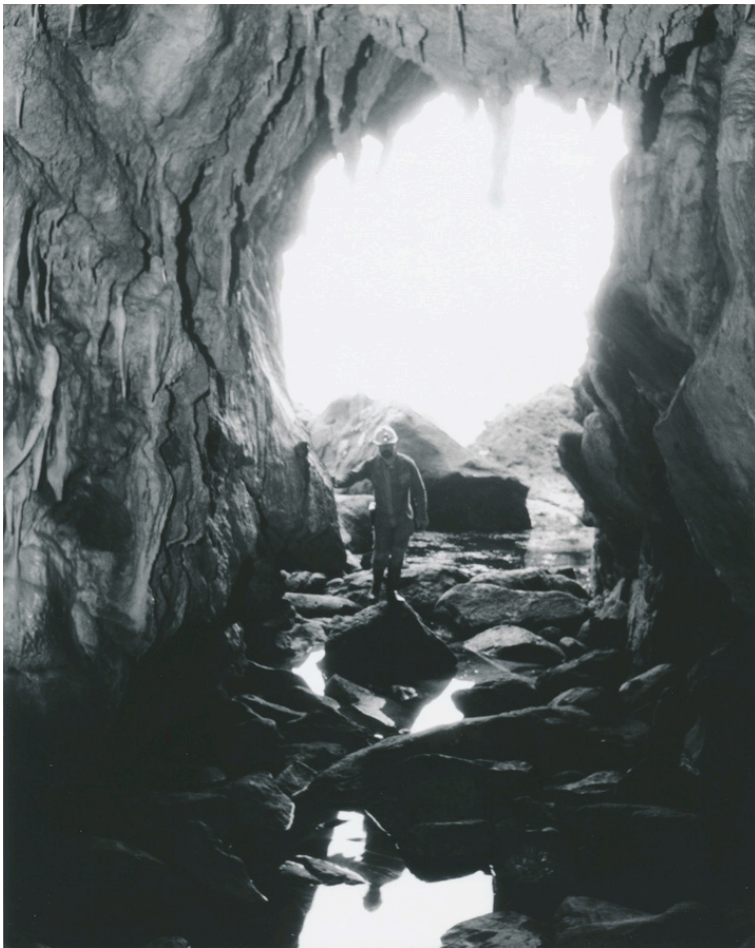
Return Trip

When fellow caver, Gerhard Noss, returned from a business trip to the USA he heard of this Cape Volney trip. His appetite whetted, he convinced me that an early start from Melbourne to pick him up at Geelong would allow us time to survey and photograph the cave and allow a little sight-seeing into the bargain.

A little after midday on Saturday, 13th December 1997 we arrived at the Cape Volney 4-wheel-drive track, just before low tide. Forging our way down the slope to the tip of Cape Volney, I showed Gerhard a couple of known caves. We checked out SW-34, which, beyond a fall of rock partially obscuring its entrance, is a typical joint-oriented cave with passages around 3 metres wide and 7 metres high and totalling 70 metres in length. The cave contains a fair amount of gypsum and moon-milk decoration. In a side passage there is an old mound of bat guano.

The cave had a second entrance out to the face of the sea cliff, about 6 metres above the crashing waves that flowed into a fissure below SW-34. A careful traverse along and across the top of the cliff leads back to the tagged entrance.

To reach our main goal, Seal Den, we had to retrace our steps back to the 4WD track and head north to a jump-off point I'd taped to mark a steep scrubby descent to a cobbled beach. We scrambled south across the 200 metre stretch of cobbles and rocks while the tide was still low to reach the main entrance to the cave.



Gerhard Noss at the southern-most of the three entrances to Seal Den on 13 Dec 1997 - Photo by Peter Ackroyd

Gerhard was suitably impressed with the cave's size and general form plus the nice collection of decoration it sported. I installed a tag on the right-hand side of the main entrance, the northern-most of the three entrances to this cave.

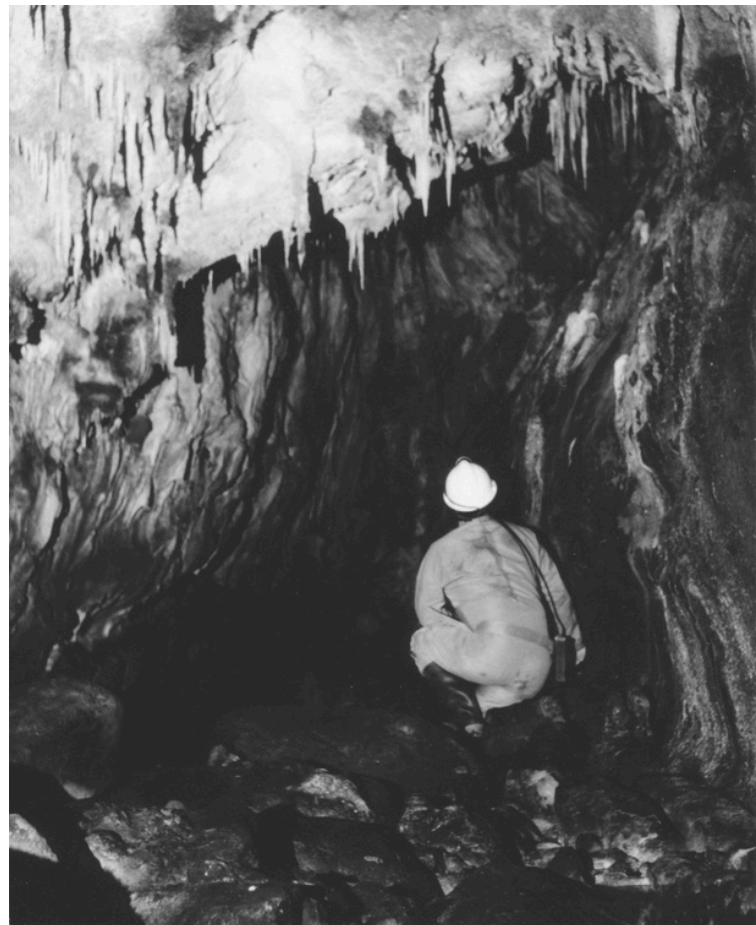
Seal Den appears to have developed along two joints and a bedding plane. The bedding-plane entrance is the tagged entrance, which faces into a bay. The other two entrances face the Southern Ocean and thus are exposed to the full force of the waves. Both these latter entrances have a floor level at, or slightly below, low-tide level whereas the bedding-plane entrance is above. This entrance has orange stains on its rocks which we traced back to a leachate oozing from a point in the floor of the cave.

The wide but low passage leading from the northern entrance quickly led to some good speleothems. The low and wet middle entrance leads to a "gully" intersecting the main passage where there is a fine display of pure white flowstone and stalagmites.

It's at this point that we became aware of a terrible smell. The source of this was revealed after travelling a few more metres – a sizeable slab of rock on top of which was a black hollow, darkened, presumably, by the perambulations of generations of seals dining on their catches. In the centre were countless fishbones. Fortunately, no seals were present during our visit. On an earlier trip to another sea cave I had been rather too close to a herd of stampeding seals and I had no wish to repeat the experience (Ackroyd, 1991).

