

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: Andy Spate, Tony Culberg

Photos taken by the authors or editor unless otherwise acknowledged.

PRINTER: Hansen Print, Smith Street, Naracoorte, South Australia 5271.

Ph: (08)87 623699

ACKMA Inc. is cross affiliated, or otherwise associated with:

Australian Speleological Federation, New Zealand Speleological Society, Australasian Bat Society, The WCPA Working Group on Cave and Karst Protection, Guiding Organisations Australia, Bat Conservation International, American Cave Conservation Association, International Show Caves Association, Cave Diving Association of Australia, The Malaysian Karst Society, The Jenolan Caves Historical & Preservation Society and the USA National Speleological Society Cave Conservation and Management Section

LIFE MEMBERS of ACKMA Inc.

Michael Chalker*, Peter Chandler*, Brian Clark*, Alan Costigan, Kent Henderson*, Elery Hamilton-Smith*, Ernst Holland*, Greg Martin*, Chester Shaw*, Andy Spate*, Clyde Stiff, Dianne Vavryn*, Rauleigh Webb*, Kevan Wilde*, David Williams*.

(*previously elected as Fellows)

FELLOWS of ACKMA Inc.

John Ash, Anne Augusteyn, Peter Bell, Steve Bourne, Dale Calnin, Deborah Carden, Arthur Clarke, Grant Gartrell, Ken Grimes, Ian Houshold, Neil Kell, Kevin Keirnan, Lana Little, Robyn McBeath, Cathie Plowman, Dennis Rebbechi, Barry Richard, Dave Smith, Nicholas White, Anne Wood, Phil Wood.

ACKMA PRESIDENTS

Ernst Holland 1987-91, Andy Spate 1991-95, Michael Chalker 1995-97, Greg Martin 1997-99, Brian Clark 1999-2001, Peter Dimond 2001-02, Peter Chandler 2002-03, Robyn McBeath 2003-05, Steve Bourne 2005-11, Peter Chandler 2011-

FRONT COVER: Waitomo Glowworm Caves Visitor Centre. Photo: Courtesy Tourism Holdings Limited

INSIDE BACK COVER AND BACK COVER: Scenes from Waitomo, New Zealand. Photos: Steve Bourne

ACKMA Inc. OFFICE BEARERS 2012-2013

President

Peter Chandler Email: president@ackma.org

New Zealand Vice President

Dave Smith Email: nz.vice.president@ackma.org

Australian Vice President

Dan Cove Email: aus.vice.president@ackma.org

Executive Officer

Catherine Sellars Email: executive.officer@ackma.org

Treasurer and Membership Officer

Grant Gartrell Email: treasurer@ackma.org

Publications Officer and ASF Liaison Officer

Steve Bourne Email: publications@ackma.org

Conference Convener

Libby Chandler Email: conference.convener@ackma.org

Committee Member

Sasa Kennedy Email: committee@ackma.org

Committee Member

John Brush Email: committee@ackma.org

Committee Member

Kirsty Dixon Email: committee@ackma.org

Webmaster

Rauleigh Webb Email: webmaster@ackma.org

International Relations Officer

Andy Spate Email: internationalrelations@ackma.org

Public Officer

Miles Pierce Email: public.officer@ackma.org

IN THIS ISSUE

Editorial - Steve Bourne	Page 3
Presidents Message - Peter Chandler	Page 7
Spellbound tours - Libby and Peter Chandler	Page 8
Glowworm and Aranui Caves - Travis Cross	Page 12
Careys Cave, Wee Jasper - Geoff Kell	Page 15
Peter Austen Retires - Dan Cove	Page 16
Capricorn Caves - Anne Augusteyn	Page 17
Sand Cave, Naracoorte - Steve Bourne	Page 18
Waitomo Conference	Page 19
Cave diving in Florida- Peter Buzzacott	Page 23
Naracoorte town entrances - Steve Bourne	Page 26
Rawhiti Cave - Jane Baird	Page 28
Buchan Cave Guides Conference - Steve Bourne	Page 29
Peter Berrill - John Dunkley	Page 35
Stephen Blanden - Cathie Plowman	Page 37

FROM THE EDITOR

The ACKMA Waitomo conference looms closer and the registration form is enclosed with this journal. The organising committee has been working hard and the program is full of interesting activities. It is also time to call for papers to be presented at the conference. ACKMA conferences have been fantastic experiences, made all the richer for the presentations delivered. One only has to review the conference proceedings to see this.

I took a few days off work and attended the Buchan Cave Guides Conference, which is reported within this journal. The Buchan Caves precinct was in immaculate condition, an absolute credit to Dale Calnin and his team. I arrived a day early and walked all the walking trails in the park. Most cave reserves have some walking trails which are generally, although not always, underutilised by the public. The lesser walked trails at Buchan were rich in wildlife and orchids, and peaceful

because I was the only one on them. The popular walk to the falls was dominated by families with noisy children and little wildlife. I wish I knew an answer to make people take the time and enjoy the scenery and sense of place. The conference had a small attendance, but was rewarding for those who attended. It does concern me that only four cave sites were represented when this event is such a valuable learning experience. It is two years before the next guides conference at Yarrangobilly Caves. Lock it in as a must attend for your staff.

In June, I took another visit to Mulu, taking some of my family and friends. Brian Clark and family were wonderful hosts again, of course, and once again there were new things on offer. Since ACKMA held the AGM in Mulu, Brian has established a Botanical Trail which traces the evolutionary history of plants, adaptations, relationships with insects, fungi and so on. It is in

MONDAY, SEPTEMBER 10, 2012

BAIRNSDALE ADVERTISER - 13

Buchan & Gelantipy Times

Cave guides network and learn

A passion for caves and cave guiding brought over 30 regional and interstate guides, parks managers, cave scientists, historians and Phd students to Buchan for the 14th Australian Cave Guides Conference.

The conference began on Monday, September 3, with welcomes from ranger-in-charge Dale Calnin, district chief ranger Will McCutcheon and Gunai/Kurnai Land and Waters Aboriginal Corporation representative, Tony Finn.

Over two days the conference agenda included five guest speakers a presentation on various cave operations in Australia, cave tours and lots of networking.

Unfortunately, professor, Elery Hamilton-Smith was not well and conference attendees missed his presentation on the 'History of Cave Guiding'.

After welcoming the visitors ranger Calnin gave a brief history of how the conference grew from an idea for cave guides to get together to share information to later becoming the 'Cave Guides Gad Fest'. It is now a regular bi-annual conference well regarded and hoped to remain as such and continue to grow.

"Our role as cave guides is the grassroots of caves man-



Parks Victoria, Buchan Caves Reserve rangers and staff welcomed cave guides from Jenolan, Yarrangobilly and Naracoorte Caves along with guest presenters and visiting experts from Latrobe and Melbourne Universities, ACKMA and VSA members and Friends of Buchan Caves to the 14th Australian Cave Guides Conference held last week in Buchan. K672-0496

agement," he said.

As chair of the Cave and Karst Advisory Group, district chief ranger Will McCutcheon thanked Tony Finn for welcoming everyone to the conference on behalf of the traditional owners of the country.

"Under recent legislation Parks Victoria now jointly manages Buchan Caves Reserve and an area around the New Guinea 2 cave in the Snowy River National Park with the Gunai Kurnai people," he said.

"At the New Guinea cave

site there is a history of Aboriginal occupation over 20,000 years," he said.

"One of our most important tasks of cave management is the management of visitors and at "Buchan the caves are a central part of the local tourist economy. He said it was important to focus on the people who show the general public the caves.

There has been a significant increase in the number of people coming to Buchan to visit the caves. Park rangers are well aware that as soon as there is an overcast day at

Lakes in summer they can expect a lot of visitors

"The value of the visit is highly dependent on the kind of experience the visitor gets, Dale and his staff always fulfil visitor expectations".

Visiting speleologist and geomorphologist Dr Sue White's explained that although Victoria did not have the "longest, hardest and deepest caves" in Australia, it does have a diverse range of caves and karst.

Dr White first visited Buchan in 1967 Sue described the age and type of

caves across the state.

"Caves preserve aspects of previous environments, not usually preserved in other landscapes," she said.

Some of the timelines the speaker mentioned would have newcomers to the world of geomorphology speechless 50 million to 450 million years ago in the geologic periods of the Cambrian, Ordovician and Devonian epochs.

She said the caves at the Pot-holes at Murrindal are 42 million years old and that it is now known the caves in the

Buchan complex are very old and well decorated.

PhD student Helen Green presented the results of her two-and-a-half years of research. 'Exploring the potential of speleotherm paleoclimatic records from South Eastern Australia'.

Helen worked primarily on three sample of stalagmite from Batts Cave, Portland, one from Buchan and one from Wombeyan.

She explained that as a stalagmite builds from the ground up from a single, surface drip source over thousands of years, it holds a record of what kinds of vegetation was flourishing above the ground above it.

The formations can be tested to ascertain climate changes over a very long time.

All Helen's samples were from stalagmites that had formed over the last 20,000 years.

The samples were drilled and uranium tested to identify changes in climatic conditions.

Recently Helen has also installed some monitors in the Buchan caves.

She said there had been very little paleoclimatic information gathered in Australia and her research had put the Buchan Caves on the world cave monitoring, map.

The Buchan Caves Guides Conference was reported in the Buchan and Gelantipy Times



*Above. The view from the new Clearwater Cave boardwalk
Left. Brian Clark*



keeping with the approach he has taken with the rest of the interpretation in the park, with an animal (this time an ant) leading the visitor along the trail. It is another excellent visitor experience at Mulu, but perhaps like some trails I mentioned above, may not receive the visitation it deserves. It will, however, richly reward those who take the time to enjoy it.

