

*Journal of the*

# Australasian Cave and Karst Management Association





## The ACKMA Journal

Official Publication of the Australasian Cave and Karst Management Association Incorporated

Published quarterly in March, June, September and December

The opinions expressed in the ACKMA Journal are those of the individual authors and not necessarily those of ACKMA Inc. or its officers.

**EDITOR:** Steve Bourne

**SUB EDITORS:** Tony Culberg, Andy Spate,

**PRINTER:** Hansen Print, Smith Street,  
Naracoorte, South Australia 5271.  
Ph: (08) 8762 3699

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**Front cover:** Capricorn Caves

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### New Zealand Vice President

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Sasa Kennedy Email: [committee@ackma.org](mailto:committee@ackma.org)

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### Committee Member

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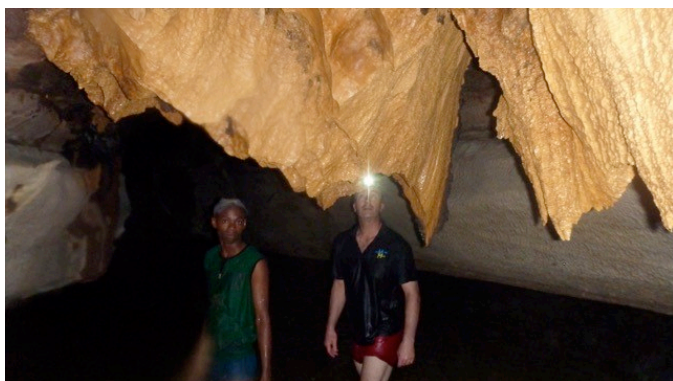
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## FROM THE EDITOR



*Your editor caving Madagascar style, with guide Deleque*

*Photo: Greg Middleton*

I enjoyed a month-long trip to Madagascar and South Africa in September. Lots of caves, adventure and a mere 5,000 photos. You don't want to come to a slide show at my place for a while. Space prevents a report for this journal, as we have three important pieces; cave and karst policy and guidelines from Western Australia, and the ACKMA rules adopted at our May AGM and approved by the Victorian Office of Business and Consumer Affairs.

The Policy and Guidelines for the Protection and Management of Caves and Karst were driven by ACKMA member John Watson, who has provided a rough chronology of their development below. I had written to the Director of Parks whilst still president of ACKMA seeking an update on these documents, and was pleasantly surprised to receive a letter and copy recently, albeit several years after my letter.

- 2008 - Preliminary draft distributed widely within the agency - Western Australia (WA) Department of Environment and Conservation at the time - now, WA Department of Parks and Wildlife (DPaW). Draft also circulated widely to other Australian State conservation agencies, to external cave and karst specialists in both WA and most other States.
- early 2009 - revised draft prepared after consideration and incorporation where possible of the ~150 substantive comments and other suggestions received
- May 2009 - talk by John Watson at ACKMA biennial conference Margaret River - further comments sought and received from attendees during and post conference
- April 2010 - latest drafts of policy and operational guidelines tabled by John at ACKMA Meeting, Mulu - additional comments sought and some received
- delays in process due to re-structuring and some modification of agency roles. Also, from early 2012 John no longer working on state-wide policies for DPaW
- March 2014 - final policy and guidelines signed off - a couple of weeks before John retired from DPaW

John Brush provides a report from a trip he and Marjorie Coggan enjoyed in Iceland visiting lava caves with unpronounceable names. They look spectacular although the temperatures do not appeal.

Congratulations to Susan White, another ACKMA member who has been recognised with Medal of the Order of Australia (OAM) in the General Division. Susan's OAM recognises her service to science, particularly to speleology and youth. Her contribution in both fields dates back over 50 years.

Kent Henderson recently advised me that he was in far north Queensland in late August. Her writes: *"I visited erstwhile ACKMA member, Dr Claire Baker, and her partner Marcus, at their remote property north of Mareeba - for a pleasant lunch, chat and local tour. Their property contains significant rainforest and when Claire isn't doing the odd bit of uni lecturing, she spends her time looking after many wallabies and copious other*



*Claire Baker, Kent Henderson and friend*  
*Photo: Kent Henderson*

*wildlife, not to mention her horses. She even flits off every six months to view glowworms - she is still a human dynamo!"*

This journal contains information on the Guides School and ACKMA AGM, to be held in Rockhampton May 2016. The last time ACKMA held its meeting at Rockhampton was 2008, and I look forward to getting back there and seeing the good work Ann and her team are doing. Ann has secured some excellent speakers and the Guide's School will be really worthwhile for all cave guides. I have known John Pastorelli for over 10 years and used his services at Naracoorte several times, with excellent results. Guides; start putting proposals forward to your managers, and if not successful there, start saving. Attendance at this school is fully tax deductible as professional development.



## PRESIDENT'S REPORT

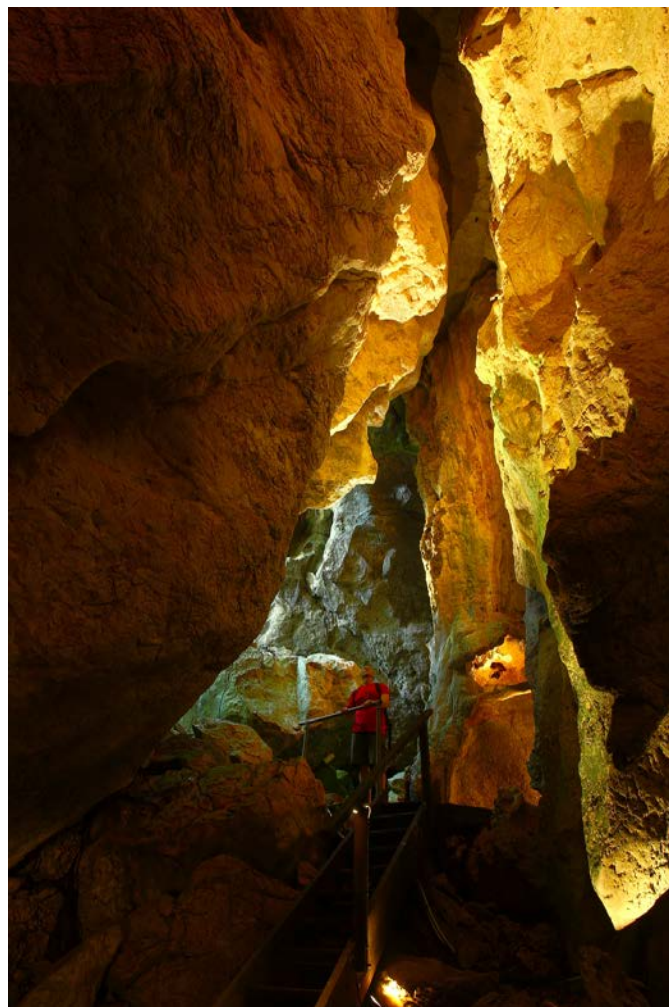
Dan Cove

Where on Earth does the time go? Mere moments it would seem since the ACKMA family gathered at Naracoorte for the splendid Conference in May I find myself staring at the close of another year and worrying about my complete lack of any plan for Christmas shopping!

The closing of the year is always a time to reflect, and 2015 has been challenging for ACKMA with, as always, both highs and lows. The passing of Elery Hamilton-Smith was an event that touched every member of the Association, but also (as I believe would have pleased Elery) also a moment that prompted many ACKMA members to seriously reflect upon the basis and purpose of the Association. This reflection overwhelmingly noted the importance of ACKMA as an advocate for conservation, management and for the furthering of our collective understanding of our fragile cave and karst systems. And so, it is fitting to remember as we look towards 2016 to consider that the aims and objectives of ACKMA remain as relevant now as when the Association was conceived.

The fantastic Conference at Naracoorte must rank as a genuine highlight of 2015. An ACKMA Conference is always a special time but this year was one of the most engaging in my experience, to say nothing of the wonderful surprise wedding of Andy Spate and Kirsty Dixon. Looking ahead, I would imagine that many members are already keenly anticipating the AGM at Capricorn Caves in May of 2016. Having seen Anne Augusteyn's draft for the AGM program, I can certainly assure all members that it will be a wonderful and memorable AGM weekend. I am also excited by the program for the Guides' School to be held at Capricorn immediately preceding the AGM weekend. This school promises to be a genuine opportunity for the cave guides of Australasia to develop their skills. Cave guiding is an important profession, and at its best represents one of the surest ways to create new advocates for ongoing cave conservation. The Guide School is an important professional development opportunity and I would encourage all show cave managers to support as many of their staff as practical to attend this School.

On behalf of the ACKMA Executive Committee, I would like to offer all ACKMA members all the very best wishes for Christmas and for a happy and healthy new year. There is no doubt that 2016 will again be an eventful and progressive year for our Association, and I look forward to continuing to work with the Executive and membership in furthering the objectives of our Association.



*Get ready for Rockhampton 2016!  
Above: Capricorn Caves.  
Photo: Heidi Vandermeer  
Below: ACKMA members at Mt Etna 2008  
Photo: Steve Bourne*



## SHOW CAVES in ICELAND

John Brush

Canberra Speleological Society Inc

*"For the first time in history, you can experience a volcano – from the inside" and "First steps in the journey to the centre of the earth" are just two of the catch-phrases seeking to attract visitors to the only two caves in Iceland that have been developed as show caves.*

Of course, given its location on the mid-Atlantic ridge, Iceland is volcanically active and there are many lava tubes - or caves - in some of the younger lava flows across the country. Quite a few caves can be visited on commercial adventure trips, but only two - Thrihnukagigur and Vatnshellir - have regularly scheduled tours and have significant infrastructure installed for the safety and comfort of visitors and to minimise visitor impacts on the caves. In May this year, Marjorie and I had an opportunity to visit both of these caves.