Not far past "The Dining Table" we came into a spacious passage, well lit by the daylight streaming in from the large, southern-most entrance. The 4 metre wide passage was 7 metres high and sported an array of jagged stalactites.

This joint-controlled tunnel continues into the cliff for some distance, rising slightly. At its beginning is a shallow pool after which the floor consists of a 200 mm thick layer of well-rounded, evenly sized pebbles. The passage gradually becomes smaller and the floor becomes sandier. After about 30 metres, and in an increasing smelly environment, we came upon a low area where sensible people may have retreated.



Gerhard exploring side passage in Seal Den on 13 Dec 1997 - Photo by Peter Ackroyd

At this point the ammonia stench was very strong. The passage, now quite narrow, soon pinched out. Here there was a collection of bones and a skull with a ridge of bone along the top. Gerhard surmised it was the skull of a seal.

Time and tides stop for no caver so, under a certain amount of pressure from Gerhard, we finished up the survey and, while I took GPS readings of the location Gerhard looked at an adjacent 25 metre fissure cave a few metres north of Seal Den.

Getting considerably wetter than during our approach, we returned to our scrubby access route. On the stiff climb to the top of the cliffs, Gerhard apparently decided to assess the density of the local scrub. After a few "coo-ees" Gerhard re-emerged, a little the worse for wear.

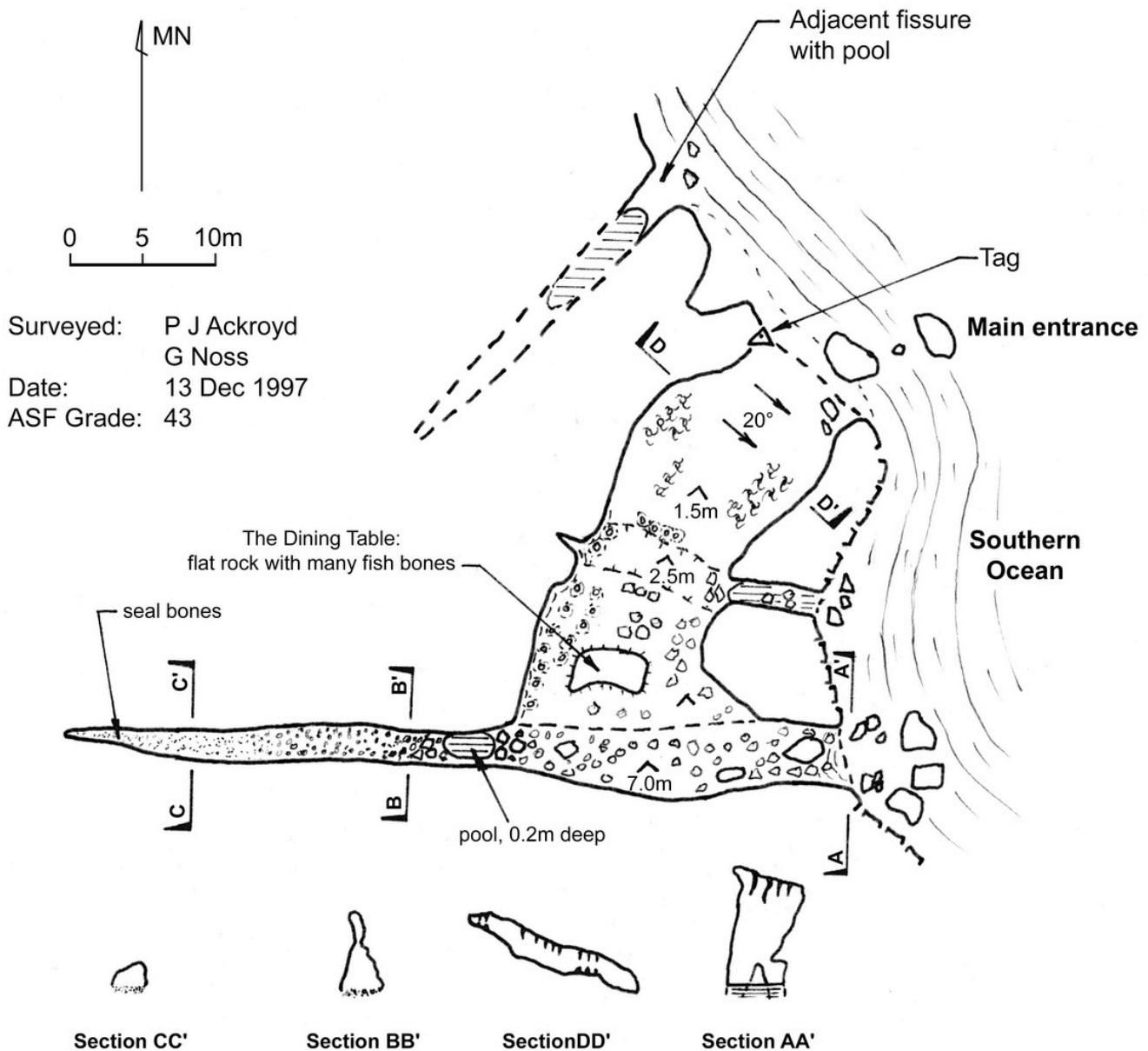
It was now 8 pm so in the semi-darkness we made our way to Gerhard's car parked at the beginning of the rough part of the 4WD track to end our day trip to Cape Volney.

Reference

Ackroyd, Peter (1991), A Grand Tour of Western Victorian Karst. *Nargun* Vol 24 No 5, pp 43-45.