Brian has also installed a new walkway in Clearwater Cave, which takes visitors high above the river. It is a fantastic view and once again adds considerably to the visitor experience.

Our travelling party met up with Brian and Sue in Miri and we spent a day at Niah Caves. There has been some developments at this park too, but not in the coordinated manner of the work at Mulu. A new visitor centre has been constructed well away from the old one, but has no signage directing visitors to it. When we arrived, a group of Asian visitors was trying to access the old ticket office, which was locked up. It took a few minutes to work out where we needed to go. All of the displays, except the museum across the river, were locked. No other work has



Clearwater Cave, Mulu National Park. Photo: Ross Anderson

been undertaken yet and there is an urgent need to rebuild much of the infrastructure.

Lisa King, who many ACKMA members will know, now works for Sarawak Tourism. We met up with Lisa and husband Ted in Miri and discussed what is needed at Miri. Lisa, Brian and I worked on a proposal for the Malaysian Government to consider to improve the visitor experience at Niah and are waiting for feedback on whether this project will proceed. I carried all of my camera equipment to Niah Cave and managed some very nice images, especially of some bats, only to have the card in my digital camera corrupt. Despite my best efforts and those of two experts, the photos of Niah have not been retrieved. Looks like I have to go back again!

The Western Australian Government has completed an important cave management project of the Nullarbor. Similar work has been proposed for caves such as Koonalda Cave in South Australia but has yet to be implemented. The media release is reproduced below.

Nullarbor caves fenced for the future

One of Australia's most biologically important cave systems has received extra protection, following a project to fence off the catchment areas of several caves on Mundrabilla Station on the southern Nullarbor.

In partnership with the station owner, the Department of Environment and Conservation (DEC) fenced off Webbs Cave (including nearby Snake Pit Cave), Thampana Cave and Witches Cave, with 7.5km of fencing.

DEC Esperance District Manager Klaus Tiedemann said the fences were constructed to mark future proposed reserve boundaries and exclude livestock from the caves.



Nullarbor erosion issues. Pannikin Cave, Western Australia 2009.

"The fences will prevent livestock manure and weeds from being transferred into the cave environments, reduce soil erosion and disturbance, and reduce the risk of livestock becoming trapped in the caves," he said.

"As part of the world's largest karst region, covering about 200,000km², these three caves play a critical role in the system and have exceptionally high conservation values.

"From a biological perspective the Nullarbor caves contain rare endemic fauna, some of which are very small, fragile and vulnerable to disturbance.

"Spiders, crustaceans, centipedes and many more troglobites and troglaphiles share the caves with larger creatures like masked owls and chocolate bats.

Mr Tiedemann said signs have been installed to raise awareness about safety risks and inform visitors of the importance of the caves and their environments.

"The fencing project will not only raise visitor awareness of the need to tread carefully near these karst features but also allow the surrounding catchment area to regenerate without being impacted by grazing livestock," he said.

The project commenced in October 2011 in accordance with the Interim Management Guidelines for Nullarbor Caves and other Selected Karst Features, a report prepared in 2009 for DEC and the Rangelands Natural Resource Management group.

The International Show Caves Association Conference will be held in Greece and Turkey in November and I understand Dan Cove from Jenolan Caves will be attending. It is now just two years until the ISCA Congress is to be held at Jenolan. An International Congress on Scientific Research was held in Slovenia at Scocjan Caves in September with a very interesting program of papers. The abstracts can be downloaded from the ISCA website www.i-s-c-a.com

I put out a call for more contributions to the journal and I thank those who have responded. Some people said they didn't have anything to write about, but what seems everyday happenings to you makes interesting reading for our membership. This journal we have contributions of activities from Rockhampton, Jenolan, Wee Jasper and Naracoorte; two obituaries recognising the contributions of Peter Berrill (held over from the last journal) and Stephen Blanden, a perspective on cave diving in Florida and some background articles on Waitomo to whet your appetite.

In the early days of the ACKMA journal, there was a section where cave sites reported on what was happening. It would be great to reinstate this as a way of connecting ACKMA members and their work, it is one of the purposes of this journal. So, hit the keyboard, take a few snaps and help make this journal a great read for everyone.



SPELEOLOGICAL ABSTRACTS LIVES!

Despite an absence of about 4 years, SA/BBS, the annual abstracts publication of IUS's Commission on Bibliography, has returned with issues for 2006 and 2007 published recently.

2006 (#45) contains 3800 abstracts, of which over 700 deal with Australasia. 2007 (#46) contains 3400 abstracts, nearly 500 relating to Australasia.

Each issue, which comprises the hard copy + CD, is CHF45 (~AUD45) + shipping. Also available is a consolidation of 20 yrs of abstracts (1988-2007) on CD for CHF250 (AUD268) - comprising nearly 100,000 entries.

Go to the International Union of Speleology's website or direct to: www.ssslib.ch/bbs/index.htm for more details and ordering information.

Help with compiling Australia's abstracts for 2008 to 2010 is urgently needed. If interested, please contact the chair of ASF's Bibliography Commission, Greg Middleton: ozspeleo@inet.net.au

PRESIDENT'S REPORT

Peter Chandler

Kia Ora, Knowing that I am on the journal deadline means a call to action, first I would like to compliment Roland Eberhard on his conservation 'Case study of Cave Improoovement!'

To me, Roland's study brings together in an excellent way many thoughts very relevant looking toward the Waitomo conference next May. This is the 'Planet' component of the conference theme 'the triple bottom line' abbreviated to TBL or 3BL. We are people who are, I'm sure, involved with visiting caves, and may gain their livelihood from caves, promote caves, look after caves or even make cases to increase or decrease human visitation with the resulting effects. And I'm sure some members do all these and more!

The statement that caves have historically been promoted as an aesthetic experience....scope for pandering to the faddish and ephemeral. Should a cave be opened or infrastructure changed or some other such action be done, to achieve an outcome, when due to a lack of adequate consultation, planning, peer review, there are unanticipated consequences that make the decision a bad one, and perhaps a very costly one to mitigate.

I believe there are examples of this happening in the here and now, to varying degrees. Optimistically, if those involved in caves read of these studies, the future incidence of them should be decreased.

As with virtually any topic there are huge quantities of information on line about TBL / 3BL, which seems to be good stuff. I'm sure the editor would welcome material on this subject before Waitomo.

Things have been quiet on committee matters at present. Earlier this year Libby and I had thoughts of attending the ISCA congress in Greece & Turkey, in November but for us, alas, it a long way to travel without the justification of staying longer to use resources to travel more sparingly. I wish Dan Cove well at the congress, principally representing Jenolan Caves, but also representing ACKMA.

On the cave visitor scene here at Waitomo, the economic downturn and Christchurch earthquakes have caused ups and downs in visitor numbers that for the most part drive the Cave and Karst work here.

March 2011, visitors leave south island earlier than planned, FIT (free independent traveller) numbers increasing at Waitomo.

September – November 2011. Influx of FIT with Rugby world cup, and 4 extra semi final games moved to Auckland from Christchurch. Some visitors stayed a lot longer. Perhaps some bad publicity about accommodation kept hotel visitors away or moved them into Camper Vans.

Autumn Winter 2012. Big decreases in numbers particularly with accommodation and cave operators who have similar products to others. No figures available but some may have experienced a more than 30% decrease.

And at Te Anau, Neil Collinson reports that Real Journeys is restructuring its operation to run effectively with significantly less patronage. Everywhere this is making things particularly interesting!



Students and Staff of Te Wharekura o Maniapoto during visit to the nearby Mangawhitikau / Spellbound site February 2012 . Photos: Hine Gurl

SPELLBOUND GLOWWORM and CAVE TOURS

Libby & Peter Chandler

Fact File

SPELLBOUND GLOWWORM AND CAVE TOURS

Compiled by: Libby and Pete Chandler

Position: Owner Operators

No. of staff: Around 6

Personal Background: *We have lived in Waitomo for 26 years and we have been involved in cave tourism for all of them.*

Trip Market: *Family friendly and Eco Tourism*

Business Philosophy: *We take our customers into a typical Waitomo Karst landscape to show them New Zealand glowworms at their very best.*

Retail Cost: Adults NZD\$73.00
Children NZD\$26.00

Tour duration: 3 ¼ hours

Awards: *Winner - Trip Adviser's Certificate of Excellence and Waitomo's top attraction for 6 years.
Qualmark endorsed visitor activity*

Best moment: *Hosting Sir David Attenborough for the filming of Life in the Undergrowth and Planet Earth. Meeting and hosting Sir Peter Jackson on a private family day out.*

Worst moment: *Pete accidentally setting fire to the plastic planking on our new walkway on the day we opened it!*

Message for ACKMA members: *We look forward to seeing many of you here in May, our tour will be offered as one of the Conference field trips.*



In the beginning, Boddies Road farmer, politician, inventor and ACKMA member, Derek Mason initiated guided tours to the Mangawhitikau Glowworm Cave and Mason's Dry Cave in 1994. He called his tour 'Mason's Limestone Valley Tours'. Derek would seat his customers on a purpose built trailer and take them down a farm track behind his tractor, to visit an exceptional glowworm display and experience a wild walk through cave in its natural, if muddy state. Derek's personalized and unique tours were phased out when Jill convinced him it was time to sell the farm and retire.