The driving force behind the Thrihnukagigur and Vatnshellir developments is Árni B Stefánsson (Árni), a Reykjavik-based medico and ardent conservation-minded caver. Árni has been exploring caves in Iceland for most of his life and has become increasingly concerned about the damage being done to them. A number of caves that Árni discovered or first explored in his youth are now almost unrecognisable to him. Caves once richly decorated with delicate features such as lava stalactites and stalagmites are now trashed. Árni believes the damage results from a combination of pure vandalism and souveniring as well as unintentional breakage through carelessness or ignorance. This makes him sad. He believes all caves should be approached with humility and that they should be treated with respect and kept in a condition that people would be proud to pass on to future generations. In the last decade, Árni has been on a mission to lobby for better protection for Icelandic caves, to repair some of the damage, to find ways of minimising visitor impacts and to help the general public gain a better understanding and appreciation of the wonderful and spectacular, but delicate, world of lava caves. Without his vision and determination, it is highly unlikely that either cave would be able to be appreciated by ordinary members of the public in a manner that protects both the cave and its visitors.

### Thrihnukagigur ("Inside the Volcano")

There is something special about being able to descend into the throat of an old volcano. Usually, such an experience is only available to cavers with SRT (Single Rope Technique) experience. It hardly needs to be said that this is only possible when the volcano is no longer active and where the lava has retreated to leave an open cavity. A local example is The Shaft, a 30 metre-deep volcanic vent at Mt Eccles in western Victoria. As spectacular as this is, it pales into insignificance compared to the huge chamber beneath Thrihnukagigur, a 4000 year old volcanic vent in the hills just outside Reykjavik.

The 120 metre entrance drop into Thrihnukagigur, or more correctly Þrihnúkagígur, which translates as



*Trudging across snow-covered lava on the walk to the Thrihnukagigur volcano.  
Photo: John Brush*

Crater in The Three Peaks, or The Three Peaks Crater, has been known to the locals for many years. It was first descended by Árni in 1974. He was hoping to find a large underground drainage channel with lava falls and other flow features, but at the bottom all he could see was breakdown and he thought it was ugly. However, his views changed on subsequent visits. While mapping the shaft with his brother in 1991 he realised there was beauty in its immense size and the relative insignificance of a human within it. It was only in 2010 when he returned with a *National Geographic* film crew with bright photo lights that he clearly saw the highly coloured walls of the huge chamber for the first time.

Árni first proposed opening Thrihnukagigur to the public in January 2004 after many months of design



*The final approach to the Thrihnukagigur crater.  
Photo: John Brush*





*Marjorie on the summit of Thrihnukagigur, waiting for the lift platform to arrive from inside the volcano.  
Photo: John Brush*

and consultation work. However, it then took years to undertake detailed feasibility studies, develop access plans and obtain the necessary approvals. A task made more challenging because the crater lies within a sensitive nature park. Tours started on a trial basis in the summer of 2011 and such was the public response that operations commenced on regular basis the following year. There are now tours several times a day between mid-May and the end of September.

On the day of our tour in late May, it was sunny but cool in Reykjavik. However, 30 minutes later when we arrived



*On the floor of the Thrihnukagigur chamber. The ropes are to keep visitors off untrodden areas and away from rockfall-danger areas.  
Photo: John Brush*



*View of the approach walkway and lift platform for the Inside The Volcano descent. The wheels on the side of the platform are to keep it clear of the walls in a narrow part of the shaft.  
Photo: John Brush*

at the meeting point at Bláfjöll, Reykjavik's local skiing area, it was bitterly cold and snowing. And, although it was almost summer, the ski slopes still had better coverage than Thredbo usually does in mid-winter. Fortunately, we had taken heed of advice on the cave's website that *"the weather in the mountains can be very different to the city. A warm sweater and jacket are very*

*useful, not least because it's always the same temperature inside the crater –about 4°C".*

From the Inside the Volcano building at Bláfjöll, where long rain capes were offered to everyone, it is a three kilometre, 40 to 50 minute walk to the base camp building at the foot of the volcano. Normally, even for trips in May, the walk would be across a rough lava field. However, because of the lingering effects of winter, almost the entire walking route was still snow covered. This was easier on the ankles, but it was hard work and everyone got wet feet. At base camp, our party (the maximum party size is 15 persons) was divided into groups of four to six and fitted with climbing harnesses, helmets and lights. Then, at regular intervals, the groups were led up to the crater rim for the descent.

At the crater, the lift assembly and approach walkway are suspended from a gantry erected over the shaft. The lift is a modified window-washing platform for tall buildings. It has a capacity of eight people (seven plus an operator). Staff were most insistent that our





*A view along the immense cavern of Thrihnukagigur showing the breakdown floor and multi-coloured walls.*  
*Photo: John Brush*

harnesses were securely attached to either the approach walkway or the lift platform at all times until we had safely reached the bottom.

The descent takes about 6 minutes which is almost enough time to take in the views. There is plenty to look during the descent as powerful floodlights mounted under the lift platform light up the walls. As the upper part of the shaft is only a few metres wide there are close-up views of the lava dribbles and stalactites of the glazed lining - the solidified skin of the original walls of the shaft.

Further down, the glazed lining has broken away and the chamber bells out into an immense cavern. The floor is an uneven jumble of breakdown blocks and covers an area about 50 by 70 metres. After leaving the lift platform, we had 30 minutes to wander about the cavern at will, so long as we stayed within an area defined by rope barriers. The barriers are designed to limit the area of visitor impact and to keep visitors away from areas more likely to be subject to rockfall, such as directly under the shaft. At all times when visitors are present, there is a guide stationed at the bottom to keep a watchful eye on things. Beyond the barriers, the floor drops away steeply and has been explored to a depth of about 200 metres.

The cavern is illuminated with several well-positioned flood lights and it hardly necessary to use our helmet lights. The lights vividly show the multitude of colours on the walls and also highlight a small but steady stream of water falling from somewhere in the upper reaches of the shaft.

One of the most impressive sights is simply gazing upwards and watching the lift platform light up the flow and drip features of the glazed lining as it passes through the narrow part of the shaft.

After we returned to the comforts of base camp we were given bowls of a tasty hot soup; nicely warming. Then, when everyone was ready, it was time for the walk back across the snow.

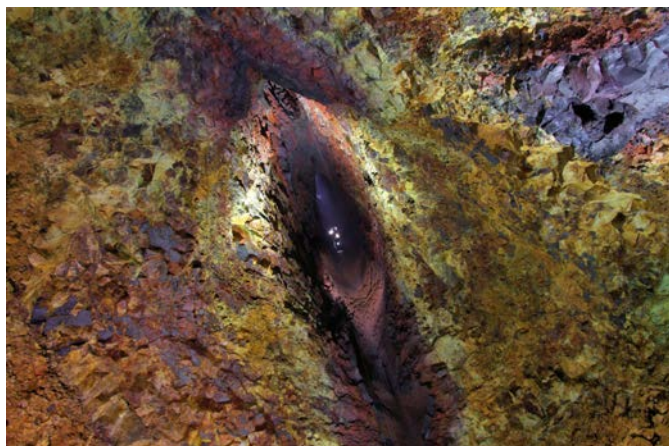
We were impressed with the efficiency of the whole operation and with the emphasis placed on safety issues. It was also pleasing to see the efforts that had been made to minimise visitor impacts both in the cave and around the crater. Our only concerns were that our guide did not seem to have a detailed knowledge of volcanoes or lava caves and also let the party spread out more than we considered was appropriate for the conditions while walking across the snow-covered lava field.

The *Inside the Volcano* tour is truly awe-inspiring and spectacular. It is not surprising to learn that it is rapidly





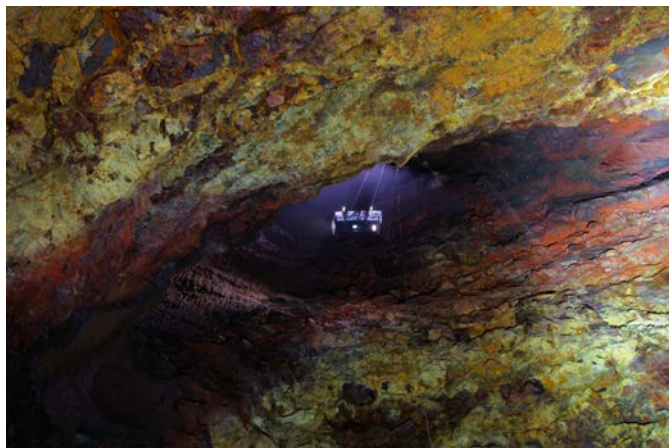
*Looking straight up towards daylight and small entrance throat of Thrihnukagigur. The streak left of centre is a small waterfall.*  
Photo: John Brush



*Looking up the Thrihnukagigur shaft as the lift platform descends. The area illuminated by lights on the platform is part of the original glazed lining of the chamber.*  
Photo: John Brush



*Looking straight up the Thrihnukagigur shaft and the approaching lift platform. Part of the intact glazed lining of the shaft can be seen to the left of and below the platform.*  
Photo: John Brush



becoming a 'must-do' for many visitors to Iceland, despite the high price. A ticket for the half-day round trip from Reykjavik costs about \$400. At first glance this seems expensive, but is more reasonable when considered in the light of the small group size, the high staff to visitor ratio, the short 18-week season, the limited capacity of the lift, the safety gear and infrastructure costs and the fact that the price includes transport from, and back to, hotels in Reykjavik.

Árni is not involved in the day-to-day running of the Inside the Volcano operation but oversees safety issues, research and environmental aspects, including the minimal impact approach and the cave preservation and respect signals that are communicated to the public. He also has plans for a 200 metre access tunnel into the volcano. The tunnel, leading to a viewing platform near the top of the main cavern, would make public access easier and safer. Árni envisages a spiral staircase to the bottom for those visitors who wished to go all the way down. The proposal is slowly progressing through government approvals processes and after that, the proponents will address funding options.