3SW-41: Seal Den, Cape Volney

Plan View



Drawn: P J Ackroyd, 16 Dec 1997

Tenure and Significance of Ningbing Range, East Kimberley Region, WA

Denis Marsh



Location map for Ningbing Range, WA

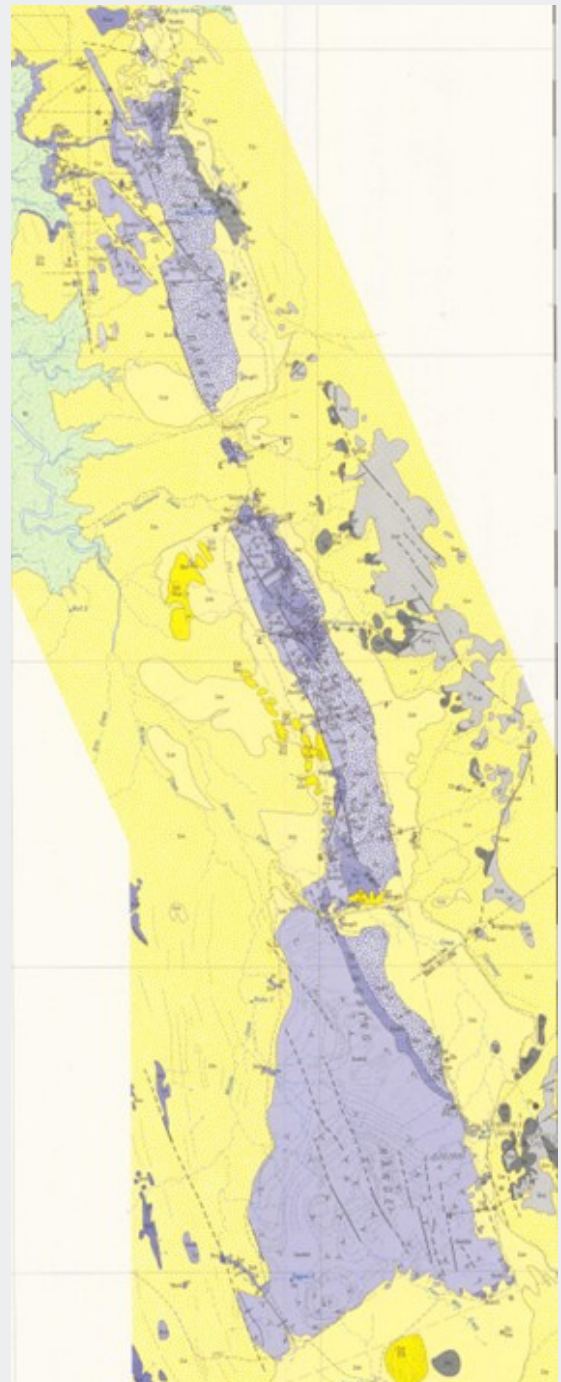
The Ningbing Range is located in the Bonaparte Basin in the East Kimberley region of WA, approximately 60 km north of Kununurra. The range protrudes from the surrounding alluvial plain, roughly separated into three sections, extending for approximately 43.5 km in a NNW orientation. Access is via Carlton Hill Station. For the most part, the Ningbing Range lies within the 25,529 ha Mijing Conservation Park, (reserve R49691), while the remaining southernmost part sits within the 476,000 ha Carlton Hill Pastoral Lease (NO49952). A permit must be obtained from the Parks and Wildlife Service to conduct remote caving activities in the Mijing Conservation Park and prior permission must be obtained to enter and cave on Carlton Hill Station lands. West of the range is the Ramsar listed Ord River Nature Reserve, (R31967), and Cambridge Gulf, and to the north is the Joseph Bonaparte Gulf and Indian Ocean.

The monsoonal climate of the region provides an average annual rainfall of approximately 780 mm at Carlton Hill, which occurs between the months of November and April (Solem 1988b), although an unseasonal fall of 75 mm of rain was observed in May 2025.

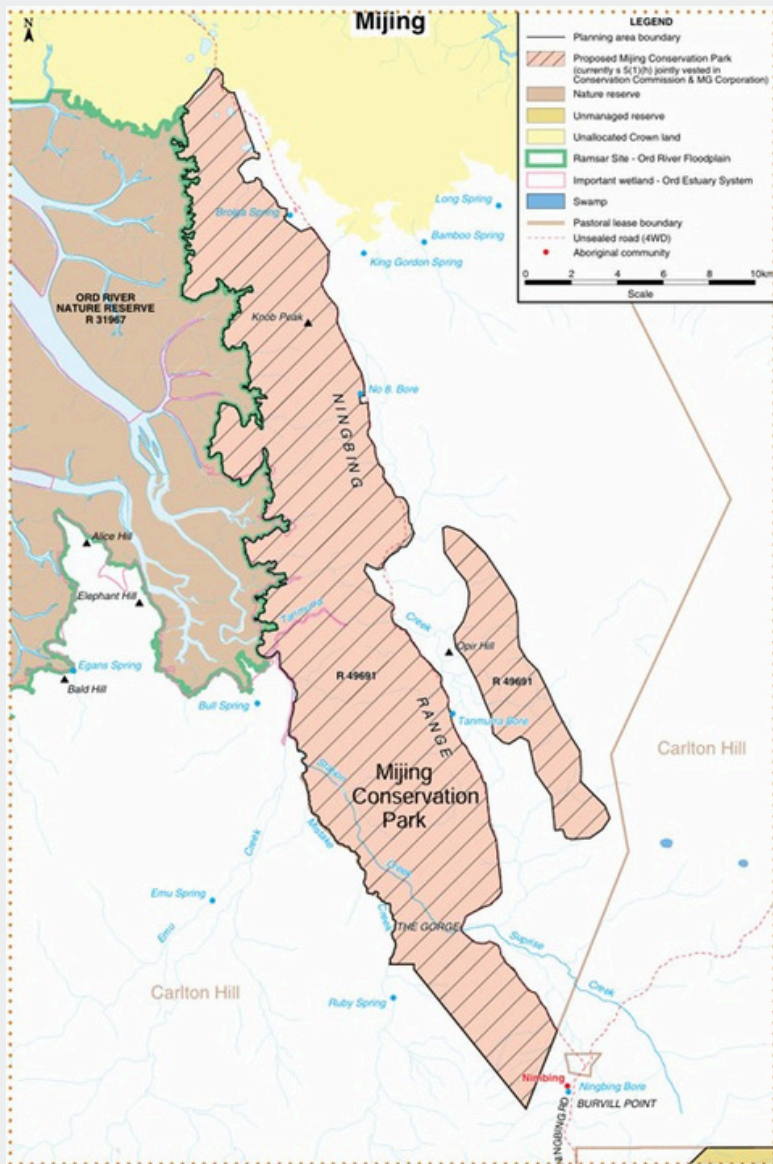
The Mijing Conservation Park is owned by the Yawoorroong, Miriung, Gajerrong and Yirrgab Noong Dawang Aboriginal Corporation (MG Corporation) for the Miriung and Gajerrong people (MG People) with freehold title of Mijing subsequently granted under the Ord Final Agreement 2005. Under an Indigenous Land Use Agreement (ILUA), the Park is leased to WA Parks and Wildlife, Department of Biodiversity, Conservation and Attractions, DBCA (formerly Department

of Environment and Conservation, DEC), for a term of 100 years, and up to 9 consecutive further terms. Under the ILUA, the Park is jointly managed with the MG People, who under the agreement have input to management decisions and maintain access and connection to country, and opportunity to continue cultural practices.

The Wardanybeng (or alternative spelling Wadainybeng) skin group (clan/family group in the kinship system) of the Gajerrong People (the broader language group) are the traditional Indigenous people closely connected with Mijing. (Mijing – is the Gajerrong word for limestone)



Devonian & Carboniferous Geology of Ningbing Range (showing extent of limestone) – Bonaparte Basin, WA. (source: Geological Survey of WA, Dept. of Mines W.A.)



Map source: Yoorrooyang Dawang Proposed Conservation Parks Draft Management Plan 2011 (DEC).

The Ningbing Range, which is the defining landscape feature of Mijing Conservation Park, consists predominately of outcropping limestone laid down as part of an ancient Late Devonian barrier reef system 360-380 million years ago, and contains extensive deposits of marine fossils (Playford et al. 2009). Unlike modern day reefs, which are formed from corals bound by algae; the Ningbing reefs are unique in that they were primarily formed from stromatolites and stromatoporoids (Marsh, 1997). Periods of tectonic uplift of the north Australian Kimberley region, reputed to have occurred in the Triassic-Jurassic (Arne et al. 1989) and again in the Late Tertiary (Grimes 1974; Webb 2017), may have been integral to the current exposure of the Ningbing Range. The limestone strata are a mix of thinly-bedded layers and thicker more consolidated layers, with little to relatively minor dip in the bedding planes. Two westward flowing creek systems have incised through the range, Surprise Creek/Station Creek at 'The Gorge' and Tanmurra Creek approximately 13 km further to the north. These creeks drain NW to the Cambridge Gulf. Several minor ephemeral streams in the area contain Tufa deposits downstream of springs. One of these has well developed Tufa dams to around 0.8 m high and 6 m wide.