In the summer of 1998/1999 Pete Chandler and John Ash of The Legendary Black Water Rafting Company negotiated to continue the tours where Derek left off. This began the long series of developments and improvements that can be seen today. Initially naming it the 'Waitomo Moa and Glowworm Experience' and then 'Black Water Dry', it was marketed to families with children too young to do a wetsuit trip and to those passengers off backpacker buses who didn't like the concept of wearing a wetsuit. After several months, Black Water Dry suffered a set-back by losing access to Mason's Dry Cave due to a land sale. It became the property of McDonald's Lime quarry operation and they were a bit wary of dealing with cave tour operators at the time.

In 2003 Pete and John sold most of Legendary Black Water Rafting to THL but Pete and Libby bought the Ash share of the dry tour, now named Spellbound (yes this was its fourth name in nine years).

Pete felt great enthusiasm for getting the tour up and running as a stand-alone business. He wanted to emphasize and heighten all the many 'wow' moments the tour offered and combine them into a cohesive and meaningful tour experience. There was also some promising dialogue with the new manager at McDonalds Lime. He was open to the idea of working with

Spellbound to come up with a strategy for use and protection of Mason's Dry Cave.

At take-over we inherited a red raft three and new bridges which led visitors safely into the Mangawhitikau Glowworm Cave. Whilst in the cave, visitors could see glowworms close up and in great profusion, but due to the low light required, they barely saw a cave.

To address this deficit, the next step was to tackle development of Mason's Dry. Liaison with local Maori revealed that its true name was Te Ana o te Atua or Cave of the Spirit. The cave's history also included a visit in 1849 by Arthur Thomson, a military physician who described the cave in the Edinburgh Philosophical Journal. By 2006, carefully designed paths and lighting were added, transforming this previously unexceptional seeming cave into an experience that could hold its own alongside the Mangawhitikau glowworms. Te Ana o Te Atua also gave our guides a lot of scope to talk about cave formation, speleothems and fossil moa bones and tourists could take as many photos as they wished.

The present phase of development began in 2010 and is almost complete. This is an extension of the work begun in the Glowworm Cave and the purpose is to set the cave up to be more flexible for guiding at different water levels and of course to further improve the visitor experience. The first part of the work involved extending a walkway beyond the raft-loading bridge, over a rock platform to a brand new jetty - the spot in fact where Derek originally loaded his visitors. This allows our guides to board customers onto the raft downstream of the swiftest section of the stream at a gentler section where the raft is easier to control. The new jetty can be raised or lowered by winding up or down a pair of trailer jockeys. When water is too high to safely run the boat ride, the new walkway has seats and railings, customers can spend time there looking at glowworms and trying out their photography skills. It is also possible to take groups of up to twenty into the cave, half can take the boat ride further into the cave while half stay behind on the walkway, then both groups swap over. The design has 1100mm high handrails on both sides and no steps. This gives visitors security as they exit the cave, seeing more glowworms with little or no extra light needed!

Over the past year we have been building a tripping dam. Our current (1999) dam has to be disassembled by hand in rising waters, this can be a bit of a challenge. The dam is reassembled when the river flow returns to normal. Dropping the water level periodically has been a necessary chore because the Mangawhitikau stream transports tons of shingle during flood events, building up in the stream bed in the ponded section above the dam. The extra shingle creates swift sections as the

water level recedes. It's desirable as well to let the shingle move through naturally allowing the stream to keep all its normal rhythms. Our new tripping dam will be safely released, remotely if necessary, from the upstream walkway. With the expertise of Gary McCowatt, HTG caver and hydraulic engineer, we will calibrate the force required to lift the locking pin at different water levels. The new dam is positioned downstream of the current one, extending our raft ride by 12 metres but more importantly giving visitors a view of the glowworms at the cave end. As per our resource consent the new dam will have a 'fish pass' for eels to swim up and a jetty to allow people to go down to the sump - a fascinating and slightly spooky place!

Note:

Longfinned eels, *Anguilla dieffenbachii*, are endemic to NZ and, like all freshwater eels world-wide, spawn in the ocean. They are considered a threatened species though there is still a quota management system for them and for the more numerous short fin eels, *Anguilla australis*, which also common in eastern Australia. At the cave's stream sinking point some visitors get the opportunity to see and even feed several tame specimens.

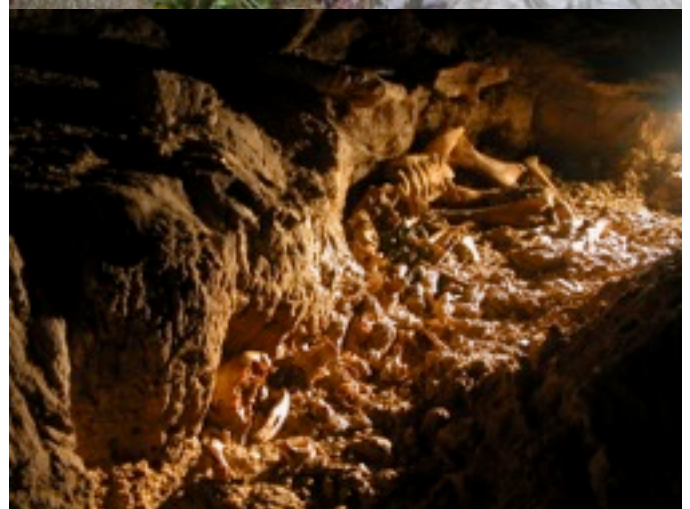
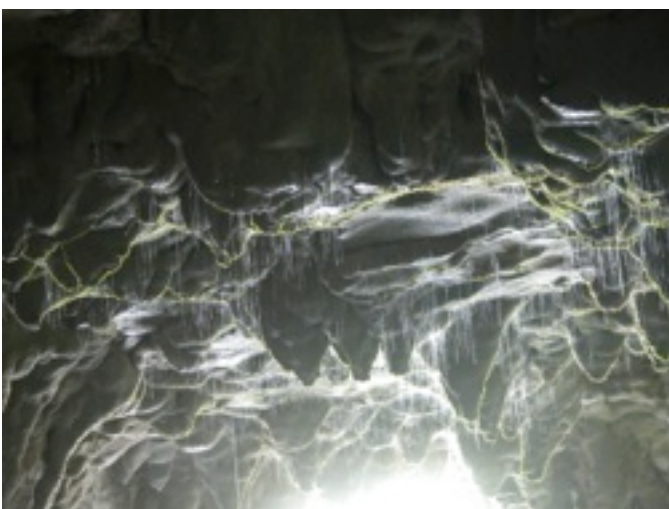


Red raft put to use transporting concrete



Above. Libby Chandler and Moira Lipyeat in Cave of the Spirit. Photo: Peter Chandler.

Below. Glowworms in Mangawhitikau Glowworm Cave. Right from top. Track to Cave of the Spirit; farm land around the two caves; feeding an eel; moa bones in Cave of the Spirit. Photos: Steve Bourne





Waitomo Glowworm Caves Visitor Centre. Photos: Courtesy Tourism Holdings Limited

WAITOMO GLOWWORM and ARANUI CAVES

Travis Cross

Fact File

WAITOMO GLOWWORM AND ARANUI CAVES

Compiled by: Travis Cross

Position: Environmental Officer

No. of staff: Around 45 (including restaurant and admin staff)

Personal Background: I moved to Waitomo from Dunedin for this job and have now lived here for 5 years

Target market: WGC is touted as anyone can do "high-heel" type tour. Aranui is quieter, slightly more demanding but still an easy going walkway tour.

Retail Cost:

Waitomo Glowworm Cave:

Adults NZD\$48.00

Children NZD\$21.00

Aranui:

Adults NZD\$46.00

Children NZD\$21.00

Awards: The new Waitomo Caves Visitor Centre has won various architectural awards.

Worst moment: My new boss keeps reminding me about "airing dirty laundry" in public so I probably shouldn't say anything. Maybe after a few too many at the Waitomo Tavern next May.....

Best moment: The best moments are when I get to spend time underground enjoying the caves.

Message for ACKMA members: I'm looking forward to showing and sharing what we do here in Waitomo, especially after all the wonderful times and hospitality I've enjoyed as part of ACKMA over the years.



WAITOMO GLOWWORM CAVES

There have been many new developments since 1997 when ACKMA last visited Waitomo. The Waitomo Caves building that 1997 conference attendees will remember was complemented by a much larger facilities building opened in 1999, subsequently burnt down in 2005 and was replaced with a \$14.5 million facility that was opened in 2010.

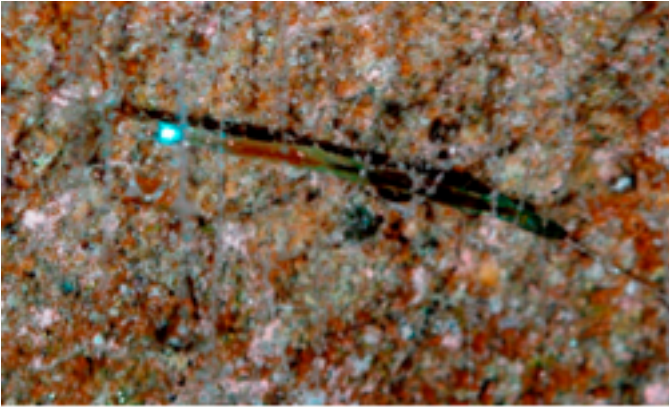
More recent changes include having a new operations manager, Gordon Hewston, across both WGC and Blackwater Rafting businesses. He's been with us for 4 months now and came to us from the NZ Historic Places Trust and has a background in environmental science and business management and has previously worked at Cheddar Gorge and Sherwood Forest. Huia Davis has been our new head guide since August 2012. He is an ex-geography teacher who was born and bred locally. Huia has guided at WGC for the last 5 years.