*The cold walk back from Thrihnukagigur.*  
Photo: John Brush



## Vatnshellir

Vatnshellir, literally 'water cave', is considered to be about 8000 years old, making it one of the oldest lava caves known in Iceland. The cave is quite short - around 200 metres - but it has a good range of lava features and is developed on two main levels that are separated by lava falls about 12 metres high.



*The Vatnshellir ticket office and beside it, the path leading to the cave. The source of the lava that formed the cave is the Snaefells volcano (now dormant) in the background.  
Photo: John Brush*

The cave is on the southern side of the Snaefells Peninsula, about 200km by road northwest of Reykjavik. It has been open to the public for guided tours since 2010. The show cave operation is low-key and operates out of a small cabin beside the main road around the peninsula. Metal stairways have been installed for easy access and in more sensitive parts of the cave, the route is defined by ropes suspended from metal stakes. There is no electric lighting, but all visitors are issued with large LED torches. From the cabin, where tickets are sold and the torches and helmets are issued, it is just a 50 metre walk to the entrance.



*The entrance to Vatnshellir with the dormant Snaefells volcano in the background.  
Photo: John Brush*



*The spiral staircase at the Vatnshellir entrance. The white heap (at left) is snow that found its way in during winter.  
Photo: John Brush*

A steel-framed platform has been built over the collapse entrance and near its centre there is a vertical cylindrical structure with a door. As our guide opened the door, we could see an impressive spiral stairway leading down into the cave. The stairway drops about 8 metres into a spacious passage averaging several metres high and wide. In places, the original lava floor and glazed wall linings of this upper level are intact, but some lining has broken away, creating piles of black, orange and red lava breakdown along the passage.

Towards the up-flow end of the cave, our guide proudly pointed out an impressive 'forest' of lava stalagmites up to about half a metre tall. What the guide didn't say, or perhaps was not aware of, is that all of these were created in Árni's backyard workshop. Using silicone moulds of repaired stalagmites and broken fragments retrieved from cave 'looters' and from the floor of trashed caves, Árni experimented with various materials and powdered pigments until he was satisfied with his facsimile stalagmite creations. So far, he has made around 70 stalagmites and about half of them were destined for 'restoring' another cave in the Snaefells





*The forest of lava stalactites 'recreated' by Árni B Stefánsson in Vatnshellir*  
*Photo: John Brush*



*Upper level passage in Vatnshellir.*  
*Photo: John Brush*

area, but upon reflection, Árni decide to install them in Vatnshellir as part of the cave development project and where they would be afforded greater protection and have more educational value.

From the end of the cave, our group retraced its steps to the spiral staircase and then continued further down into the cave. The guide pointed out some nice lava benches in bright red lava, and nearby, a pair of chunky stalagmites. These are known as The Twins and were once an iconic feature of the cave. Unfortunately, in the

years following the cave's discovery in the early 1990s, they were both smashed to pieces. Some years ago, Árni laboriously gathered the broken fragments and hid them in the cave in the hope that one day they could be put back together. In fact, it was the destruction of The Twins that started Árni thinking that turning Vatnshellir into a show cave was the best way of protecting it. Árni's dream of mending the stalagmites subsequently became an integral part of the cave development project – they were temporarily removed from the cave for repair and then returned to their original locations. Another broken stalagmite, known as The Thumb, and reputed to be one of the largest stalagmites ever found in Iceland, was too large to remove from the cave and so was repaired in-situ.

A second spiral staircase with four complete revolutions descends 12 metres beside the lava falls to the lowest level of the cave. Some of this passage is narrower than the upper level but it is taller and in places, a roof canyon can be seen. Near the lower end of the cave, the tour ends at a point where a small but steady flow of water issues from the roof. Here the guide picked up a ladle and offered to pour some "pure cave water" into our cupped hands for tasting. With our limestone caver's mentality of not knowing where the water might have come from, we declined.

A guided tour of the cave costs about \$25 and takes around 45 minutes. The cave is open year round with tours on the hour in summer and three times daily in winter. On our late afternoon trip, there were nine





*Spiral staircase to the lower level of Vatnshellir.*  
Photo: John Brush



*Returning along the upper level passage.*  
Photo: John Brush

Even though Vatnshellir is in the Snaefellsjokull National Park, it had been afforded little protection and was being increasingly damaged. This deeply concerned Árni and it was almost a decade that he first thought of protecting the cave by gating the entrance and restricting access to guided visits. He started lobbying government agencies and also engaged the support of the local community, service clubs and local businesses. In 2009, the National Park agreed to his proposals. The Iceland Environment Institute, which oversees National Parks, offered funding which covered about one-third of estimated development costs, but it was only with financial support from the local council, donations of equipment, work and time by local businesses as well as volunteer labour and contributions from Árni's own pocket that the project became a reality. When the work was completed, the cave was handed over to the National Park to operate and it opened to the public in 2010. In 2013, the National Park leased out the show cave to a private operator without consulting the local community or most of others involved in the original development work, much to their consternation.

### Other Caves

In addition to the above show caves many other caves can be visited on commercial adventure trips. A quick browse through brochures in Tourist Information Offices in Reykjavik and Akureyri suggests about a dozen different companies are offering cave tours and a web search reveals even more. Caves in all parts of the country are on offer, but those within easy reach of Reykjavik appear to be the most popular, with Leiðarendi (in English this is usually spelt as Leidarendi, but is more accurately rendered as Leitharendi) probably being at the top of the list.

Leiðarendi is only 30 minutes' drive from Reykjavik and appears to have adventure trips into it every day. When we visited the cave in 2002, it was relatively unknown, in good condition and locating the entrance in a trackless, moss-covered lava field was tricky. However, within a few years, the cave's location was published in a book, adventure trips had become popular, damage to the cave was becoming evident and the surface area above the cave was suffering from multiple tracking and trampled vegetation. Once again Árni started lobbying and in 2008 his proposals for some protection measures were



*Lower level passage in Vatnshellir.*  
Photo: John Brush

visitors and we felt this was an appropriate number for the cave. However, promotional material for the cave tours suggests groups can have about 20 people, which would not be such a pleasant experience.





*Staircase below the entrance spiral in Vatnshellir. Note the lava bench, in bright red lava, on the left side.  
Photo: John Brush*

accepted. Now, parts of the cave are protected by simple rope and chain barriers, there is some basic interpretative information in the cave and there is a clearly defined and gravelled track to the entrance.

Promotional material for adventure tours into the local lava caves seems to emphasise “excitement”, “exploration” and “adventure” and, as some of the caves on offer are among the most spectacular and delicate in the country, it would be nice to think that tour operators respect the caves, impart appropriate messages to their clients and closely control their actions. However, many caves have no access controls or clearly delineated routes through them and in the absence of formal codes of practice, I believe there is considerable cause for concern about the long-term impacts of adventure trips, as well as uncontrolled access, on the caves. Even for Leitharendi, a quick perusal of images on the web shows there is still plenty to be worried about, but for the sake of Árni’s stress levels, let’s not tell him that.

### Acknowledgements

I express my appreciation to Árni and Björn Ólafsson (Managing Director of the Inside the Volcano operating company) for arranging our visit to Thrihnukagigur.

In addition, I thank Árni for reviewing drafts of this article for factual accuracy. Responsibility for all comments, however, rests with the author.

### Sources

The content of this article was derived from a range of sources including:

- Information imparted by tour guides.
- Discussions with Árni B Stefánsson.
- Cave websites: [www.insidethevolcano.com/the-volcano](http://www.insidethevolcano.com/the-volcano), [www.vatnshellir.is](http://www.vatnshellir.is)
- Promotional brochures published by Inside the Volcano and Vatnshellir.
- *Feasibility of Public Access to Þríhnúkagígur* – a paper presented by Árni B Stefánsson at the 11<sup>th</sup> International Symposium on Vulcanospeleology, Azores, 2004.
- *The preservation of Þríhnúkagígur and the status of the studies of the feasibility of access*, a paper presented by Árni B Stefánsson at the 13<sup>th</sup> International Symposium on Vulcanospeleology, Jeju Island Korea, 2008.
- *Þríhnúkagígur*, a paper presented by Árni B Stefánsson at the 16<sup>th</sup> International Symposium on Vulcanospeleology, Galapagos Islands, 2014.
- *The Vatnshellir Project - a first for Iceland*, a paper presented by Árni B Stefánsson at the 14<sup>th</sup> International Symposium on Vulcanospeleology, Undara Australia, 2010.
- *The Vatnshellir Project - a first for Iceland - update*, a paper prepared by Árni B Stefánsson for the 19<sup>th</sup> ACKMA Conference, Ulverstone Tasmania, 2011.
- *The Vatnshellir Project - a first for Iceland - update*, a paper prepared by Árni B Stefánsson for the 19<sup>th</sup> ACKMA Conference, Ulverstone Tasmania, 2011.



## POLICY STATEMENT No. 80

# PROTECTION AND MANAGEMENT OF CAVES AND KARST

### 1. OBJECTIVE(S)

The objectives of this policy are:

- to protect and manage a comprehensive, adequate, representative and resilient range of caves and karst occurrence on *Conservation and Land Management Act 1984* land (CALM Act land); and
- where possible, to encourage sound planning and management of caves and karst in other lands through liaison and advice to relevant parties and through advocacy for the protection of caves and karst generally.

### 2. SCOPE

This policy addresses the protection of caves and karst landforms and features. The policy does not specifically deal with the protection of the flora and fauna that are associated with these landforms, although it is expected that some beneficial outcomes for biodiversity values will occur through protection and management of caves and karst.

Whilst the focus of this policy is toward typical carbonate rock karst, the principles and management strategies required may also be applicable to other karst-like landforms and to pseudokarst.

### 3. CONTEXT

There are extensive areas of karst landforms and processes throughout Western Australia, some of which are of national and international significance. While many caves and karst features are protected within department-managed lands there are also extensive areas of caves and karst features in other lands.