A smaller Carboniferous age sandstone range, also included in the Mijing Conservation Park reserve, lies parallel with and immediately to the east of the Ningbing Range, partly overlying the Devonian limestone (see the map of Mijing above). Another smaller quite separate Devonian limestone outcrop known as Jeremiah Hills lies some 13.6 km SE of the southern tip of the Ningbing Range. The Ningbing Range is significant for its important cultural, natural and biodiversity values. It has important cultural heritage sites, with the many caves and hills associated with traditional stories (Hill et al. 2008). There are many registered sites including mythological places, ceremonial sites, quarry sites, artefact/scatters, midden/scatters, paintings, grinding patches/grooves, engravings and skeletal material/burial. All sites are formally registered on the DIA Register of Aboriginal sites and protected under the *Aboriginal Heritage Act 1972*.



Park sign - Photo by Denis Marsh

The limestone range and its karst outcrops are surrounded by dense, low deciduous vine thickets. These are uniquely diverse and species-rich in comparison to similar areas in the North and East Kimberley. The surrounding lowland alluvial plain is open savannah (Eucalyptus) woodland and tall grassland, extensively used for pastoral grazing, with Boab (*Adansonia gregorii*) the most conspicuous tree. Some other common vegetation types include Kimberley Bauhinia (*Bauhinia cunninghamii*), Bat's Wing Coral (*Erythrina vespertilio*), Kimberley Heath (*Kalytrix extipulate*), Kapok Bush (*Cochlospermum fraseri*), River Cadjeput (paperbark) (*Melaleuca leucadendra*) along watercourses and several species of fig on the karst.

The Ningbing Range has unique fauna representatives, and its topography provides important habitat and refuge from fire (Graham and White 1999).



Tufa dam - Photo by Denis Marsh

Studies of threatened endemic Camaenid land snail populations and distributions in Mijing have identified the significance of the Devonian limestone outcrops in providing critical habitat for perhaps the greatest concentration of short-range restricted endemic species found anywhere in the world (Graham and White 1999). Most of this remarkable diversity, exclusive to limestone occurrences of the Ningbing Range and Jeremiah Hills to the south of Mijing, occurs within three restricted endemic genera of the pulmonated land snail family Camaenidae. *Ningbingia* (6 species plus 1 sub-species) and *Turgenitubulus* (8 species) are restricted entirely to limited outcrops of the Ningbing Ranges, while *Cristilabrum* (11 described plus 1 probably new species), are restricted to the Ningbing Range and Jeremiah Hills. These 27 species have a highly restricted range varying from 0.01 km² and a maximum total range of 7.45 km² (median range 0.825 km²) (Solem 1988b). That is, areas of less than 1 km² can cover the entire range of a number of these endemic land snail species found nowhere else on earth. *Ningbingia australis elongata*, for instance, occupies a range of only 0.01 km² (Solem 1988b) however, given that much of the exposed limestone consists of solid masses that would not provide any sheltered habitable sites, calculation of occupied range is difficult and would likely be somewhat less.

Within the Ningbing Range, *Ningbingia* occurs in the northern Ningbing Range; *Turgenitubulus* occurs in the central Ningbing Range and in isolated hills to the north and in 'The Gorge' and 'The Pillars'; and *Cristilabrum* occurs in the southern Ningbing Range as well as in the Jeremiah Hills (and outliers) (Solem 1981, 1985, 1988c, Solem & McKenzie 1991). Additionally, these 27 endemic species of land snails are supplemented by another 16 common/more widely distributed indigenous land snail species.

Many areas within the limestone range have not been surveyed. It is expected that additional species, and perhaps genera, will become known when further sampling and taxonomic description are conducted (Pearce, 2005).

Shaded rubble and crevices, leaf litter accumulation and associated vegetation assemblages found throughout the Upper Devonian Ningbing limestone outcrops, provide the critical habitat required by these Camaenid land snails. Given the highly restricted range of each species, all known habitat for wild and potentially translocated populations of each species should be treated as critical for their conservation.



Northern Freetail Bat, Ningbing Range, WA - Photo by Denis Marsh

Camaenid species aestivate (spend hot or dry periods in a prolonged state of torpor or dormancy) during dry periods. Activity is highly dependent on moisture availability therefore in arid or semi-arid areas, land snails must compress activity into very short periods during only a fraction of the year. Approximately 10 mm of rain is required to break aestivation and stimulate activity. They produce a seal of calcified mucous across their shell aperture and remain dormant until suitable conditions prevail. In the Ningbing area, Camaenids are active for approximately 80 days (nights) each year with peak periods of activity in November, December, February and March (Solem 1988b).

Other fauna recorded for the Ningbing Range and Jeremiah Hills to the south includes at least twenty-one species of bat and sixty-five species of birds (Marsh, 1997).

References:

Geological Survey of WA, *Bulletin 134*, Plate 3 (Department of Mines, W.A.)

Environment Plan - Summary, Ningbing West Accelerated Weight Drop Seismic Program 2024 (Bonaparte North Pty Ltd)

Referral Report No.3, Traditional Owners, Native Title & Aboriginal Cultural Heritage, Boskalis Cambridge Gulf Marine Sand Proposal WA (Ecostrategic Consultants)

Yoorrooyang Dawang Proposed Conservation Parks, Draft Management Plan 2011 (DEC, W.A., Conservation Commission, W.A., Yawoorrooyang Miriuwung Gajerrong Yirrgeb Noong Aboriginal Corporation)

Kenneally, Thomson, Done & Wheeler - Common Plants of the Kimberley (Department of CALM W.A.)

Marsh, L. 1997 Botany of the Ningbing Range (Kimberley Society Past Talks)

Pearce, K. 2005 Camaenid Land Snails of the East Kimberley, Interim Recovery Plan 2005-2010 (Department of CALM. W.A.)

Solem, A. 1988 Biogeography of Land Snails from the Ningbing Ranges and Jeremiah Hills, 3 northeast Kimberley, Western Australia

Webb, J., White, S., Smith, G.K. 2023 *Australian Caves and Karst Systems*



Typical karst outcropping, Ningbing Range - Photo by Denis Marsh



Tasmania Training Camp 2025-2026: Building Rescue Capability in the Junee-Florentine Karst

26 December 2025 - 2 January 2026

Southern Tasmania

Nadine Muresan

From Boxing Day through to New Year's Day, members of Cave Rescue Victoria Inc. travelled to southern Tasmania for an intensive, week-long training camp based in Maydena. Operating in the rugged Junee-Florentine karst, the team trained across three key sites: Growling Swallet (7JF-36), Khazad-Dûm (7JF-4), and Dewhurst Quarry.