From an environmental perspective, we have had several interesting developments during the 5 years that I have been here. We've gone from no glowworm monitoring, to photo-monitoring glowworm lights on a monthly basis, to a permanent 30 minute interval time-lapse photo-monitoring system, based on Dave Merritt's work. The time-lapse monitoring is now coming to fruition because we are able to plot glowworm data alongside humidity and temperature data which is increasing our knowledge remarkably.

The climate monitoring system is constantly evolving. Several years ago, after a yearlong case study, we moved the Grotto temperature and humidity sensors to a site that better reflects conditions where the glowworms are. The previous site was being influenced by visitors waiting at the jetty for a boat ride. Another case study showed that we could reduce the speed of psychrometer fans (aspirated humidity sensors), reducing the fan noise impact on visitors whilst maintaining accurate humidity readings.

Most of these changes are in collaboration with the Environmental Advisory Group (EAG), made up of cave specialists in the various speleological fields. We meet every 6 months and discuss all environmental matters for the Waitomo Glowworm, Aranui and Ruakuri Caves. For me it's fantastic to be able to call upon that calibre of expertise to work through any environmental problem.

Despite all the changes, the tour format is probably much the same, the glowworms are still glowing and tourists are still enjoying their visit to the caves.



A glowworm

ARANUI CAVE

Aranui has had a few changes since 1997 and further changes in the pipeline. Much of Aranui's infrastructure, being of a 1950s' vintage, was or is still in need of replacement. A 5 year upgrade plan was developed to allow costs to be spread out. Year 1 of the 5 year plan included replacing the stairs, year 2 check and replace any sub-standard main trunk electrical cabling, year 3 replacing incandescent lights with LEDs, year 4 replacing flat wooden walkway sections and year 5 finishing off anything outstanding.

Currently, the stairs and main trunk cabling has been completed plus a test section of lighting has been installed. We are at about year 3 of the 5 plan although the project was stalled for a year with last year's financial climate. The next step is to decide what type of LEDs are to be used, develop a lighting plan and costings for year 3. Hopefully and with a bit of luck, much of the lighting upgrade will complete by the time ACKMA visits next year.

MONITORING

Although no permanent monitoring was carried out in Aranui Cave when I started, there had been research. Many of you will remember Tony Amar's climate research talk given at the 2005 Westport conference plus there had been radon and water quality research to name a few. A carbon dioxide, temperature and humidity logger was installed at the Eastern Scene during 2009, with the aim of identifying potential problem areas. Data from this logger have shown relatively stable cave climatic conditions so no obvious issues. Four temperature loggers were also installed at sites used in Tony's study, which have confirmed his findings. Given that conditions at the Eastern Scene were relatively stable, the logger was moved to the Fairy Walk in January 2012. This site has shown some high CO₂ occurrences during summer (3,000 ppm is the maximum CO₂ concentration allowed under our licence agreement). Thus, management practices will need to be reviewed and changed to avoid these high CO₂ days without compromising any other aspects of the cave.



Van Watson and Miles Pierce inspect the new Aranui Cave infrastructure

The thing I like about cave climate monitoring is that it doesn't have to be the latest whiz bang gear. Just a couple of small temperature loggers have given us some great daily, seasonal and annual information. Based on

that information, we're often tweaking, adding or changing things around. You should see my jobs to do list from the Environmental Advisory Group!



L-R. Miles Pierce, Van Watson, Rhonwen Pierce and Libby Chandler in Aranui Cave



*Left. Scene in Aranui Cave. Right. Kent Henderson and Peter Chandler at Aranui Cave entrance, 2005.
Photos: Steve Bourne*

UPGRADE TO POWER SUPPLY AT CAREYS CAVE

Geoff Kell

So I've succumbed to Steve's entreaties and figured if this is a boring article, at least it filled some of his blank spaces.

Careys Cave was originally developed in 1968 and underground regulations at the time required 110v supply in the cave. The power was grid fed with the mains pole located on the hill above the cave with a feed to a 110v transformer located on a sub pole near the entrance.

A few years ago a bloke from the supply authority came around banging ID numbers on poles – he put one on the sub pole (thereby claiming it as property of the power company). A while later another bloke came around drilling test holes in the poles and condemned the sub pole. As the power company now owned the pole it fell to them to rectify this situation: due to the rocky terrain above the cave it was not going to be easy access for machinery and they decided it was better to replace the mains pole as well while they were at it,



Left. New power box at Careys Cave entrance.

thus beginning a long process of trying to come up with a solution. Over the next few years designers and engineers came and went, we got to about Plan F but ended up back with Plan A with modifications.

The final solution was to relocate a new mains pole down on the flat near the western site boundary and run the 240v feed underground to the cave entrance with a distribution board located in a new box at ground level (also housing a new 240v – 110v 5kva transformer). At the beginning of the epic I had pointed out to the power authority that we had been quite happy with the previous arrangement, they were the ones who wanted to change things, so in the end they agreed to supply both the new transformer and the cable and conduit to make all connections, including to the kiosk, if the Department of Lands undertook the installation. This has been duly done, the only problem being the ongoing inclement weather making for a somewhat mucky process and the trenches, while backfilled, have not been finished off so it will likely remain a construction site till summer.

Overall an excellent result in that there are no longer a pair of unsightly poles located above the cave, we have a new transformer feed as well as the bonus of distribution boards on the amenities block and sheltered area giving us power and lighting options there.

Now we just need to carry out a relighting job in the cave (must write that letter to Santa: please send truckloads of money, ho, ho) sigh.

...oh yes, and put a road back over the creek at the cave site entrance that washed away again in March, for the fourth time in about 12 months (letter to the Tooth Fairy: please send....)



Right. Power pole prior to the new work

NEWS from JENOLAN CAVES: PETER AUSTEN RETIRES

Dan Cove

It is with considerable sadness that this report from Jenolan is of the news that Peter Austen announced his retirement in June, and has now left the Jenolan Caves Reserve Trust after a decade as first Business Development Manager and, for the past five years, as General Manager.

Peter made a huge contribution to Jenolan Caves, being at the helm at a particularly turbulent period where the future place of the site within the NSW Government structure was being hotly debated and funding was exceptionally difficult to secure. Throughout this period, Peter always retained a vision of Jenolan returning to its 'glory years' and was a strong advocate for capital works programs and product improvement, despite the surrounding climate of uncertainty. He oversaw the return of Jenolan Caves House to the Trust and a great deal of restoration work and improvements to the building.

One of Peter's greatest strengths was his exceptionally deep knowledge of the tourism industry, and the importance of collaborative partnerships. Under his leadership Jenolan engaged strongly with other industry groups, including ACKMA. Internationally, Peter saw the potential offered by engagement with ISCA – a vision that was realised in the selection of Jenolan as the venue for the 2014 ISCA Congress. He also oversaw the reformation of the Jenolan business model that led to increasing industry recognition culminating in Jenolan claiming an unprecedented two Gold Awards at the 2011 QANTAS Tourism Awards.

Peter has clearly made an enormous contribution to Jenolan Caves, and has strongly influenced the thinking and the approach of an emergent generation of



cave managers (including the author). He left with only two regrets; that Jenolan's transition was not complete by the time of his retirement, and that he was never issued with a torch in all his years working at the caves!



In keeping with Peter's modest nature, he declined any offer of a grand farewell, preferring a quiet exit. However, I am certain that the extended ACKMA family would join me in acknowledging his achievements and wishing him all the very best though-out his well-earned retirement.

Top. Dan Cove (left) and Peter Austen outside Jenolan Caves House with the 'ISCA Bell' handed from one ISCA Congress to the next. It is used by the session chairs, Peter.....

Bottom left. Peter showing his usual style conducting the Jenolan staff choir at Carols in the Caves.

Bottom right. With one of his many friends.

UPDATE from CAPRICORN CAVES

Ann Augusteyn

The highlight of the year to date was hosting the Savannah Guide School in April with approximately sixty attendees from Northern Territory and Queensland.

Keynote speakers were Dr Scott Hocknull, Senior Curator at Queensland Museum, and Dr Julien Louys, who has recently been assigned a post doc research project at the Capricorn Caves dig site. Scott presented a prototype video of the evolution of the earth with a focus on dinosaurs and mega fauna. This exciting media project would be a fantastic resource for all interpreters and educators. Julien enthralled us with his research report and site inspection of the dig site in the Colosseum Cave. Already the Capricorn Caves' education program and Geotour are benefitting from these projects and research.

We are proud to report that Capricorn Caves gained accreditation as a Savannah Guide Enterprise site and Amanda Jennings and Ann Augusteyn were accredited as Savannah Guide Interpreters. Two other staff members, Wes Barrie and Daley Norris passed their peer assessment with flying colours and now await the final process of accreditation as Savannah Guides.

Off-site visits included QPWS Cammoo site hosted by Scott Brook and Bat Cleft track led by Dianne Vavryn. The Mt Morgan site inspection was limited to the mine site and township as the clay caverns with the dinosaur footprints are closed due to safety concerns by the Department of Mines.



Left. Amanda Jennings receives Savannah Guide Interpreter badge from President Ben Humphries.

Right from top. Dr Scott Hocknull photographs marine fossils in Capricorn Caves.

Dr Scott Hocknull, Amanda Jennings, Les Sampson, Kelly Smith (QPWS).

Volunteer Janette Sands with palaeontologists in Colosseum Cave dig site.