Karst terrain can have outstanding visual, geological, biological and cultural significance. A number of threatened fauna and flora species and threatened ecological communities are associated with karst including relictual Gondwanan species with related taxa located in places such as Madagascar and South America. The cultural values of caves include Aboriginal significance in terms of location and landform, as well as importance for rock art sites and other archaeological materials.

Many caves have been developed and managed for tourism and visitation purposes, including some caves that are recognised as outstanding visitor attractions. Speleological groups at the state and national level assist in the planning and advocacy for karst protection and management.

Caves vary immensely with regard to their size, ease of access, their remoteness, their special attributes such as unique habitat or heritage value and the practicalities of on-site management and protection. Considering the special attributes of karst features, associated habitats and their high susceptibility to irreversible damage, it is important to encourage and promote the protection and management of these areas.



### Associated policies and guidelines

- Department of Parks and Wildlife (Parks and Wildlife) *Corporate Guideline No. 16 – Guidelines for the protection and management of caves and karst*.
- Parks and Wildlife *Policy Statement No. 18 – Recreation, Tourism and Visitor Services*.
- *Guidance Statement No 33, Environmental Guidance for Planning and Development Chapter B9 Karst, subterranean wetlands and fauna* (Environmental Protection Authority 2008).<sup>2</sup>
- *Guidelines for Cave and Karst Protection* (World Conservation Union, 1997).<sup>3</sup>

## 4. LEGISLATION

The CALM Act is the primary instrument for the protection and management of CALM Act land, including provisions for the preparation of statutory management plans. The *Environmental Protection Act 1986* provides the mechanism through which land use, pollution and drainage impacts on karst values can be addressed through the assessment of proposals that may impact on karst values. The *Wildlife Conservation Act 1950* provides state-wide protection to flora and fauna on all lands, including protection of stygofauna, troglafauna and 'dead fauna' which, in the context of karst, includes mummified fauna and bone material but not fully fossilized fauna.

## 5. POLICY

- 5.1 The department will ensure that the reservation of representative karst is a consideration in establishing protected areas, and will address the protection and management of karst values in the preparation of management plans.
- 5.2 The department will manage and protect karst on CALM Act land with special attention to the management of threatening processes, including those arising from water catchment processes.
- 5.3 The department will classify caves and manage public access to caves for recreation, tourism and other purposes in accordance with *Corporate Guideline No. 16 – Guidelines for the protection and management of caves and karst*, and will take a precautionary approach where any risk to speleothems, other karst values, Aboriginal heritage sites or human life may occur.
- 5.4 Where possible and appropriate, the department will encourage and support the protection and management of karst outside CALM Act land through liaison, advice and promotion of best management practices and improved knowledge about the environmental significance of karst and its management.
- 5.5 The department will promote community awareness of, and appreciation for, caves and karst, including awareness of their special protection and management needs.
- 5.6 The department will arrange training and awareness programs on karst management for department staff, volunteers and others involved in the planning and management of karst.
- 5.7 The department will review legislation and associated regulations on an ongoing basis in order to maintain or improve the protection and management of caves and karst on CALM Act land and other lands.
- 5.8 The department will support research and monitoring of karst systems as required.



## 6. POLICY IMPLEMENTATION STRATEGIES

- 6.1 This policy will be implemented in accordance with *Corporate Guideline No. 16 – Guidelines for the protection and management of caves and karst*.
- 6.2 The Director Parks and Visitor Services will convene a Caves and Karst Advisory Group in accordance with *Corporate Guideline No. 16 – Guidelines for the protection and management of caves and karst*.

## 7. CUSTODIAN

Director Parks and Visitor Services.

Support from Science and Conservation and Regional and Fire Management Services will also be required for implementation of this policy.

## 8. KEY WORDS

Caves; karst; subterranean features

## 9. REVIEW

This policy will be reviewed no later than February 2019.

## 10. DIRECTOR GENERAL APPROVAL

Approved by



Jim Sharp  
ACTING DIRECTOR GENERAL

Effective date *14/3/14*



*Lake Cave doline, Margaret River, Western Australia in 2009*  
Photo: Steve Bourne



## CORPORATE GUIDELINE No. 16

# GUIDELINES FOR THE PROTECTION AND MANAGEMENT OF CAVES AND KARST

### 1. OBJECTIVE

To provide guidance for the management and protection of caves and karst on *Conservation and Land Management Act 1984* land (CALM Act land) and to provide guidance for liaison and advice on cave and karst protection on other lands.

### 1. SCOPE

This guideline is applicable to the Department of Parks and Wildlife's (the department) management of land that is classified in the *Conservation and Land Management Act 1984* (CALM Act) as a State forest; a timber reserve; a national park; a conservation park; a nature reserve; land referred to in section 5(1)(g) and vested in the Conservation Commission of Western Australia (Conservation Commission); land referred to in section 5(1)(h) and under the care, control and management of the Conservation Commission; or land that, under an agreement made under section 8A, and is managed for a public purpose that is consistent with the CALM Act. These lands are referred to in this guideline as 'CALM Act land'.

The department also provides advice and support in relation to the protection of caves and karst on other lands in Western Australia.

### 2. CONTEXT

There are extensive areas of karst landform and associated karst processes throughout Western Australia, some of which, together with their outstanding biological, geological, mineralogical and anthropological features, are also of national and international significance. The major Western Australian occurrences and associated CALM Act lands include:

- Devonian reef limestones of the Kimberley (*Geikie Gorge, Windjana Gorge and Tunnel Creek national parks*) and the karst-like quartz sandstone landforms (*Purnululu National Park*);
- Tertiary carbonates of the *Barrow Island Nature Reserve* (and numerous other islands around the WA coast);
- Tertiary limestones of the North West Cape (*Cape Range National Park*);
- Paleodrainage calcretes of the Pilbara region and the rangelands;
- Tamala limestones (aeolian calcarenite) along coastal margins of the South West Land Division (*Beekeepers Nature Reserve, Stockyard Gully Reserve and Nambung, Yanchep, Yalgorup and Leeuwin-Naturaliste national parks*); and
- Tertiary Nullarbor limestones which form the largest semi-arid karst area in the southern hemisphere (*Nuytsland Nature Reserve, Eucla National Park*).

Even in the absence of caves and other obvious features, karst terrain can have outstanding visual, geological, biological and cultural significance. For example, in Western Australia a number of threatened fauna and flora species and threatened ecological communities are associated with karst occurrence. In some cases there are relictual Gondwanan species with related taxa located in places



such as Madagascar and South America. Subterranean fauna are a special feature within karst and may be broadly classified into stygofauna living in the groundwater and troglifauna which are terrestrial but live in underground fissures and caves.

The cultural values of caves include Aboriginal significance in terms of location and landform as well as important sites for rock art and archaeological evidence. There is also a rich non-indigenous history dating mainly from the beginning of the 20<sup>th</sup> Century when cave reserves were established, including caves at Yanchep and Margaret River. These caves, usually with surface and subterranean tourist infrastructure, became the basis for the creation of some of the most significant national parks in the State's south west.

The drainage and water catchments of many karst areas, including those in CALM Act lands, extend well beyond where the karst features occur. Hence significant changes of hydrology and water quality within karst may result from sources and land uses outside the conservation reserves and thus beyond the immediate control of the department.

Many Western Australian cave features, including speleothems and other decorations or deposits, are of outstanding beauty and of international geological significance. Once damaged or destroyed they cannot be replaced for thousands of years if at all.

In some cases the more accessible and visually outstanding or 'challenging' caves also contribute in varying degrees towards the local economy through their development as public show caves or as controlled access adventure caves. In these cases they are managed primarily for tourism and recreation with visitors paying a fee for entry.

Awareness of potential damage to speleothems and other karst features has been a strong attribute of Western Australian cavers and speleologists for over half a century. In liaison with the department and its predecessors these enthusiasts have undertaken *de facto* cave management initiatives through the installation of security entrance gates, installation of track marking and defined walkways through fragile sections of caves, mapping, research and survey. These stakeholder groups have also contributed to the development of protocols for approval to visit sensitive caves through membership of the State Cave Access Committee.

At a national level the Australian Speleological Federation (ASF) and Australasian Cave and Karst Management Association (ACKMA) have become widely respected by caving organisations, cave tourism operators and land management agencies in Australia. Australian cave protection and management generally has a sound reputation at an international level.

### ***Karst values within CALM Act lands***

Once established, conservation reserves require planning and management in order to secure their long term integrity and natural values. In a large state such as Western Australia, the reserves containing karst features vary immensely with regard to their size, ease of access, remoteness and the practicalities of on-site management and protection.

Some natural karst features, such as decoration within caves, should be regarded as essentially 'non-renewable'. Hence any threats to susceptible karst values should be very carefully addressed in planning and management.

Entry into subterranean karst environments, even in otherwise readily accessible areas such as Yanchep National Park, usually requires specialist skills and significant experience, which may not be available within the local departmental workforce. It is therefore critical for department staff to be appropriately trained and for the department to continue to work collaboratively with experienced speleologists in order to achieve the best management and protection outcomes for karst and caves.

Visitor impacts from adventure activities such as caving and cave diving are addressed in more detail in *Policy Statement No. 18 – Recreation, Tourism and Visitor Services* (Sections 2.4 and 2.5).



### ***Karst values outside CALM Act lands***

Significant karst areas are located outside the conservation reserve system, primarily on unallocated Crown land (UCL). Most of the WA Nullarbor and Kimberley karst systems as well as the ancient calcrete landscapes of the Pilbara and rangelands occur outside CALM Act lands. There are also a number of “show caves” which are located as enclave reserves within the Leeuwin-Naturaliste National Park; Jewel, Lake, Mammoth and Ngilgi caves are enclaves within the Leeuwin-Naturaliste National Park but are vested in local tourist organisations. In many areas, highways and public road reserves and their associated drainage infrastructure overlie important karst. There are also considerable areas of private land within karst landscapes, especially on the Swan Coastal Plain. Extensive areas of pastoral leases overlie karst, notably on the Nullarbor.