The objective was clear: sharpen technical rescue systems, strengthen leadership under pressure, and build team cohesion in realistic, high-complexity cave environments.

Laying the Foundations: Quarry Practice (26 December)

Training began at Dewhurst Quarry, where 14 participants revised and refined core vertical rescue systems.

Working in small groups, members rotated through lifting systems, counterweights and zipline configurations. The quarry provided a controlled environment to rehearse transitions and system resets before applying them underground.



Bogdan Muresan teaching everyone z-drags - Photo by Nadine Muresan

Growling Swallet: Rigging in a Living Cave

(27 December)

The following day, the team entered Growling Swallet after a 35-minute approach through dense fern forest. Snowmelt from Christmas Day fed the Junee River, creating a powerful, high-volume flow at the entrance — a vivid reminder of how dynamic Tasmanian cave systems can be.

Three teams rigged separate rescue stations:

- A zipline crossing active water
- Multiple counterbalance pitches
- Drag sections through constrictions
- A projected zipline to a tree outside the entrance

Limited rope length prevented completion of one final system, but all major stations were installed and checked in preparation for the full-scale rescue simulation the next day.



Toby Ayliffe being rescued out of Growling Swallet - Photo by Nadine Muresan

Full Rescue Simulation: Growling Swallet (28 December)

Key Operational Lessons

1. The stretcher bag must always travel with the stretcher.
2. Only essential personnel should remain near the stretcher. When rope systems provide the hauling force, excess members should move forward to prepare subsequent systems.
3. Short knots matter. Attachment length directly affects clearance in tight passages.
4. Access lines must allow passage even when the stretcher is attached.
5. Anticipate leadership positioning. Controllers and pitch leaders must not become trapped in systems.

Despite minor delays and logistical oversights, the team successfully negotiated eight rigged obstacles and completed a highly realistic evacuation scenario in challenging wet conditions.



CRV Team at the exit of Growling Swallet - Photo by Nadine Muresan



Toby Ayliffe being rescued out of Growling Swallet - Photo by Nadine Muresan

Consolidation and Repetition (29 December)

After de-rigging Growling Swallet in the morning, the group returned to Dewhurst Quarry for system integration training. Participants combined counterweights, Z-drags, zip lines, stretcher junction transfers and multiple hauling configurations in quick succession.

The evening concluded with a structured debrief – a crucial component of CRV's learning culture.



Fun back at home discussing the day's antics - Photo by Nadine Muresan

Khazad-Dûm: Multi-System Coordination (30–31 December)

Training shifted to Khazad-Dûm, where seven more advanced members first rigged the cave for access and rescue, modifying existing anchors and adding new placements where required.

While experienced members focused on installing the primary rescue systems, those with less experience were given dedicated one-on-one coaching to build their technical confidence.

These smaller sessions concentrated on practical skills such as efficient direction changes between hauling and lowering and developing stronger awareness of the controller's role within counterbalance and Z-drag systems.

This dual-track approach proved highly effective. Senior members refined their rigging efficiency and system planning under realistic conditions, while developing rescuers gained hands-on guidance in a supportive environment. It ensured that everyone progressed – whether by consolidating advanced technical judgment or strengthening foundational rescue competencies. The result was a training environment where both groups honed their skills and advanced in the areas they most needed development.

On 31 December, twelve members undertook a full-scale stretcher evacuation lasting approximately 5.5 hours, navigating nine major obstacles.



CRV Team transitioning between ziplines in Khazad-Dûm - Photo by Nadine Muresan



Sam Kouppa being rescued out of Khazad-Dûm -
Photo by Nadine Muresan

Systems Employed

- Z-drags (multiple)
- Counterbalance hauls (15m, 8 m, 9 m, and 20 m pitches)
- Sequential zip lines
- Deviation-controlled passages

Leadership transitioned midway through the exercise, testing adaptability and communication across phases.

Conclusion: More Than Technical Training

The Tasmania Training Camp delivered far more than mechanical repetition. It tested leadership style, communication clarity, casualty management and multi-system coordination under environmental stress.

Operating in Tasmanian caves with active water, vertical exposure and tight rifts provided an invaluable training ground. The complexity revealed weaknesses – but more importantly, it strengthened collective capability.

By the end of the week, the team had not only refined advanced rescue systems but also deepened trust, sharpened decision-making and reinforced a shared commitment to safe, methodical cave rescue operations.

For Cave Rescue Victoria Inc., the 2025–2026 Tasmania Training Camp marked a significant step forward in operational readiness – built on rope, rock, water and teamwork.



Sam Kouppa being rescued from
Khazad-Dûm - Photo by Nadine Muresan



Allison Irvin being rescued from
Khazad-Dûm - Photo by Nadine Muresan

LIMESTONE CAVES IN THE MOUNT ROYAL RANGE, NSW

Article and images by Garry K. Smith



Fig. 1. Typical scattered vegetation across the karst area

Author's Note: I have been regularly visiting the caves in this area over the last 53 years, initially through scouting, then also as a member of the Newcastle and Hunter Valley Speleological Society (NHVSS). Over the years the ownership of the property has changed hands a number of times. After writing this article about the caves and karst area, I contacted the current owners to gain permission to publish it. Their response was that I can publish anything about the caves but I could not publish the exact location or the name of the property on which the caves are located. This is despite there being several existing publications that list the name of the karst area and contain some limited information about the caves. Hence I have respected the property owners wishes. So, apologies in advance for the redactions in this article. I am sure that a serious researcher could identify the karst area.

Location

This karst area is located in the Mount Royal Range between Moonan Brook and Walcha. The majority of the caves are situated near a tributary of the Barnard River. The entire karst area is wholly within the boundaries of the single property. Permission must be obtained and a visitor indemnity waiver form signed before entering the private property.

Description

The karst area is scattered over undulating hills, typically covered in vegetation consisting of Grass Trees (*Xanthorrhoea glauca* subsp. *angustifolia*), White Box (*Eucalyptus albens*), Yellow Box (*Eucalyptus melliodora*), Kurrajong (*Brachychiton populneus* subsp. *populneus*), and Fig trees (*Ficus rubiginosa*) and various grasses (Fig. 1).

To date 170 caves have been discovered and most have been surveyed. The caves tend to be found well above the level of the present-day creeks, sometimes at the head of tributaries. Trees are commonly found growing in or around the entrances, and their roots often extend tens of metres into the caves in search of moisture. The majority of the caves consist of a vertical entrance pitch (Figs. 2-4) that may lead to some limited horizontal development, however more commonly they end in a level floor of soil, many with animal bones scattered around.

This karst area is notorious for foul air in the deeper caves, which can be deadly if the warning signs are not heeded (Fig 5). Foul air is an atmosphere that contains greater than 0.5% CO₂ and/or lower than 18% O₂ by volume (Smith 1996). Therefore, only experienced speleologists should enter the deeper caves.

The deepest caves so far discovered are: Long Drop (GR117) at 49m (Rutledge 2009), Doug Cave (GR9) at 47.5 m (Smith 2013) (Fig. 6) and Hens Teeth Cave (GR30) at 47 m. Doug and Hens Teeth caves have the potential to be much deeper, however exploration has been halted on each occasion by exceptionally high concentrations of foul air.