SAND CAVE, NARACOORTE, SOUTH AUSTRALIA

Steve Bourne

The Department of Environment and Natural Resources (DENR) Habitat Recovery Team and the Cave Exploration Group of South Australia (CEGSA) worked together on "Clean up Australia Day" on 4 March. The cave was added to the Naracoorte Caves National Park in November 2011 and despite it not being open to the public; it has generated immense interest from the caving community, paleontologists and researchers. It is hoped to add the cave and surrounding land to the World Heritage Area in the future.

Large amounts of fencing wire, old fence posts, drums and household waste that had been dumped in and around the cave over time, were removed, with progress only halted by a brown snake in the entrance.

The Sand Cave will continue to be an area of focus in 2012 as 30 hectares of land surrounding the cave has been approved for re-vegetation. This will increase habitat potential for the endangered Red-Tailed Black Cockatoo and provide food and shelter for many other native animals.

CEGSA and the Victorian Speleological Association (VSA) held their joint weekend at Naracoorte in September with two trips into the cave. Naracoorte Caves Manager Deborah Carden is planning to undertake an inventory of cave values with the assistance of cavers. This will be an important piece of work in building a better understanding of the cave's values and a better case for adding to the World Heritage Area.

Left. Danielle Smith descending into one Sand Cave entrance, assisted by CEGSA veteran Kevin Mott.

Below. Entrance showing rubbish. Photos: Toby Read



Welcome to Waitomo

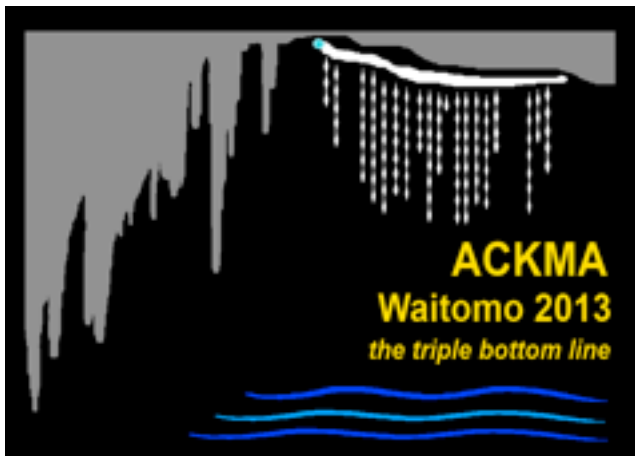
Come to Waitomo's 2013 Conference!

The village of Waitomo Caves is set amongst rolling green hills of farmland and forest, at the edge of one of New Zealand's largest karst areas. Cave tourism has been a part of Waitomo life since the 1880s.

Since the last ACKMA Conference in Waitomo – way back in 1997 – a lot has changed. The Ruakuri Cave has been re-opened, and the Spellbound Caves have been developed. A new, architecturally iconic, visitor building has been developed at the Waitomo Glowworm Cave and new accommodation food and retail outlets have developed. But some things haven't changed – there is still a pub in the centre of the village and the local karst scenery remains spectacular.

Conference theme

The Conference Theme is 'the triple bottom line'. Also known as 'people, planet, profit', triple bottom line is a framework for looking at social and environmental outcomes, as well as financial outcomes. More broadly for us, what does cave tourism really deliver for its stakeholders – financially, environmentally and socially? Guest speakers, and we hope, conference delegates will explore this theme in key conference sessions.



Getting to Waitomo

Waitomo is three hours south of Auckland, the usual air gateway into New Zealand. We will have airport transfers for late Thursday to support the pre-conference activities, and Sunday for the Conference itself. The Sunday bus will depart the city first and then pass the airport around 2pm, so flights need to arrive 1:30pm latest. There is some public transport south by bus or train. For those taking public transport, if you can get to the nearby towns of Te Kuiti or Otorohanga we will bring you to Waitomo. An Auckland airport transfer will leave Waitomo around 9am on Saturday morning after the conference, suitable for flights departing 3pm or later (including 2hr check-in).

Accommodation

Accommodation will range from \$10 a night BYO sleeping bag at the local caving club hut, to over \$150 a night at the other end of the market. In between, Waitomo has a range of motel units, backpackers, bed & breakfast, cabins – and even boats and planes. Most are only a short walk from the village centre and the Conference venue.



Waitomo services

Waitomo is a small village with plenty of accommodation options. A general store, 3G phone and wireless/wired broadband, cash machine and food and beverage are all available. Larger towns are about 20 minutes away and have banks, supermarkets, pharmacies and petrol stations.

More information

Pre-conference #1

Wild caving

Saturday and Sunday will have wild caving options for those arriving early. Short dry trips will be available for all levels of ability (a dry trip in Waitomo means no more than knee deep). Cave tours are likely to include Hollow Hill, Zweihohlen, Waipuna and Flood Caverns. If enough experienced cavers are in town either Rangitaawa Shaft or Mangawhitikau will be available. Both are multi-pitch SRT and involve swimming (at less than Mulu temperatures). Local transport and some equipment will be available.

Pre-conference #2

Rotorua and Taupo geothermal

Another post conference option will tour a different form of geodiversity – the geothermal and volcanic heritage of the Rotorua – Taupo area. The very fit might be able to include the Tongariro Alpine Crossing. This tour is likely to be three days.



Post Conference

West Waikato karst & Auckland lava caves

A three day post-conference tour will ramble from Waitomo back up to Auckland along the less known karst of the Waikato’s western coast. The route passes several harbours and some fantastic karst scenery, as well as the largest polje in New Zealand and the Nikau Cave tourist operation at Waikaretu. We will finish the tour with some lava caves in Auckland and the Auckland Harbour islands. Places on this tour are likely to be limited.



Touring New Zealand?

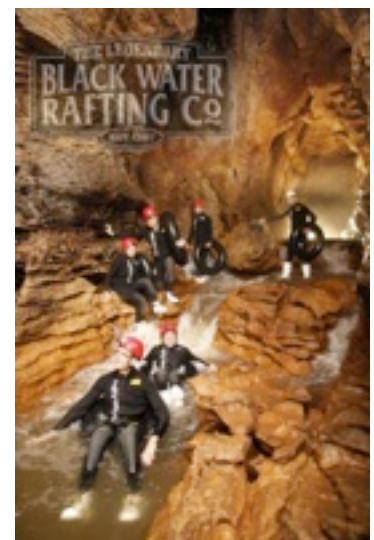
If you’re taking a bit more time to visit more of New Zealand, feel free to get in touch with local ACKMA members for advice. The Waitomo Caves Discovery Centre also has an information centre that can help you with advice and bookings for much of the country.

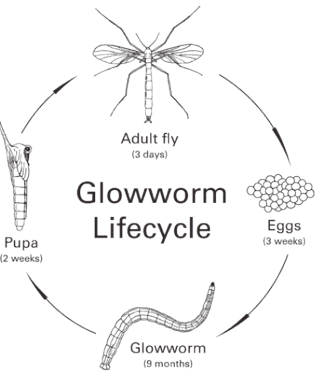
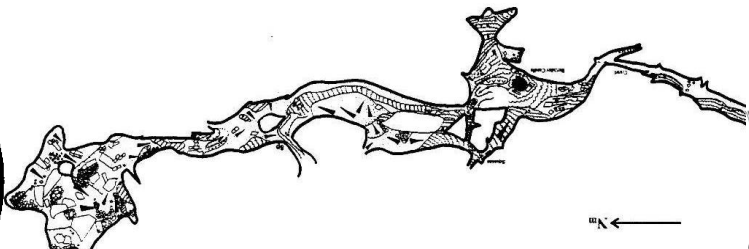
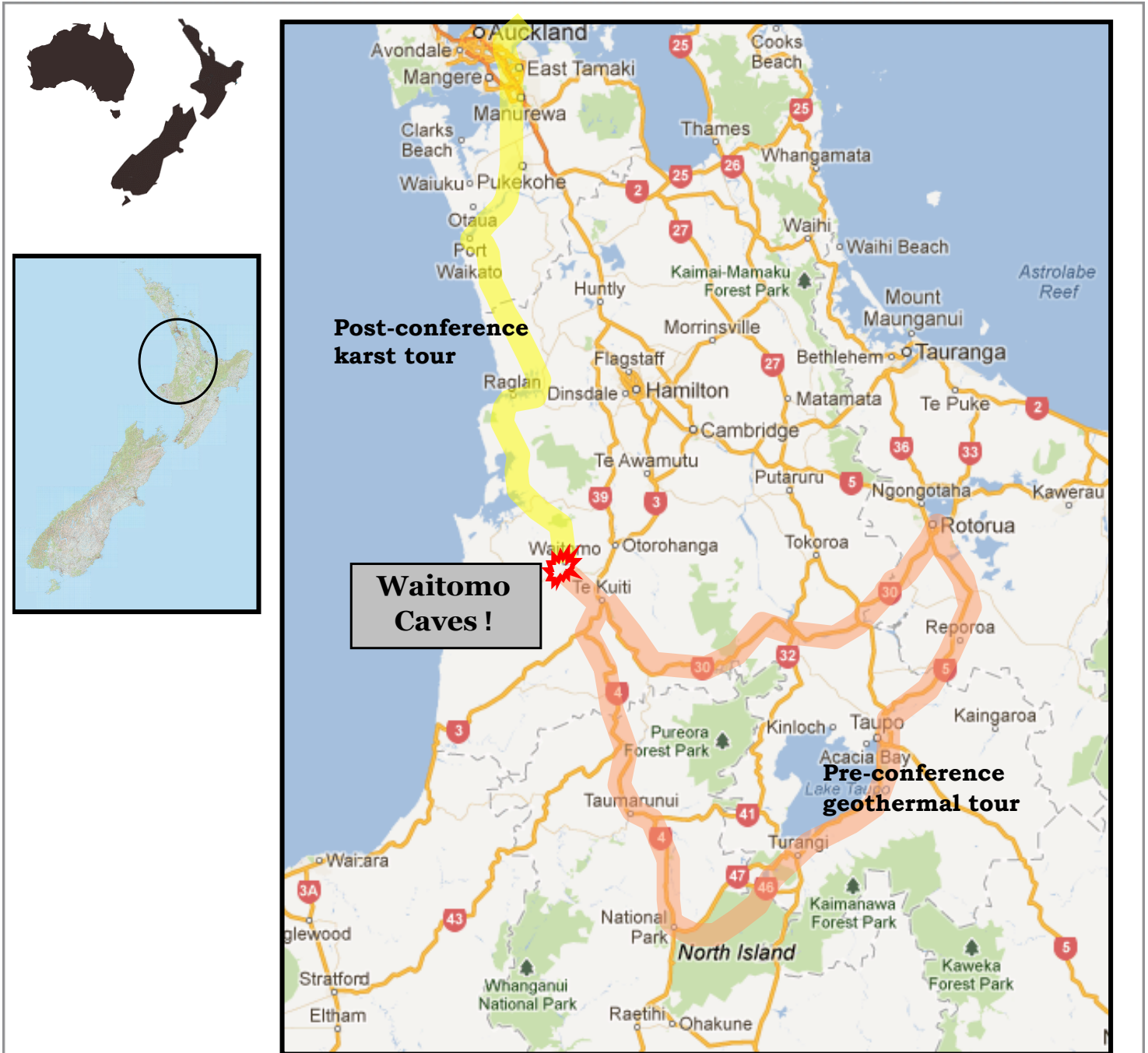
e: info@waitomodiscovery.org