When the department is requested to provide advice on planning matters in such areas the Environmental Protection Authority (EPA) *Guidance Statement No 33 (2008), Chapter B9 Karst, subterranean wetlands and fauna*, is a valuable resource.

### ***Liason, advocacy and training***

Given the presence of long-operating tourist caves and the more recently designated adventure caves in Western Australia, there is a reasonable level of community awareness of caves, especially those in the Yanchep and Leeuwin-Naturaliste areas. There is less awareness and understanding of karst landforms and features such as Tunnel Creek, the Nullarbor Plain, and the widespread occurrence of karst on the Swan Coastal Plain.

There is generally a poor understanding of the unique habitat within caves and karst including the presence of subterranean fauna and the existence of many threatened species of invertebrate fauna and threatened ecological communities. Knowledge of Aboriginal use of caves and their cultural significance is also poorly understood.

The department has an important role in education, creating awareness and providing advice and liaison in regard to karst values.

### ***Impacts from rainfall events and climate change***

Impacts on karst from surrounding areas will usually result from changes in the quantity or quality of water moving through as either surface or sub-surface flow, or a combination of both. For example, extreme rainfall events may result in massive surface flows in flat landscapes with torrential drainage into sink holes, dolines and fracture lines thereby entering cave systems below. This has been observed several times over past decades on the Nullarbor (e.g. Pannikin Plains Cave doline and subsequent rock pile collapse in 1988). In the case of karst landscapes, the flood water quickly penetrates through surface geology into subterranean features and water tables.

Where there has been disturbance or modification of surface vegetation (for example through human usage such as direct soil disturbance or pastoral activities where stock typically concentrate and move along fence lines) significant rainfall events can transport substantial quantities of soil, silt and pollutants such as chemicals and animal wastes into the underground landscape.

Furthermore, changes in the seasonality and volumes of rainfall are occurring in many parts of the Australian continent. Due to the sensitive interdependence of karst processes on groundwater tables and flows, and the rainfall that influences these, karst systems are vulnerable to several aspects of climate change including:

- changes in rainfall, particularly reductions and seasonality, that in turn impact on speleothem growth as well as stygofauna and troglodfauna habitats;
- increased frequency and intensity of extreme rainfall events resulting in flooding with associated direct impacts on cave contents and visitor safety;
- changes in average temperature that may stimulate soil biological activity leading to more carbon dioxide release and subsequent changes in the calcium carbonate equilibrium; and



- increases in sea level that could cause salt water intrusion into groundwater systems in coastal karst, thereby affecting karst processes and fauna habitat.

Therefore, as hydrology is the major driving force for most karst processes, it is important that the impacts of climate change on karst values are monitored and the information made available to decision making agencies.

### 3. LEGISLATION

In some countries, there is specific cave legislation that provides detailed statutory protection to caves and their contents irrespective of surface land tenure arrangements, and in some cases protection also applies to surface karst features. In Western Australia there is no legislation specific to caves and karst.

The reservation and protection of subterranean voids in a legal sense can be problematic. There are many instances where a cave entrance may be located (and hence the access is manageable) on land of one surface tenure, but where underground sections of the cave cross cadastral boundaries and lie beneath land of another tenure. There is a need for sound legislation that can define and protect the subterranean caves and karst features irrespective of surface tenure.

Within CALM Act land there is protection of caves (including their contents) and karst through the provisions of the CALM Act and the *Conservation and Land Management Regulations 2002*. However, outside CALM Act land there is only moderate legal protection where a direct link with the *Environmental Protection Act 1986* or the *Wildlife Conservation Act 1950* occurs.

### 4. DEFINITIONS / GLOSSARY / ACRONYMS

#### Acronyms

<b>ASF</b>	Australian Speleological Federation
<b>ACKMA</b>	Australasian Cave and Karst Management Association
<b>CALM Act</b>	<i>Conservation and Land Management Act 1984</i>
<b>CALM Regulations</b>	<i>Conservation and Land Management Regulations 2002</i>
<b>CDAA</b>	Cave Diving Association of Australia
<b>DPaW</b>	Department of Parks and Wildlife

#### Definitions

**CALM Act** means *Conservation and Land Management Act 1984*.

**CALM Act land** means land and waters to which the CALM Act applies, and includes caves and parts of caves on or under that land.

**karst** means landscapes and landforms, with associated subterranean features such as caves, which are shaped by the dissolution of soluble bedrock such as limestone or other carbonate rocks.

**karst values** means biological, geological, mineralogical, recreational, anthropological and cultural attributes.

**karst-like features and landforms** means features that sometimes occur in other rock types which dissolve in water extremely slowly and which typically occur as karst-like features at a small localised level only. At a broader scale they may create karst-like landforms. There are also calcareous mounds and other deposits scattered across the Pilbara region and the rangelands, mostly in association with fossilised calcrete 'paleodrainage lines' (ancient river systems), and which also support a rich subterranean fauna.

**pseudokarst** means karst-like features that are produced by processes other than dissolution of rock material. The most widely known features are tubular caves and tunnels that remain in lava flows after cooling. Examples in Western Australia are not well documented.

**speleothems** means unique decorations typically found within caves and derived from secondary deposition of minerals through complex inter-relationships between water, air, temperature range and the local mix of dissolved minerals.

**subterranean fauna** means fauna that live within subterranean voids, including the karst environment. Subterranean fauna are a special feature of karst however they are not confined to karst alone. They are broadly classified into *stygo fauna* which live in groundwater and *troglo fauna* which are terrestrial but live in underground fissures, solution pipes and caves.

**surface karst features** means exposed limestone pavements, steep-sided dolines or sinkholes, narrow solution pipes, towers and pinnacles, cave entrances, and dry valleys or depressions no longer containing surface water flows or lakes.

## 5. PROCEDURES

### 6.1 Planning and management

6.1.1 To ensure that the protection of caves and karst is well planned and managed on CALM Act land, the following should be undertaken:

- a) consideration should be given to the inclusion of karst values, if present, when opportunities arise for addition of lands to the reserve system;
- b) when determining appropriate area boundaries of CALM Act land, consideration should be given to areas beyond the surface karst occurrence, as these may be critical for enhanced karst protection through factors such as catchment hydrology;
- c) special protection and management including strict access controls should be applied to areas of highly significant archaeological bone deposit sites (e.g. Devils Lair) and sites containing sub-fossil material (e.g. mummified thylacine and more recent sub-fossil discoveries on the Nullarbor), as well as caves and karst supporting threatened species and threatened ecological communities;
- d) notwithstanding the remoteness of many karst features and the resulting management and control challenges, public access to caves and other sensitive karst features should be classified and managed in accordance with the classification system contained in *Policy Statement No. 18 – Recreation, Tourism and Visitor Services* (Section 2.4);
- e) known areas of karst within CALM Act land will be documented and evaluated for their significance by the Cave and Karst Advisory Group, including recognition of potential regional, national or international heritage values. The evaluation will be used to inform decisions on the further inclusion of karst in the reserve system;
- f) impacts on karst values within CALM Act land should be explicitly addressed in departmental environmental checklists, necessary and compatible operations proposals and site and facility design with particular attention to natural vegetation and changes to water flows, and associated impacts on nearby caves. Where possible, liaison with speleologists, other karst experts, Traditional Owners or Aboriginal cultural heritage experts should be undertaken;
- g) tourist caves and adventure caves will be managed in accordance with appropriate visitor risk management procedures, best cave management practice and accepted cave guiding protocols. Commercial companies operating within caves in CALM Act land will be required to abide by these protocols as a condition of their authority to access the caves;
- h) the department will maintain a coordinated record of data regarding the monitoring of direct and indirect impacts of climate change on the hydrology and the natural values within karst systems;
- i) advice from specialist agencies such as the Western Australian Museum and the Department of Water as well as speleological groups and national bodies such as the ASF, ACKMA and CDAA should be sought in planning for karst protection (and in some aspects of site management), especially in remote areas, and department staff should collaborate closely with these groups and organisations; and



- j) the department's Aboriginal Heritage Unit and local traditional custodians should be asked to provide advice in the development of management strategies for caves of significance to Aboriginal people.

- 6.1.2 Management plans should address the protection and management of karst, and in the absence of a management plan, and where management issues and/or visitor levels require it, karst management should be addressed through the preparation of departmental Interim Management Guidelines.
- 6.1.3 Department staff should provide information on karst occurrence to emergency operations personnel, in particular wildfire suppression incident controllers, in order to assist in emergency response planning. Restrictions on the use of heavy machinery may be required for both personnel safety and environmental reasons where there are occurrences of hidden sinkholes, dolines and shallow roofed caves.
- 6.1.4 Sites on CALM Act land with potential Aboriginal cultural value should be referred to the Department of Aboriginal Affairs for possible addition to the Register of Aboriginal Heritage Sites established under the *Aboriginal Heritage Act 1972*.
- 6.1.5 Non-indigenous heritage values of caves and karst should also be recognised and preserved, for example in existing and former show cave areas of Yanchep National Park and the Leeuwin-Naturaliste Ridge.
- 6.1.6 The department will identify and consider hydrological catchment land use impacts on karst values when undertaking management planning for CALM Act lands. The department will also liaise with other land managers when such impacts originate from outside the reserve area.
- 6.1.7 Scientific research and the taking of mineral or biological samples within caves should be kept to a minimum level and will be authorised by formal permit application only. Detailed protocols, codes of conduct and operating procedures will be developed so as to minimise unacceptable direct, indirect or accidental damage to caves and to their geological, biological, cultural or anthropological contents. The use of photographic recording rather than physical removal of in situ materials should be encouraged.
- 6.1.8 Consistent with *Policy Statement No. 18 – Recreation, Tourism and Visitor Services* (Section 2.12.3) and *Policy Statement No. 68 – Guidelines for the management of events and organised group activities on CALM Act land*, competitive adventure activities will be prohibited in caves on CALM Act land.
- 6.1.9 Authorised commercial operators undertaking non-competitive activities in caves on CALM Act land should be required to have at least basic awareness of karst environments and should adhere to minimum impact codes of conduct and commercial adventure activity standards consistent with the Commercial Operator Handbooks.
- 6.1.10 Other than for tourist caves and well-managed adventure caves, detailed cave locations and names should not be promoted on publicly available maps or other information sources. Should such information be made public, immediate steps should be taken to discourage further use. This is an especially important protection strategy in more remote areas where there is no immediate department management presence.