The most significant caves in the area are: Figtree Cave (GR1), Doug Cave (GR9) Overseers Cave (GR11), Curtains and Lace (GR19), Sentinels (GR23), Hens Teeth (GR30), Good Drop (GR32), Bats and Bandicoots (GR43), Elevator Shaft (GR68), Serpents Semetry (GR86), Grime of the Century (GR100), Long Drop (GR117) and Death Trap Cave (GR124).

Many of the caves are sparsely decorated, however there are some exceptions such as Death Trap Cave (GR124), Don't Let Go Hole (GR109) and Long Drop (GR117) (Figs. 7-9).



Fig. 2. Entrance to GR17, typical of many of the vertical cave entrances

On the western side of a hill about 4 metres above a small creek, is an active efflux (GR78) which has a considerable flow of water issuing from it after soaking rain (Fig 10). This indicates that the limestone hill from which it flows contains considerably more cave than has currently been found.

Wombats have been spotted in some small horizontal caves such as GR106. There are numerous stories of live snakes at the bottom of the entrance pitch of several vertical caves. Above ground, snakes, large goannas, echidnas, kangaroos and wild pigs in the campsite, make the area an interesting place to visit.

History

Some early publications dating back to the late 1960's, referred to the area as "Barry".

In 1983 Hills Speleological Club (HSC) formally proposed the now adopted (but redacted here) karst name to be assigned. In this same year HSC members began the mammoth task of

systematically exploring, tagging, mapping and cataloguing the caves. The task took four years and thousands of man hours to complete.

Members of NHVSS began visiting the karst area in 1985, the year after the club was formed.

The Australian Karst Index, was released in 1985 and the karst was listed under Barry, but no details of caves were provided.

In August 1986 three members of Sydney University Speleological Society (SUSS) visited the karst area for the first time and found two untagged (unknown) caves (Scott 1986). Then on the 27th September 1986, a group of 6 cavers from SUSS and 5 from HSC undertook a joint cave exploration and surveying trip to the area. During this trip Martin Scott had a rock dislodge and pin his foot in Bats and Bandicoots Cave (GR43). After about 2 hours he was freed by others in the group, when the offending rock was removed with tapes and a pulley system (Scott 1987).

The field guide to the caves was published by HSC in 1987. This comprehensive publication contains the maps and descriptions of the 108 caves known at the time.

In November 1993 a group of 12 Scout Association cavers undertook an exploration exercise in the area. Sixteen days after entering the caves, one of the cavers was admitted to the John Hunter Hospital and diagnosed as suffering from histoplasmosis. The exact origin of the infection is not known, although there is a strong possibility that the fungus originated in the cave called "Bats and Bandicoots" (GR 43) which contained a large quantity of dry powdery guano. However, several of the caves visited were known to contain some bat guano (Smith 1994).



Fig. 3. Looking down the entrance pitch of GR17.



Fig. 5. Garry Smith using a Dräger meter to measure the CO₂ concentration in Doug Cave (GR9)

Another memorable incident occurred on a NHVSS trip to the caves in 2003. A hand-line tape was set up down the entrance climb of Flowstone Surprise Cave (GR56). Jodie Rutledge climbed down the small narrow pitch, but stopped on a ledge just short of the bottom. A small snake was curled up directly below. Jodie called out to the guys at the top, "There's a snake, but I think it's dead". It wasn't moving but seemed to have its head up looking at her. "What's it look like?" asked Brian from the top. Jodie replied "It's small, around 30 cm long, light brown with a slender tapered head". Jodie had her torch on the snake while Brian stuck his head into the entrance to identify it as a tiger snake. "Is it poisonous?" asked Jodie. "Deadly," was the nonchalant reply. The two males on the surface were in hysterics as Jodie exclaimed in her best Steve Irwin voice, "Crikey! Look at her go... oh she's bigger than 30 cm ... oh, she's angry now!"

During 2018 members of NHVSS assisted palaeontologists on a research expedition to these limestone caves in the Upper Hunter Valley NSW. This resulted in the discovery of significant Quaternary fossils, including five extinct Pleistocene megafaunal taxa (Fig. 11). They include the giant koalas, (*Phascolarctos stirtoni*), devils (*Sarcophilus lanianus*), giant kangaroos, (*Macropus giganteus titan*), giant echidnas (*Tachyglossidae* gen. et sp. indet.) and marsupial 'lions' (*Thylacoleo carnifex*).

The caves also contained a rich record of small-bodied native endemic species that are either locally extirpated or have suffered total extinction in the historic period. They include the Eastern Bettongs (*Bettongia gaimardi*), Eastern Chestnut Mice (*Pseudomys gracilicaudatus*), and White-footed Rabbit Rats (*Conilurus albipes*) (Price *et al.* 2019).



Fig. 4. Entry pitch of Ewe Beaut Cave (GR5)

Over the years many of the caves have been found by digging loose rocks and soil out of small dolines or depressions between bedrock (Fig. 12). Some of these caves have resulted in exceptional finds such as Death Trap Cave (GR124) (Figs 13-14) which has a survey length of 90 metres and a depth of 33 metres. This is not large compared to many of the caves around Australia, however for caves in this karst area it is among the largest. Other significant caves found by digging include: Doug Cave (GR9)(Fig 6), Long Drop (GR117), Hair Raiser (GR126), Thursday Arvo Cave (GR130) and GR136.



Figs. 7. Decorations in Don't Let Go Hole (GR109)

Geology

The massive limestone is of Middle Devonian age. It outcrops over a distance of 10 km and has a maximum width of 2 km along a fault-oriented creek. The limestone strikes generally SE-NW with a dip of around 75-80 degrees. Much of the limestone has been recrystallised by the overlaying of Tertiary basalt which flowed from the Barrington volcanics. A study of the Mount Royal Range suggests that the now-eroded volcano that forms the Barrington Tops was active around 52 million years ago.

Most of the limestone in the karst area, lacks significant fossil detail except for isolated deposits of soft corals (Fig. 16) and badly preserved crinoids. This apparent erasure of fossils can probably be attributed to recrystallisation of the limestone, induced by contact with molten lava.

The karst boundaries as depicted on maps supplied by the NSW Geological Survey department have been found to be quite inaccurate. Over the last couple of years Cathi Humphrey-Hood and Rod O'Brien have been systematically re-plotting the boundary of the karst in the area. This has led to the discovery of a number of new caves.



Figs. 8. Decorations in Don't Let Go Hole (GR109)

Almost every NHVSS trip to this karst area, has resulted in the discovery of a couple of new caves. Also, there have been significant extensions discovered within previously known caves. Thankfully our club has maintained very good working relationships with each of the property owners and managers over the past 41 years. Our members greatly appreciate access to camp and visit the caves on this property (Fig. 15).



Fig. 9. Flowstone in Long Drop Cave (GR117)



Fig. 10. Deep pool on Orham Creek which the efflux flows into. The efflux stream is just out of view on left



Fig. 11. Dr. Gilbert Price extracting Pleistocene megafaunal bones in Red Naped Cave (GR17)

Acknowledgement

Thankyou to Katerina Fulton for proof-reading this article.