Conference program

May 2013	Morning	Afternoon	Evening
Friday 10th – Sunday 12th	Pre-conference options: #1 Waitomo wild caving trips, or #2 Geothermal Rotorua & Taupo		
Sunday 12th	Transport leaves Auckland CBD about 1pm and Auckland airport around 2pm, arriving Waitomo approx 5pm.		4pm – 6:30pm: Registration open at Waitomo Caves Discovery Centre. Leave 6:30pm for powhiri (welcome) and function at Waitomo Glowworm Cave
Monday 13th	Papers	Split groups: #1 Spellbound cave tour, or #2 Aranui Cave & Ruakuri Natural Tunnel	Committee meeting
Tuesday 14th	Papers	Split groups: #1 Spellbound cave tour, or #2 Aranui Cave & Ruakuri Natural Tunnel	Waitomo Glowworm Cave tours
Wednesday 15th	Papers The AGM	Options: workshops, free time, adventure cave tours, other cave and karst options	Waitomo Caves Discovery Centre behind the scenes tour
Thursday 16th	Papers	Split groups: #1 Ruakuri Cave or, #2 Caves to Coast limestone tour	Maybe a local hydrology session ...
Friday 17th	Papers	Split groups: #1 Ruakuri Cave or, #2 Caves to Coast limestone tour	Final function
Saturday 18th – Monday 20th	Saturday 9am bus departs Waitomo, arriving Auckland Airport around 12-1pm Post conference tour – karst of the western Waikato		





CAVE DIVING in FLORIDA: DIFFERENT REGULATORY APPROACHES

Peter Buzzacott

Dr Peter Buzzacott, BA, MPH, PhD, is a research associate at the School of Sports Science, Exercise and Health at the University of Western Australia. His area of specialty is injury epidemiology, particularly risk factors for diving injuries.

Recently the National Speleological Society (NSS) Cave Diving Section (CDS) invited me to present an analysis of cave diving risk management at its annual cave diving workshop, near Live Oak, north central Florida. The area is known among cave divers as "Cave Country" for the many flooded caves and kilometres of flooded passage to explore. This latest trip, my fourth to Florida, was by far the best.

Meanwhile, back in Australia, the Cave Divers Association of Australia (CDAA) was commencing a series of state meetings to discuss, among other business, potential access arrangements for their newest acquisition, Tank Cave, near Mount Gambier. With ownership of this complex phreatic system, came the opportunity to review access requirements which were previously determined by the former owner, who was not a cave diver. In the last two years two Australian cave divers have run out of gas and drowned in Tank Cave and the CDAA now need to make some difficult decisions, largely based on expert opinion, rather than hard evidence.

For example, the thorny question of whether to allow "solo diving", as diving alone is known in the sport. Solo diving is usually executed as a calculated and deliberate undertaking in circumstances where diving as a team would be less than optimal, for example when exploring a tight new section in silty conditions. It is usually the preserve of the sport's elite who compensate for the added risks in various ways, for example by taking more gas than usual in case of time-consuming difficulties, and by having another solo-diver on standby in case of delay. Many of the newest discoveries in Australian cave diving this century have been made by solo-divers, often with the tacit approval of land-managers, (who must sometimes be relieved when our explorers return triumphant). Solo cave-diving is not for the timid. Nor is it for the foolhardy.

During this latest stay in the Florida cave country I was lucky enough to experience a range of access requirements and this article considers these arrangements. The examples given are not unique and there are many, many other caves with similar access

conditions to each of the caves below. No comment on the safety of any specific access condition is implied.

Little River Spring

Little River Spring is situated in a county park with prescribed opening hours. Entry is free. Divers simply park in the car park near the toilets and take the wide stairway down to the water. Gearing-up benches are provided. Park rules include an alcohol ban and this is sometimes policed. Rules concerning cave diving are not policed during open hours. As is common in Florida, solo diving is not specifically banned. The cave is relatively deep by Australian standards, around 30 m on average, with many confusing passages to choose from and to get lost in. Indeed, Little River is one of the deadliest caves in the world, with dozens of cave divers drowned here in the past 40 years.¹ Still, almost daily cave divers of all experience levels arrive to dive and cave diving instructors bring classes here while holidaying families look on with open curiosity.

Wes Skiles Peacock Springs

The Wes Skiles Peacock Springs State Park is not too far away and is probably the most famous diving cave system in the world. The "Grand Traverse" involves a mile (1.6 km) of flooded passage through which divers enter in one pond and exit through another. It is considered by many a rite of passage and is described in training manuals as an example of how to plan a traverse. Alligators are sometimes found in the ponds and there was reportedly one in the third pond while we were in there diving, although I didn't see it. Peacock has too many blind tunnels to remember, silty sections, beautiful narrow passages and delicately sculptured walls. It is the pinnacle of cave diving. Visiting divers leave \$4 in an envelope at the park entrance and display the slip on their dash along with their diver certification (so the park ranger knows if a diver is missing at closing time or merely a non-diving visitor). Solo diving is not allowed and neither are Diving Propulsion Vehicles (DPVs), known as "scooters". Hundreds of cave divers safely visit Peacock each year although, on average, one diver per year dies here, usually after getting lost and/or running out of gas.¹

Cow Spring

Next, in terms of increasing access restrictions, comes Cow Spring, a wonderful underground maze owned by the NSS-CDS. Divers must be members of the NSS-CDS or an affiliate such as the CDAA. Proof of this must be shown at the local dive shop, an indemnity



The most famous cave dive in the world.

must be signed and then the key is handed over. Divers then drive to the cave, let themselves in, lock the gate behind them and thereafter they are totally self-reliant. Though ownership of Cow Spring resembles that of Tank Cave in South Australia, that is where the similarity ends. Cow is deeper, the walls are darker, divers must usually battle substantial flow whether heading upstream into the spring or downstream into the siphon. Divers have run out of gas and drowned in here too. There is a list of instructions outside the cave detailing what directions to give the emergency services when calling for help. Solo diving is not specifically banned, nor is it condoned, much the same as in many Australian caves.

Ginnie Springs Park

Ginnie Springs Park is home to the Devil's System, another of the most famous diving cave systems in the world since featured in the bestseller "The Last Dive" by Bernie Chowdhury. The park charges an entry fee, certification levels are checked and a waterproof colour-coded wristband is worn by every diver. These wristbands detail their level of certification and also if special equipment can be used, such as DPVs or Closed Circuit Rebreathers, which are a more complex type of

scuba. There are gearing up benches, toilet blocks, a training facility for classes and staff check each diver as they enter the water.

The cave is almost always busy with dive teams heading in and giving way to those heading out. Visiting divers sign an indemnity release which refers to the buddy system. Exploration is not encouraged but can be arranged with the management, preferably during quieter periods and newer sections have been discovered in recent times. As new technology becomes common then new rules are made in response. In this regard the management is pro-active. This year, for example, I was required to show proof of training for DPV use, although we don't yet have such training in Australia. Probably because of our low numbers we still use the time-honoured method of gaining experience gradually. "Experience?" laughed the manager. "Honey, everyone's got experience" she said, dismissing the many kilometres I've scootered in some of the world's best caves, in Europe, Australia and in Florida.

Indian Spring

At the top end of access restrictions I visited Indian Spring in the famous Woodville Karst Plain in western north Florida. Indian Spring is infamous for being the first cave to collapse while divers were inside.² Finding their exit blocked the pair started digging through the sand, silt and rubble till the first diver squeezed through and dashed to his decompression tanks as he ran out of gas. Tragically, his buddy drowned before reaching the spare tanks. Upon arriving I met the appointed guide. The managers maintain a list of authorised guides and each guide is permitted to escort up to a maximum of two divers at any one time, and only when the YMCA campground in which the spring is located is otherwise unused. As required I completed three pages of paperwork, supplied a list of my last 100 cave dives, my dive insurance policy details, cave diving qualifications and showed proof of certification to dive while breathing trimix (a blend of oxygen, helium and nitrogen). The dive was wonderful, serious, we wore five dive tanks each totalling 58 litres, and swam to 1,000 feet penetration at 50 m depth before returning to the warm entry lake for decompression to prevent the bends.