## **6.2 Encouraging the protection of karst outside land managed by the department**

- 6.2.1 Information and advice on karst issues and best practice karst management should be provided wherever possible to other organisations and individuals that manage land containing, or impacting upon, karst values.
- 6.2.2 Dialogue with protected area agencies in South Australia and the Northern Territory should be initiated regarding collaborative cross-boundary approaches to karst management.

## **6.3 Liaison, advocacy and training**

- 6.3.1 A Cave and Karst Advisory Group will be convened as required, comprising of selected department staff, experienced speleologists and karst managers. The purpose of this group is to:
  - a) advise the department on appropriate karst management;

- b) coordinate dialogue between the (speleological) State Cave Access Committee, other land management agencies and recognised speleological organisations at a national level;
- c) promote the management of caves and karst in planning, including natural resource management strategies and broad scale land use planning; and
- d) promote the Aboriginal cultural significance of karst and caves.

6.3.2 The significant values of caves and karst features as well as their needs for special protection and management, including cultural heritage, should be promoted both statewide (for example through popular media such as *Landscape* magazine) and as part of the department's regional communication strategies. These will aim to improve community understanding of, and appreciation for, caves and karst, to engender support for their protection and management and to promote appropriate and safe visitor behaviour in cave and karst environments.

6.3.3 Cooperation with relevant organisations, including the ASF, ACKMA, CDAA and the Department of Indigenous Affairs, is encouraged in order to raise awareness of caves and karst and their values.

6.3.4 Department staff and volunteers working within karst areas should ensure they have attended appropriate training to undertake their role. The department will provide regular training on karst values and their management and/or seek to access external training courses as appropriate.

#### **6.4 Legislation development and review**

6.4.1 The department will liaise with other government agencies, notably the Department of Planning, the Department of Mines and Petroleum (Geological Survey Branch), and with the Conservation Commission of Western Australia, to consider potential mechanisms for the protection of subterranean features such as caves and their contents, irrespective of surface land tenure.

6.4.2 The effectiveness of the CALM Act and CALM Regulations and associated penalties with regard to protection of geological and anthropological features in addition to biodiversity should be monitored regularly, and amendments should be considered where appropriate. This may include consideration of stronger penalties for wilful damage to valuable karst features including irreplaceable cave decorations, fossils and bone deposits.

### **6. CUSTODIAN**

Director Parks and Visitor Services

### **7. KEY WORDS**

Caves; karst; subterranean; speleological; stygofauna; troglafauna.

### **8. REVIEW**

This guideline will be reviewed no later than February 2019.

### **9. DIRECTOR GENERAL APPROVAL**

Approved by



Jim Sharp  
**ACTING DIRECTOR GENERAL**

Effective date

*14/3/14*



# **AUSTRALASIAN CAVE AND KARST MANAGEMENT ASSOCIATION INC**

Registration number: A0031855P

ABN: 87 698 816 592

## **ASSOCIATION RULES**

***As agreed to at the ACKMA AGM, 14 May 2015.***

Incorporated under the *Associations Incorporation Reform Act 2012* (Victoria, Australia) (**the Act**)

### **The Association**

1. The name of the Association is: Australasian Cave and Karst Management Association Inc (**the Association**).
2. The purposes of the Association are to—
  - a. advocate and facilitate wise and sustainable management of cave and karst resources, particularly in Australasia;
  - b. develop and promote policies, initiatives and standards in cave and karst management;
  - c. encourage and facilitate public awareness, education, interpretation, research and training that will improve cave and karst management; and
  - d. enhance and facilitate liaison and interaction amongst those interested in cave and karst management.

#### **(the Purposes)**

3. The Association has power to do all things that help it to achieve the Purposes.
4. The Association and its Committee may only exercise their powers and use the income and assets of the Association for the Purposes of the Association.

### **Financial year**

5. The financial year of the Association starts on 1 April of each year.

### **Members**

6. Any person who supports the Purposes of the Association can apply to join the Association.
7. Any organisation that supports the Purposes of the Association can apply to become an Associate Member. The rights of membership, including voting, shall apply to one nominated person only.
8. In recognition of distinguished services to the Association, an Annual General Meeting (**AGM**) may elect no more than three persons to the standing of Honorary Life Member;
  - a. Honorary Life Members shall have the same responsibilities and privileges as other members but shall be excused the payment of any subscription fee, but will be invited to make an annual contribution to the Life Member's Fund;

- b. Nominations for Honorary Life Membership shall be recommended to the AGM by the existing Honorary Life Members.
- 9. In recognition of special services to the Association, an AGM may elect no more than three persons to the standing of Fellow. Fellows shall have the same responsibilities and privileges as other members.
- 10. Annual subscription fees will be determined by resolution at a General Meeting.
- 11. Members must pay the annual subscription fee within three months of the start of the financial year. If a member does not pay in time, their membership will be suspended (when membership is suspended, a member cannot exercise their member's rights such as voting at a meeting).
- 12. Where a new member joins in the final three months of the financial year, the Committee may also offer membership for the following financial year.
- 13. Each member's liability is limited to the annual subscription fees.

### **Membership application and resignation**

- 14. To become a member of the Association, a person or organisation must apply to the Treasurer, and pay the relevant subscription fee.
- 15. The Committee has the power to reject any application. No reason need be given for the rejection of an application.
- 16. If the Committee decides by resolution to reject an application, it must notify the applicant in writing of its decision within three months of the Treasurer receiving the application.
- 17. If the Committee rejects the application, it must return any money accompanying the application to the applicant.
- 18. The responsibilities and privileges of membership only apply from the date at which the membership application and payment are both received, unless determined otherwise by the Committee.
- 19. Members can choose to stop being a member of the Association at any time by writing to the Executive Officer. The Association will not refund any fees already paid.
- 20. A member is taken to have resigned if the member's subscription fee is more than 12 months in arrears.

### **Rights of members**

- 21. A member of the Association who is entitled to vote has the right to—
  - a. receive notice of General Meetings and of proposed special resolutions in the manner and time prescribed by these Rules; and
  - b. submit items of business for consideration at a General Meeting; and
  - c. attend and be heard at General Meetings; and
  - d. vote at a General Meeting; and
  - e. attend and participate in conferences, symposiums, seminars and similar functions organised in the name of the Association; and
  - f. receive electronic versions of publications.
- 22. A member may, subject to rules 23 to 25, inspect the Rules of the Association, General Meeting minutes, relevant documents (as defined in the Act) and the members' register at a reasonable time.



23. A member can write to the Executive Officer asking for copies of these documents (with the exception of the members register). The Association can charge a reasonable fee for providing copies.
24. The Executive Officer can refuse a request to inspect or get copies of relevant documents, or provide only limited access, if the documents contain confidential, personal, employment, commercial or legal matters, or if granting the request would breach a law or may cause damage or harm to the Association.
25. Members cannot inspect or get copies of minutes of Committee Meetings or parts of the minutes, unless the Committee specifically allows it.
26. Members can write to the Executive Officer to ask that the Executive Officer restrict access to their details on the members' register if they have special circumstances. The Executive Officer will decide if there are special circumstances, and will write to the member outlining the decision.

### The Committee

27. The Association is governed by a management committee (the **Committee**) that is made up of committee members (**Committee Members**).
28. The Committee can exercise all powers and functions of the Association (consistent with these Rules and the Act), except for powers and functions that the members are required to exercise at a General Meeting (under these Rules or the Act).
29. The Committee can delegate any of its powers and functions to a committee member, a sub-committee, a staff member or a member other than the power of delegation or a duty imposed by the Act. The delegation must be in writing and can be revoked by the committee in writing.
30. Among its other responsibilities, the Committee is responsible for making sure that:
  - a. accurate minutes of General Meetings and Committee Meetings of the Association are made and kept; and
  - b. all records, securities and relevant documents of the Association are kept properly.
31. A resolution in writing, signed by an absolute majority of the Committee Members, shall be as valid and effectual as if it had been passed at a meeting of Committee Members duly convened and held. Any such resolution may consist of several documents in like form and approval may be emailed in lieu of signature.
32. The Committee is made up of the following roles:
  - a. The President;
  - b. The Australian Vice-President;
  - c. The New Zealand Vice-President;
  - d. The Treasurer;
  - e. The Secretary;
  - f. The Executive Officer;
  - g. The Publications Officer;(these are the **Offices**)
  - h. Three Ordinary Committee Members; and
  - i. Up to two co-opted members.