References

..... Caves (1987) *A Speleological Field Guide to the Limestone Caves on Station*. Published by the Hills Speleological Club Limited.

The Limestone Deposits of NSW. *Mineral Resources* 25, 2nd Edition. Geological Survey of NSW.

Price G.J., Louys J., Smith G.K. and Cramb J. (2019) Shifting faunal baselines through the Quaternary revealed by cave fossils of eastern Australia', *PeerJ* 6:e6099 DOI 10.7717/peerj.6099

Reeves B. and Rutledge J. (2003) '..... Caves Australia Day Long Weekend 2003', *Newcaves Chronicles*. V.20, pp. 19-20.

Rutledge J., (2009) '..... Caves - Hitting Rock Bottom in GR117', *Newcaves Chronicles* V.30, pp. 17-19.

Scott M. (1986) 'Exploratory Caving in the New England', *SUSS Bull*, 26(2):1-8

Scott M. (1987) 'The Epic with Hills', *SUSS Bull*, 27(2):34-35

Smith G.K. (1994) 'Are You Exposing Yourself to Histoplasmosis', *Australian Caver*, No. 136, pp. 6-8.

Smith G.K. (1996) Naked flame tests for, and human tolerance to, foul air in caves. *Helictite* 34(2):39-47.

Smith G.K. (2013) Caves 24th April 2013 *Newcaves Chronicles*. V.40, pp. 23-26, 55,56.

Vincent G. (1994) '..... Caves Trip Report', *Newcaves Chronicles* V.3, pp. 3-5.



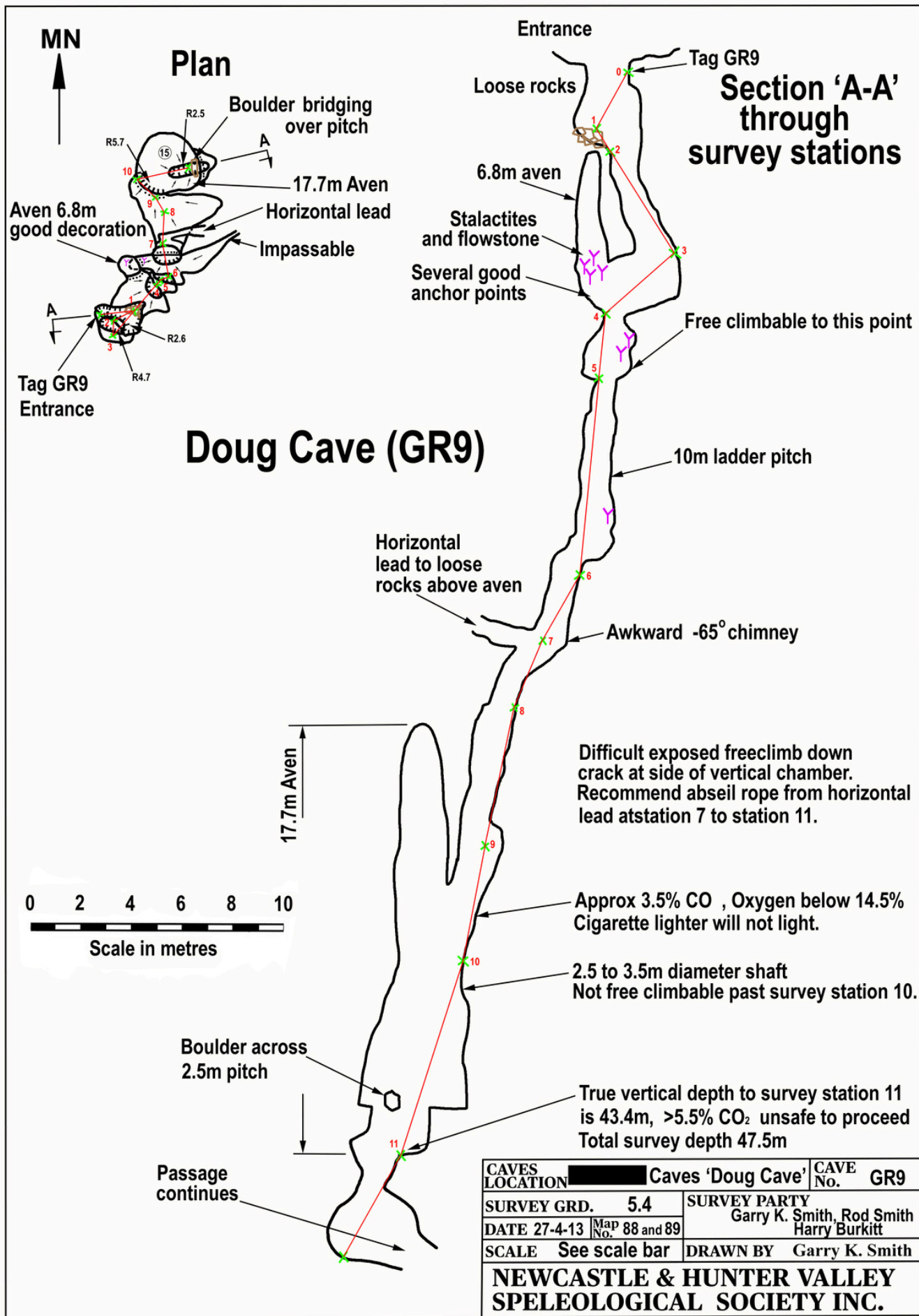
Fig. 12. Excavating loose rocks from the doline of a possible cave



Fig. 15. Campsite near the caves



Fig. 16. One of the better preserved fossils in the karst area



| | | | |
|----------------|------------------------------|--|-----|
| CAVES LOCATION | ██████████ Caves 'Doug Cave' | CAVE No. | GR9 |
| SURVEY GRD. | 5.4 | SURVEY PARTY | |
| DATE | 27-4-13 | Garry K. Smith, Rod Smith Harry Burkitt | |
| | Map No. 88 and 89 | | |
| SCALE | See scale bar | DRAWN BY Garry K. Smith | |

NEWCASTLE & HUNTER VALLEY SPELEOLOGICAL SOCIETY INC.

Fig. 6. Doug Cave (GR9) is a typical example of the vertical caves in this karst area