Eagles Nest

Finally, it was time for the last dive of my trip, in the famous Eagle's Nest, a wonderfully deep cave in a state agency controlled Wildlife Management Area. We drove for two hours to get there, left a few dollars in an envelope, signed the visitor book and assembled our gear. No supervision, no indemnities to sign, no proof of training required. Five dive tanks each and soon we were at nearly 90 m depth, breathing exotic gases, photographing each other, masters of our own destiny

and responsible for our own safety. I had come full-circle in terms of access, through increasing levels of oversight and back to my personal favourite, self-responsibility. There was a dual fatality here in 2004 involving fully-trained cave divers using scooters. Three of us dived together today, which is the most commonly preferred team size in cave diving. Even in a team though, at significant depth there is only so much anyone can do if you need help.

So, a range of access requirements is in place in Florida, and in Australia, and the variety reflects the range of cave-diving conditions, owners and patrons. Each circumstance is individual and the author does not believe a single set of rules would suit all caves. There is no evidence that cave divers have a higher mortality rate or a lower life expectancy than the “normal” population. Where I live, in Western Australia (WA), people over 15 years of age who die while diving recreationally represent just 0.013% of all-causes mortality, which does not appear over-represented.³ There are an estimated 30,000 active recreational divers in WA, out of a population of 2.4 million, which is ~0.013%. Cave divers would be the most highly trained among them and, worldwide, thousands of cave divers safely make thousands of cave dives each year.



Author at Indian Springs

Finally, it is instructive to think that cave managers might have some influence on the likelihood of people dying whilst cave diving. With humans being essentially self-correcting systems cave managers probably have, in reality, only a very modest influence. Often rules appear in place more for liability than safety and the absolute risk may not change to any measurable degree with increasing access restrictions. Ultimately, life and death are decided though the interaction between genetic and environmental factors, a process called “Natural Selection”. By attempting to regulate human behaviour, the main influence cave managers exert upon that process is often merely where it takes place, (i.e. somewhere else), and never is this more true than when a cave is closed for diving.

Editor’s comment

Peter’s last paragraph poses some interesting questions. Just how much influence can managers have over how people behave? How well can managers protect people from themselves? Once the systems are put in place, it is largely up to users, if they choose to take risks there is little managers can actually do.



The warning sign at Eagles Nest

References

- 1 Buzzacott PL, Zeigler E, Denoble P, Vann R. American Cave Diving Fatalities 1969-2007. *International Journal of Aquatic Research and Education*, 2009. **3**: 162-77.
- 2 Nof D, Paldor N. The cave resonator and the Parker Tuner cave collapse problem. *Safety Science*, 2010. **48**: 607-14.
- 3 Buzzacott PL. The Epidemiology of Injury in Scuba Diving, in (eds) Caine D, Heggie T, *Epidemiology of Injury in Adventure and Extreme Sports*, Karger AG – Medical and Scientific Publishers; Basel, Switzerland. 2012:57-79.

NARACOORTE TOWN ENTRANCE SCULPTURES

Steve Bourne

Naracoorte has brand new entry statements to the town, featuring megafauna skeletons constructed from steel, similar in design to those at the entrance to Naracoorte Caves National Park. I recall discussing a similar project with then Naracoorte Manager Brian Clark in 1998 when I started full time at Naracoorte, and it never got off the ground. In 2003 I tried again with the local council presenting a fully costed report which was voted out. In 2008, a small group from the local business and tourism association started a project to develop entry statements to the town, seeking arts funding, undertaking public consultation, getting design after design submitted by anyone who thought they had a good idea.

Naracoorte Lucindale Council formed a committee (always dangerous!) to establish the town entrances and allocated \$20,000 towards the project in one budget and \$20,000 the following year. The local business and tourism association pledged \$10,000. The committee sought submissions from artists, narrowing it to four artists asked to produce concepts around megafauna and the Naracoorte Caves. The words "Naracoorte: home of World Heritage fossil caves" had to be included. The committee presented four designs to Council in September, by which time I was working there. It was

narrowed down to two and once again to public consultation. There were still many in the community who could not see why Council would spend \$40,000 on sculptures for the town entrances, and even within Council, some staff and councillors who wanted to abandon the project. In February, I presented a report and recommendation to Council which was accepted, and Steve Hayter, the artist behind the Wonambi Fossil Centre diorama and Naracoorte caves entrance



Top. Steve Hayter (artist), Scott Lobban (stonemason) on sculpture; L-R Julie Earl (committee), Deborah Carden (Caves Manager), Decima McTernan (Naracoorte Caves and committee, Mayor Erika Vickery, Judy Johnson (Naracoorte Business and Tourism Association).

Bottom. The large crowd at the opening.

sculptures was awarded the contract. These were officially opened by Mayor Ericka Vickery and the community on 9 September 2012, with over 130 people attending.

The opening day was a chance “to be a visitor in your own town”, with the Department of Environment, Water and Natural Resources providing a free Alexandra Cave tour and afternoon tea at Naracoorte Caves. Mayor Vickery led a procession of cars to the caves, traveling in a 1910 vintage car. The day was a lot of fun and reconnected many of the local community with their park.

The response to the sculptures has been interesting. The fierce opposition has vaporised and many who could not see the point are starting to see the value of the features. One person who opposed the installations commented to the mayor that they have given “Naracoorte a soul” and

that they are a good value for money. How things can change!

They have already appeared in the local paper a number of times, most recently with visitors from Western Australia taking a holiday snap there. Local television has featured them and ABC national radio has featured them. We plan to run a photographic competition over the Christmas holiday season and create an online presence. I have also been approached to use images on a range of children’s clothing and the postcards are being designed.

It has been a long haul to get these sculptures in place and many people have contributed. The aim was to establish stronger links between Naracoorte and Naracoorte Caves to benefit both, and early indications are that it is working. It just took 15 years to happen!



Above left. The sculptures are designed to be “interactive.”

Above right. Some local humour during installation

Below. The northern town entrance at night.



RAWHITI CAVE, GOLDEN BAY, NEW ZEALAND

Jane Baird

Editor's note:

I was provided some brief notes from Jane Baird, one time owner of Rawhiti Cave, of developments undertaken by the Department of Conservation in the cave. Having not heard of this cave, I asked Jane for some further information and she referred me to ACKMA journal 14 (March 1994) in which a piece had been published titled Managing Rawhiti Cave. I don't have a copy of that issue (and I would think many members may not either) and Jane was kind enough to provide a photocopy of the article.

Jane was the owner of Rawhiti Cave for many years and her passion for the cave is evident in her writing. Jane took tours of the cave and controlled access, with what would appear to be a fierce determination. "So one of my biggest nightmares is vandals. Sometimes when all I really want to do is go home and have a beer after a tour, I have had to turn around and go back up the mountain as I have seen trespassers trying to hide from me." Jane also spent many hours cleaning the cave of rubbish left from former tours and would provide free tours if visitors spent an hour working alongside her.

THE NEW VIEWING PLATFORM

I think the Department of Conservation (DOC) has done a wonderful job and I always knew it would happen even if I wanted to see Rawhiti Cave remain natural.

In January 2011 DOC designed a short track and steps to a viewing platform inside Rawhiti Cave entrance. They worked with an engineer and planned to make a bench track in the earth on the left hand side of the cave entrance, turning to the right and then via stairs leading to a small viewing platform. DOC thought this will get people far enough into the cave to see the majority of the view and satisfy their curiosity. All the material was flown in by helicopter because of the steep terrain. The old track down the entrance used by Jane Baird and former tours has been fenced off. Over the last 11 years since we sold the cave, substantial damage has been done by visitors. The steps and platform have been put there to stop this.



Mole Creek district caves known by 1920: map by Alan Jackson

CAVE GUIDES CONFERENCE: BUCHAN, VICTORIA

Steve Bourne

A small but enthusiastic group attended the biennial cave guides gathering in Buchan from 2-5 September. Guides came from Jenolan, Yarrangobilly, Naracoorte and of course Buchan. Disappointingly, two guides from Tasmania withdrew at the last minute when they could not gain departmental support. Interstate travel for state government employees can be very challenging - it's hard to believe that imaginary lines create so many issues. Parks Victoria provided excellent support for the conference, not just with the hosting but by encouraging parks staff from non cave areas to participate. This included Nick Jansen whose role is interpretation in Parks Victoria who travelled from Melbourne for the conference, and other staff from nearby parks.

Dale Calnin, Ranger in Charge at Buchan welcomed everyone to Buchan on Monday morning, after everyone enjoyed the previous evening at the Buchan Hotel. Dale gave a summary of the evolution of the caves guides

gathering, the first of which was a meeting in Yarrangobilly in 1987. After 5 annual events, it reverted to a biennial event and has been ever since. Known as the "Gabfest", the name was changed to Caves Presenters workshop for the Naracoorte gathering in 2002, in an attempt to raise the profile and perception that it was a group of guides getting together to have a good time, to an event that managers would see as valuable staff development. Still colloquially known as the Gabfest, various names have been used with the 2012 gathering termed the Cave Guides Conference. Although the name keeps changing, we should not lose sight of what these events do and the value of them for front line staff.