### **Appointment and election of Committee Members**

33. At the AGM, separate elections by ballot must be held for each of the Offices (except for the Secretary), and one election held for the Ordinary Committee Members.
34. If only one member is nominated for an Office, the Chair must declare the member elected to the position.
35. If three or fewer members are nominated for the position of Ordinary Committee Member, the Chairperson must declare those members elected to the position.
36. Nominations of candidates for election as members of the Committee shall be made in writing, signed by two members of the Association and accompanied by the written consent of the candidate.
37. Nominations shall be delivered to the Executive Officer of the Association not less than seven days before the date fixed for the holding of the AGM.
38. If insufficient nominations are received to fill any position on the Committee, further nominations may be called for at the AGM.
39. The Secretary shall be appointed by the Committee.
40. The Secretary must be over 18 years of age, and live in Australia.
41. If the Secretary stops living in Australia, they cannot remain the Secretary.
42. If the Secretary stops being the Secretary, the Committee must appoint a new Secretary within 14 days.
43. The elected members of the Committee may at any time co-opt up to two additional members to the Committee to carry out specific functions.
44. Each Committee Member other than the Secretary finishes their time on the Committee (**term**) at the next AGM after they were appointed, but they can be elected again.
45. A Committee Member stops being on the Committee if they:
  - a. resign, by writing to the Executive Officer; or
  - b. otherwise cease to be a committee member by operation of section 78 of the Act.
46. If a Committee Member other than the Secretary stops being on the Committee before the end of their term in accordance with rule 45, the Committee can temporarily appoint a member of the Association to fill the vacancy on the Committee until the next AGM.

### **Duties of offices**

47. The Executive Officer must:
  - a. keep custody of all books, documents and securities of the Association; and
  - b. ensure members are given timely notice of meetings; and
  - c. provide members with access to the minutes of General Meetings and other books and documents.
48. The Secretary must:
  - a. perform any duty or function required under the Act to be performed by the secretary of an incorporated association, including lodging of documents with the Victorian Registrar of Incorporated Associations; and
  - b. give the Victorian Registrar of Incorporated Associations notice of the appointment within 14 days after the appointment.



49. The Treasurer must:

- a. maintain the register of members including their address and date of becoming a member; and
- b. remove within 14 days all former member's information from the register except their name and the date they ceased membership; and
- c. ensure that the financial records of the Association are kept in accordance with the Act; and
- d. coordinate the preparation of the financial statements of the Association and their certification by the Committee prior to their submission to the AGM of the Association.

### Committee Meetings

- 50. The Executive Officer must give 14 days' notice of a Committee Meeting to Committee Members unless the meeting is an urgent meeting.
- 51. If an urgent meeting is called, as much notice as practicable must be given to all Committee Members and only the issues for which the meeting was called can be considered. Any resolution made at the urgent meeting must be passed by an absolute majority of Committee Members.
- 52. The Committee can decide how often it meets and the order of business at meetings.
- 53. Committee Members may attend meetings through technology (such as phone or video conferencing) so long as everyone can hear and be heard at the same time.
- 54. The Chair of Committee Meetings is the President; or if the President cannot attend, a Vice-President; and if the President and Vice-Presidents cannot attend, the Committee Members can elect a Chair for that meeting.
- 55. On any issue, each member of the Committee has a vote – except as outlined in Rule 43. If a vote is tied, the Chair of the meeting has a deciding vote.
- 56. The majority (more than half) of Committee Members must be present (either in person or through the use of technology) for the meeting to be validly held (the **quorum**).

### General Meetings

- 57. The Association must hold an AGM within five months of the end of the Association's financial year.
- 58. The Committee shall determine the date, time and place of the AGM.
- 59. The ordinary business of the AGM is to confirm the minutes of the previous AGM, receive reports and statements on the previous financial year, and elect Committee Members.
- 60. At each AGM, the Association must determine the subscription fees (if any) for each class of member for the following financial year.
- 61. The Committee or a group of at least 10% of all members may convene a Special General Meeting.
- 62. At least 10 members (a **quorum**) must be present at a General Meeting (either in person or through the use of technology, or by proxy) for the meeting to be held.
- 63. Members may vote by proxy at General Meetings.
- 64. Proxy forms must be received by the Executive Officer before the start of any meeting.
- 65. Notice of General Meetings must be provided to members at least 21 days before the meeting in accord with rule 83, and include the time, date and place of the meeting.

66. Where a special resolution is proposed, notice must be provided in accord with rule 89.
67. Notices of General Meetings must include proposed matters to be dealt with at that meeting.
68. The Chair of a General Meeting will be the President; or if the President is not in attendance, a Vice President; or if the President and a Vice President are not in attendance, the members at the meeting can elect a Committee Member to be Chair.
69. Votes may be held by a show of hands or written ballot, or another method determined by the Chair that is fair and reasonable in the circumstances. If a vote is held initially by show of hands, any member may request a vote be held again by written ballot.
70. If a vote of the members is tied, the Chair of the meeting has the deciding vote.
71. The Chair may adjourn the meeting if there are not enough members at the meeting (see rule 62) within 48 hours of the meeting time; or if there is not enough time at a meeting to address all business. A new notice must be sent to members before the adjourned meeting (but does not have to comply with time for notice requirements, unless the adjourned meeting is more than 21 days after the original meeting date).

### **Grievance disputes**

72. If there is a dispute between a member and another member, a member and the Association, or a member and the Committee, the parties involved must first attempt to resolve the dispute between themselves for at least 14 days from the date the dispute is known to all parties involved.
73. If the dispute cannot be resolved between the people involved, the following grievance procedure must be followed:
  - a. the party with a grievance must write to the Association and any other people affected, and explain what they are unhappy about;
  - b. the Committee must appoint an unbiased mediator to hear from all the parties involved and try to find a solution. The Committee must give the people involved reasonable notice of the time and place of the hearing;
  - c. at the hearing, each party must have an opportunity to be heard and agrees to do their best to resolve the dispute; and
  - d. if the parties cannot resolve the dispute with the assistance of the mediator, then an unbiased decision-maker must determine the outcome of the dispute.

### **Disciplining members**

74. The Committee can discipline a member of the Association if it considers the member has breached these Rules or if the member's behaviour is causing (or has caused) damage or harm to the Association.
75. The Committee must write to the member to tell them why disciplinary action is proposed to be taken.
76. The Committee must arrange a disciplinary procedure that meets these requirements:
  - a. the outcome must be determined by a unbiased decision-maker;
  - b. the member must have opportunity to be heard; and
  - c. the disciplinary procedure must be completed as soon as reasonably practicable.
77. The outcome of a disciplinary procedure can be that the member must leave the Association, for a period of time or indefinitely. The Association cannot fine a member.



## **Funds**

78. The Association may derive or generate funds from joining and annual subscription fees, donations, grants, fundraising, interests, and any other sources approved by the Committee that are consistent with furthering the Association's Purposes.
79. The Association must not distribute funds, income or assets to members except as allowed for in Section 4 of the Act. Subject to any restrictions imposed by a General Meeting of the Association, the Committee:
  - a. must approve expenditure on behalf of the Association;
  - b. may authorise expenditure on behalf of the Association up to a specified limit, without requiring specific approval from the Committee for each item of expenditure.
80. Cheques, electronic funds transfers or cash payments made from the Association's funds must be authorised by any two members appointed as financial signatories by the Committee.
81. Financial records must be kept and stored for 7 years, and in accordance with any other applicable laws.
82. The Association does not have a common seal.

## **Notice requirements**

83. Any notice required to be given to a member or to a committee member under these Rules may be given by handing the notice to the member personally, or by sending it by post to the member at the address recorded for the member on the register of members, or by email or facsimile transmission, or by advertisement in publications of the Association.

## **Alteration of Rules**

84. These Rules may be changed, added to, or replaced by special resolution of the Association's members at a General Meeting.

## **Winding Up**

85. The members may vote by special resolution at a General Meeting to wind up the Association.
86. If the Association is wound up, any surplus assets must not be distributed to the members or former members of the Association, and (subject to the Act and any Court order) must be distributed to another organisation or organisations, so long as that other organisation or organisations are not carried on for the profit or gain of its members.
87. Where possible, any surplus assets shall be distributed to an organisation with interest in cave management.

## **Special Resolution**

88. A special resolution must be passed by 75% of members present or voting by proxy at a meeting and who are entitled to vote.
89. At least 28 days' notice of any meeting that includes a proposed special resolution must be given to all members.

# CAPRICORN CAVES, ROCKHAMPTON, QUEENSLAND

**CAVE GUIDE SCHOOL** Wednesday 4 May – Friday 6 May 2016

**ACKMA ANNUAL GENERAL MEETING** Friday 6 May – Monday 9 May 2016

## EVERYONE WELCOME!

We extend an invitation to everyone to join us for an exciting guide school focussing on the role of the cave guide delivering a memorable interpretive experience. This will be followed by the ACKMA annual general meeting.

## Highlights of the Guide School will be the keynote speakers:

### John Pastorelli



Winner of Australia's highest honour for practicing interpreters, the Georgie Waterman award, John went on to start his own company Ochre learning. He is a well-known trainer, coach and author who designs rich interpretive experiences and customer engagement. He has worked on training programs ranging from Chinese speaking persons to aboriginal communities in NSW. He was involved in Sydney Bridge Climb, Nature Connections New Zealand, Zoos Victoria and presented at Tasmania's Tourism Industry Council Conference in 2015.

### David Morgans



Director Destination and Market design at Tourism Events Queensland. David joined Tourism Events Queensland in 1997 with a range of positions including product development, sustainable and environment tourism. Recently he has worked with Duane Knapp an expert in brand strategy in presenting experience development to tourism forums. David graduated from Griffith University with a degree in environmental science.

## Keynote speaker at ACKMA Annual General Meeting

### Scott Hocknull



Scott is a vertebrate palaeoecologist, passionate science communicator and 3-D digitisation and virtual technology advocate and practitioner in the museum community. Among other honours, Scott was awarded the Young Australian of the Year in 2002, which provided him a unique platform to develop and promote Australian vertebrate palaeontology research and community engagement, whilst leading a wide range of new areas of exploration, discovery and research. Realising that most of museum collections are hidden from public view, Scott has become a strong advocate for bringing the behind-the-scenes museum collections and science to the public. He is currently working on new 3-D digital and virtual ways to better capture our fossil heritage in digital perpetuity. He heads the team currently researching the palaeontology dig site at Capricorn Caves.