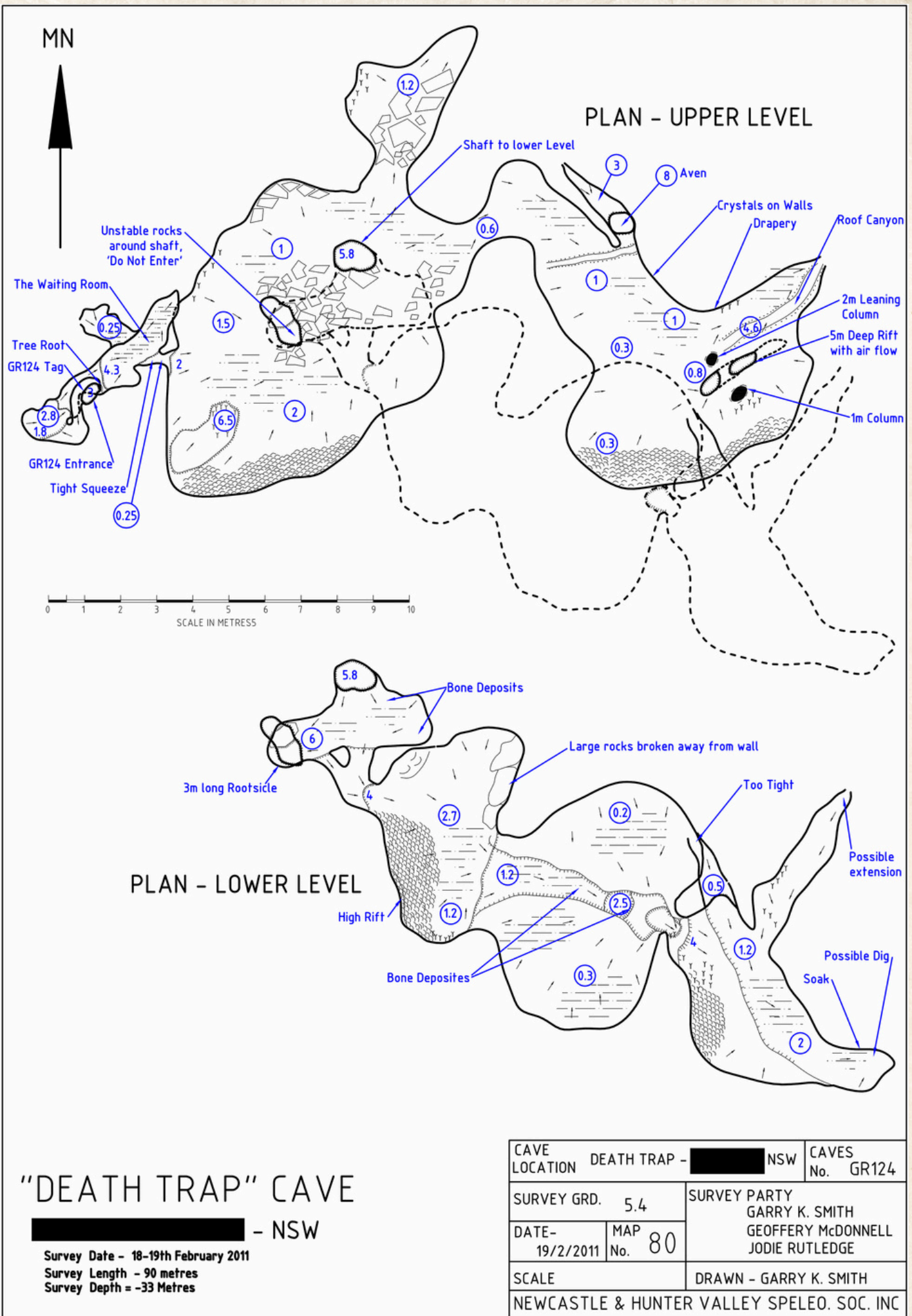


Fig. 13. Plan map of Death Trap Cave (GR124)

"DEATH TRAP" CAVE

█ - NSW

Survey Date - 18-19th February 2011
 Survey Length - 90 metres
 Survey Depth - -33 Metres

ELEVATION LOOKING NORTH

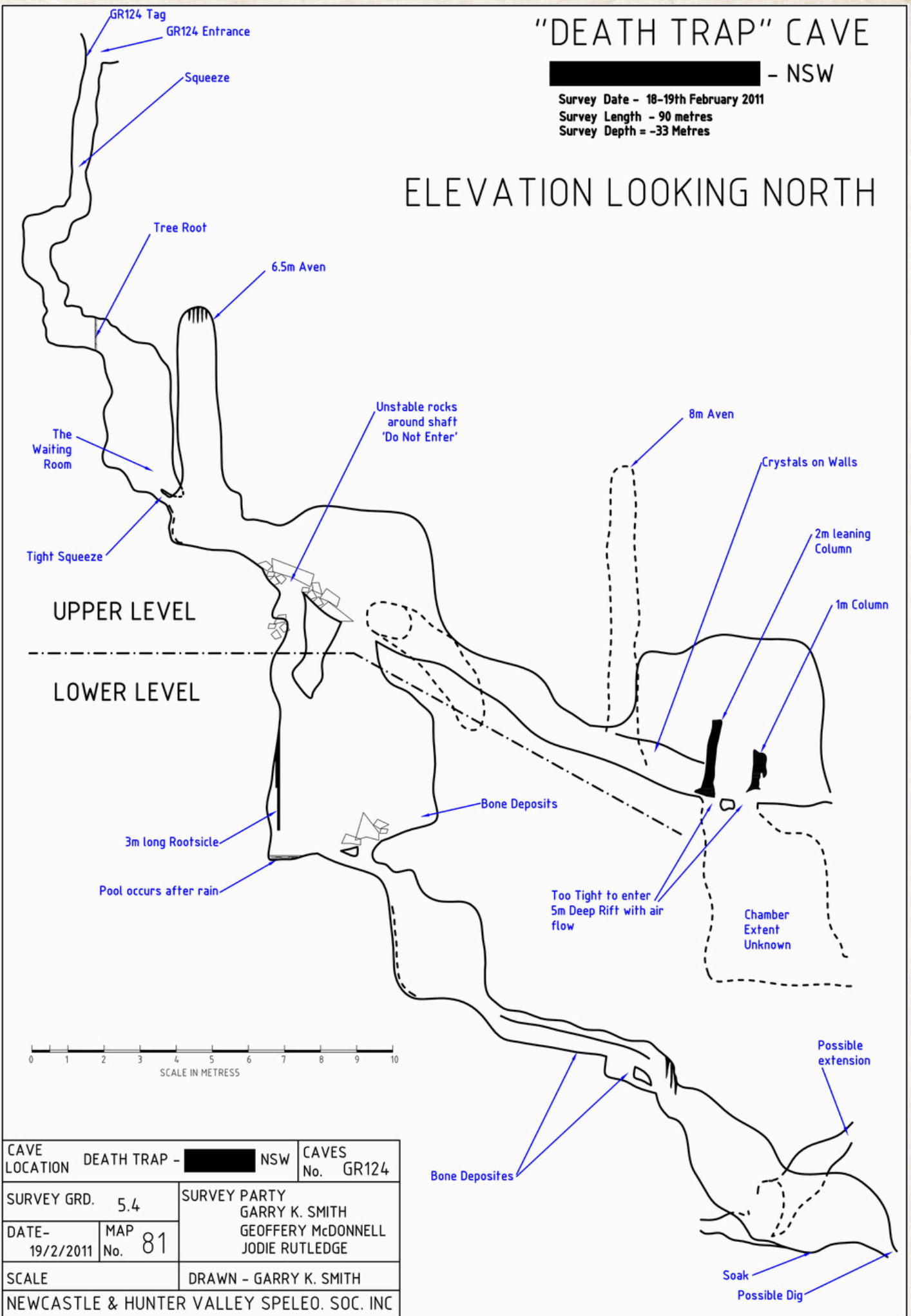


Fig. 14. Section map of Death Trap Cave (GR124)



ASPIRING

aspiring.com.au

**New Zealand made caving
gear since 1980**