### Capricorn Caves

Located north of Rockhampton, just off Highway One, these caves are the only privately owned show caves on freehold land in Australia. They have been open to the public since their discovery by the Olsen family in 1881. Today they offer a variety of experiences from wheelchair accessible tours to wild caving, Geo discovery tours, renamed Bats and Bones for families, rope courses and abseiling. A strong educational program is complimented with accommodation facilities. In 2014 they were awarded gold in the Queensland tourism awards and the Australian bronze award for tourist attraction. The whole cave system has recently been relit with solar powered Weidmuller LED lights operated through a Cbus™ computerised system.

Of Devonian origin, the caves are different to underground highly decorated wet systems. The limestone has been uplifted over millions of years to form a ridge with an interesting surface karst. Scientific debate continues on the formation of the caves, but much knowledge has been added through the work of Dr Scott Hocknull and his team. A Queensland Museum palaeontology dig site is revealing exciting information about climate change and past flora and fauna. The most recent discovery by [Dr Gilbert Price](#) and an Australian research team has found a one-centimetre bone from under the lizard's skin and is the youngest record of a giant lizard on the entire continent. This bone found in Capricorn Caves is the first evidence that the time frames of Australia's first human inhabitants and giant apex predator lizards had overlapped.

### Getting to Capricorn Caves, Rockhampton

Located 23 kms north of Rockhampton, Central Queensland on Highway One, Capricorn Caves are 600kms north of Brisbane or 8.5 hours drive time. The airport is well serviced with frequent flights by Virgin and Qantas. Capricorn Caves will organise transfers from the airport. Major hire companies also service the airport. Advance bookings recommended.



*Capricorn karst.  
Photo: Supplied by Capricorn Caves*



**DRAFT CAVE GUIDE SCHOOL PROGRAM****4-6 MAY 2016**

<b>Tuesday 3 May</b>	<b>Registration from 12 noon</b>
<b>Afternoon</b>	<b>Capricorn Cave Experience Options</b> <ul style="list-style-type: none"> <li>• Cathedral Tour departs hourly from 9am to 4pm</li> <li>• Adventure Caving 2pm Must be booked.</li> <li>• Abseiling Must be booked</li> </ul> <b>Expression of interest on registration form</b>
<b>6.30pm</b>	<b>Dinner Caves Country Pub (own expense)</b>
<b>Wednesday 4 May Theme: Delivering a memorable interpretative experience</b>	
<b>Morning 7.00 am</b>	<b>Breakfast</b>
<b>8.00 am</b>	<b>Welcome and Introductions Guides' Minute Moments</b>
<b>9.00 am</b>	<b>The Visitor Experience      Tribute to Elery Hamilton Smith Dan Cove President ACKMA</b>
<b>9.30 am</b>	<b>Introduction of Guide Tool box Cathy Plowman</b>
<b>10.00 am</b>	<b>Morning tea</b>
<b>10.30 am</b>	<b>Guide Tool Box - John Pastorelli Lead Consultant Ochre Learning</b>
<b>12.30 pm</b>	<b>Lunch</b>
<b>Afternoon 1.30 pm</b>	<b>David Morgans Director Destination &amp; Market Design at Tourism Queensland What defines a memorable, engaging and inspirational visitor experience?</b>
<b>2.30 pm</b>	<b>Site experiences</b> <ul style="list-style-type: none"> <li>• Geotour of discovery (2 hours)</li> <li>• Adventure Caving (2 hours)</li> </ul>
<b>5.30 pm</b>	<b>Bat Bar Open</b>
<b>Evening 6.30 pm</b>	<b>Dinner Capricorn Caves Function venue</b>
<b>7.30 pm</b>	<b>Cathedral cave tour at night Keynote address -John Pastorelli</b>

Thursday 5 May		Theme Delivering a memorable interpretative experience	
Morning 7.00 am	Breakfast		
8.00 am	Guide Tool Box -John Pastorelli Lead Consultant Ochre Learning		
10.00 am	Morning tea		
10.30 am	Master class: The G.U.E.S.T™ Philosophy: the key to exceeding expectations David Morgan Director Destination & Market Design at Tourism Queensland		
12 noon	Lunch		
1.00 pm	Question & Answer Panel session		
2.30 pm	Prepare for bus departure for afternoon activities		
3.00 pm	Departure Picnic and walk up Jim Crow volcanic plug Dinner and tour of Koorana Crocodile Farm		
Friday 6 May      Recreational Activities			
7:00 pm	Breakfast		
Optional activities At own expense	1. Adventure Caving   Mt. Etna Caves N.P. (Allow 5 hours) No charge Capricorn Caves can provide helmets and light. Own caving clothes required. 2. Capricorn Caves tour options, No charge 3. Day on Great Keppel Island – sand, sea, sail, snorkel, explore. Please book your own trip <ul style="list-style-type: none"><li>• <a href="http://www.freedomfastcats.com">www.freedomfastcats.com</a></li><li>• <a href="http://www.sailcapricornia.com.au">www.sailcapricornia.com.au</a></li></ul> Transfers to the marina from Capricorn Caves \$20.00 per person return.		
Evening 5.00 pm	Departure Capricorn Caves Dinner Great Western Hotel - indoor bull riding <u>Not included in registration. Additional \$45pp payable with registration</u>		

### Payment options

- Credit Card Details
- Cheque made payable to Capricorn Caves
- Direct Deposit

Ann Augusteyn Trading as Capricorn Caves BSB 084 905 Account Number 525256199

Use your surname in the reference and also email a remittance of payment to

[admin@capricorncaves.com.au](mailto:admin@capricorncaves.com.au)

# DRAFT AUSTRALASIAN CAVE & KARST MANAGEMENT ASSOCIATION

## ANNUAL GENERAL MEETING

Friday 6 May 2016	
Afternoon	Registration for ACKMA AGM
5:00 pm	Departure Capricorn Caves Dinner Great Western Hotel - indoor bull riding
Saturday 7 May 2016	
7:00 am	Breakfast
8:00 am	Registration
8:30 am	AGM
9:00 am	Keynote speaker Dr Scott Hocknull Senior curator Ancient Environments, Queensland Museum 3D Photogrammetry
10:30 am	Morning Tea
11:00 am	Group 1 Inspection of new LED lighting Capricorn Caves
	Group 2 Presentation of Palaeontology dig site Dr Scott Hocknull
12:00 pm	Lunch
1:00 pm	Group 1 Presentation of Palaeontology dig site Dr Scott Hocknull
	Group 2 Inspection of new LED lighting Capricorn Caves
2:00 pm	Depart Capricorn Caves
Late afternoon/ evening	Byfield NP via Lake Mary and volcanic plugs Options: Kayak Waterpark Creek, Nob Creek pottery, Stony Creek
Evening	Dinner Ferns Hideaway Restaurant Byfield
Sunday 8 May 2016	
7:30 am	Breakfast
9:00 am	Overview of Guide School
9:30 am	ACKMA where to from here
10:00 am	Ghost Bat Survey John Augusteyn
10:30 am	Morning Tea
11:00 am	Group 1 Mt Etna site A
	Group 2 Mt Etna Site B
1:00 pm	Lunch
2:00 pm	Group 1 Mt Etna Site B
	Group 2 Mt Etna Site A
4:00 pm	Return to Capricorn Caves
5:00 pm	Dinner at Capricorn Caves
Monday 9 May	
7:30 am	Breakfast
	Return transfers



# Registration Form

<b>Registration Cave Guides Workshop</b>	Registration includes meals and transfers for activities from breakfast Wednesday 4 May -breakfast Friday 6 May and transfers for activities	Fee	Your cost
		\$170	
<b>Transport</b>	Will you be requiring transfers to and from Rockhampton airport to Capricorn Caves (no public transport available) \$20 return	\$20	
<b>Additional meal</b>	Friday Night return transfers and Dinner at the Great Western \$45.00 pp	\$45	
<b>Pre guide school activities</b>	Expression of interest for Tuesday 3 May <ul style="list-style-type: none"> <li>• Cathedral Tour departs hourly 9.00 am to 4.00pm</li> <li>• Adventure caving departs 2.00 pm</li> <li>• Abseiling 2.00 pm</li> </ul>	yes/no yes/no yes/no	
<b>Post guide school or pre ACKMA AGM activities</b>	Expression of interest for Friday 6 May <ul style="list-style-type: none"> <li>• Adventure caving Mt Etna NP (allow 5 hours) no charge</li> <li>• Capricorn Cave tour options no charge</li> <li>• Day on Great Keppel Island - sand, sail, snorkel, explore. Please book your own trip, transfers to marina from Capricorn Caves \$20 pp return</li> </ul>	yes/no yes/no yes/no  \$20	
<b>Registration ACKMA AGM</b>	Registration includes meals and transfers for activities from dinner Friday 6 May-breakfast Monday 9 May and transfers for activities	\$260	
<b>Accommodation</b>	All accommodation to be booked direct with Capricorn Caves. You must inform reservation staff that you are with the guide school or ACKMA AGM as all accommodation has been reserved for the group. Ph 0749 342 883, <a href="mailto:admin@capricorncaves.com.au">admin@capricorncaves.com.au</a>		
	<b>Unpowered Sites</b> \$30.00 per site per night for 2 people and \$5 for any additional guests		
	<b>Powered Sites</b> \$35.00 per site per night for 2 people and \$5 for any additional guests		
	<b>Lodge 12 rooms with 2 single bunk beds per room and shared amenities, linen and towels included. \$80.00 per room per night for up to 4 people</b>		
	<b>Deluxe Cabins</b> Fully self contained deluxe Cabin, 1 bedroom with Queen size bed, Second bedroom with 3 single beds. Linen and towels included. \$180.00 per night for 2 people and \$10 for any additional guests.		
<b>Total</b>	Please total your costs Payment option (please circle) Direct deposit/ credit card/ cheque. See page 33 for payment details.	\$	