District Ranger Will McCutcheon officially opened the conference. Will highlighted the key role guides play as the public point of contact for park visitors, and through sharing knowledge and encouraging visitors to share their passion for their park.



Spring Creek Falls, one of the above ground Buchan experiences



Dr Susan White delivering her paper

Dr Susan White delivered the first paper titled *Caves and Karst of Victoria*, an excellent summary of the state's karst areas. Susan covered both true karst and volcanic or pseudokarst landscapes, highlighting the diversity that exists within the state. Her talk was an excellent overview of the current knowledge of Victoria's karst assets and also highlighted some opportunities for further investigation, especially into paleokarst.



Top. Shawls in Shades of Death Cave.
Bottom. Geoff Rebeci and group at the cave entrance.

Susan's talk was followed by Helen Green, a PhD student from Melbourne University who has been researching climate change over the past 20,000 years in south eastern Australia using speleothems from Buchan, Yarrangobilly and Portland. Helen's work will fill a knowledge void on climate change over this period. Her talk *Exploring the potential of speleothem palaeoclimate records from South East Australia* also highlighted the value of retaining speleothem samples for reanalysis at a later date. She was able to use half a stalagmite first analysed by Dr Albert Goede in 1996, and with advances in technology, able to greatly refine his work.

I attended a workshop in Canberra a few years ago, when the idea of a national database of speleothems collected from caves was mooted. At the time, I hunted down samples that had been collected from Naracoorte and brought them back to park for storage. Helen's talk reminded me that the database has not been done, but is still a passion of Susan White and others to make this happen.

Unfortunately Elery Hamilton-Smith fell ill over Sunday evening and was unable to present his paper on the history of cave guiding. He has indicated he will write it up and I hope something may appear in the future in this journal. To fill the void created by Elery's absence, I presented my talk which was set for the evening session. Naracoorte and World Heritage was very kind to me and



enabled travel to a number of countries. The slide show showcased a number of different countries and caves with a commentary on learnings from the various caves.

Monday's weather was extraordinary in Buchan; sunny, warm and really ideal conditions. Delegates were split into two groups; one visiting caves within the reserve and the other visiting off park caves of Lilly Pilly, Murrindal and Shades of Death Caves. Co owner of Shades of Death Cave, Geoff Rebeci was on hand to lead a tour through the cave, which I thoroughly enjoyed. The passion, commitment and drive of Geoff and his co-owners is to be admired, as well as their determination to develop the cave for public viewing. Tours ceased at the cave in the mid 1990s when the operation became unviable, which is a real pity as the cave offers quite a



different visitor experience. Not sure how well the infrastructure would stand up to public sector scrutiny now, but an excellent visit nonetheless.

I had been fortunate to visit Lilly Pilly Cave twice previously and again enjoyed the cave. Despite the record rains in recent weeks, the cave was generally dry although the entrance path was covered with a film of fine calcite deposit. I pondered what might have been for Shades of Death and Lilly Pilly (and perhaps Murrindal) Caves if they were closer to the main Buchan visitor precinct. I feel the caves (as tourist caves) are a victim of their location – if a few kilometres closer to Buchan and the caves within the main reserve, who knows how successfully they could be operated.

David Head from Weidmuller was the first speaker on the second day with a talk on the *The Evolution of Cave Lighting*. It is interesting that electric lights found their way into caves in 1880; at Jenolan in Australia and caves in the Czech Republic (called Bohemia at the time), one year after Thomas Edison took out a patent on incandescent globes. Ultra high intensity LED lights now emit over 100 lumens per watt compared to the 5 lumens per watt in Edison's days, demonstrating the enormous advances in light output for each unit of energy. David later demonstrated some of his products in the east wing of Fairy Cave and Federal Cave, doing a quick lighting job with Dave Harper from Buchan. I gather David did not get all his lights to take home and some have found a new home at Buchan.

We then heard from guides from each site represented at the conference. The three Naracoorte representatives, Barb Lobban, Yarrow Lee and Decima McTernan presented on three aspects of Naracoorte; current research and its aims, educational products and developing strong community links. George Bradford, Manager of Yarrangobilly Caves gave a summary of developments at Yarrangobilly in his six years as

Top left. Lilly Pilly Cave

Top right. David Head's incandescent globe demonstrating the output compared to his new age LED lights.

Left. David Head demonstrating his lights.

manager, and there has certainly been some impressive work completed. A paper on this is promised for a future journal, so I won't elaborate too much here.

Jenolan Caves had its usual strong contingent representing their work site and once again they delivered excellent presentations. Anita Eddison reminded the group of some key basic principles of cave guiding, especially to be yourself and develop your own style. As a long time advocate of having new staff explore show caves by themselves (after some basic introduction of course) and develop their tours without the influence of experienced guides, I agreed with many of the principles she was advocating. This was followed by Anne Musser who has been developing a palaeo themed tour, and presented her concepts to the group. I thought the proposed tour had merit and have asked Anne to provide a more comprehensive write up. Even if factors prevent the tour from being implemented, the process and the thinking behind developing a new tour is valuable. Michael Collins gave his impressions on the adventure caving program at Jenolan and his passion for providing visitors with a memorable experience came through in his talk. As managers and guides, it should



Ted Richards in Royal Cave

never been forgotten how important a first caving experience is and to ensure each visitor leaves with a love of caves, even if they never do another adventure tour. Ted Matthews completed the Jenolan presentation with some thoughts on structural controls on cave development.

I spent the afternoon inspecting Fairy and Royal Cave and was impressed by the work that had been done since my last visit. Dale did not have the luxury of a complete overall and refit of all infrastructure, but used his resources wisely and has achieved an excellent result. Delegates also had the opportunity to visit Federal Cave, which only has spasmodic visitor use at present, but has been a labour of love for the Friends of Buchan. I spent part of the afternoon attempting to photograph lyrebirds – unsuccessfully.

The conference concluded with a dinner at the Buchan Caves Hotel, which had done a wonderful job of catering for us, as had the whole local community. On a personal note, the efforts of Dale Calnin and staff are much appreciated. The sharing of knowledge, appreciation of how the experience at each cave site may affect visitation to other caves, understanding challenges and how these are managed, and overall skill development are valid reasons for management agencies to support staff attending. I sincerely hope that the next gathering (whatever it is called) at Yarrangobilly Caves will attract representatives from many cave sites around Australia (and maybe beyond!). To all managers - you get value for the financial input!

Two Yarrangobilly Caves' staff provided me with their thoughts on the conference - the title says it all!

The Yarrangobilly Caves crew had a Buchan good time at the 14th Cave Guide Conference.

Melinda Judd, Yarrangobilly Caves Interpretive Assistant

After twelve months of working at Yarrangobilly Caves I still consider myself a very new employee (especially when you consider that most of us are used to contemplating things on a Geological time scale). So as a newcomer to the caving world, I arrived at my first Cave



*Top. Anita Edison
Bottom. Michael Collins*

Guide Conference hosted by Dale Calnin and his skilled crew at Buchan with no preconceived notions of what our time there might be like. However, even if I'd arrived with the highest of expectations, they would have been exceeded. The knowledge gleaned, not just from presenters at the Conference, whom were exceptional, but from each dedicated cave enthusiast attending the conference, was invaluable. The presentation by Helen Wood on the research she is conducting on deducing climate history from stalagmites amalgamated my understanding of similar research being conducted at Yarrangobilly Caves and will endeavour to be critical in understanding our climatic history and help to model future climate change. David Head provided a fantastic light show and informed us on the advancements of lighting systems in caves. Sue White enlightened us all with her presentation on Karst environments and Steve Bourne tantalised us with exotic photographs of caves in foreign countries which all those that attended the conference have now pencilled in to their diaries to visit.

These presentations were only exceeded by the caves themselves. An opportunity to visit 'Shades of Death' with hauntingly lovely music playing softly as we were drawn down a vintage steel staircase onto the platform

towards the bottom of the main chamber, was almost missed when we missed the congregation point for our group departure. Our ever patient tour guide, Danny, was out hunting for us until we finally stumbled upon the rest of the group after a slight detour to 'W tree' (only 20kms or so past our destination). At the entrance to Lilly Pilly cave the trees stood like centaurs at the opening to the cave and the continuing tour through the cave was deserving of such a grand entrance. Fairy Cave and Royal Cave are undoubtedly beautiful and it was wonderful to see the hard work that has gone into lighting Fairy cave and Federation cave.

So if asked whether attendance at the Cave Guide conference was beneficial and if it is worthwhile new staff attend, my answer is a resounding yes. Not only because it was a fantastic opportunity to network, see some incredible caves and hear some wonderful presentations also because it has been rumoured that the next cave guide conference is going to be at Yarrangobilly and we are going to need all the support from the caving community we can get after Buchan caves have set the standard so high.



The obligatory conference photo.



Top. Impressive flowstone in Royal cave.

Right. Helictites in Royal Cave

Thank you everyone for looking after this newcomer at her first (of many) Cave guide conferences.

Margot Bulger, Acting Caves Assistant, Yarrangobilly Caves

The recent Caves Guide Conference at Buchan Caves was a wonderful experience. The hospitality of the Buchan crew and the generosity of all present in sharing their knowledge and experiences ensured a beneficial conference for all. I have been working as a guide at Yarrangobilly Caves for the past four and a half years and have enjoyed caves and rocks all my life. I would like to thank management for supporting my attendance, I am confident my guiding and interpretive skills were strengthened through my experiences. Personally I had a wonderful time exploring the caves and the countryside around Buchan, maybe explored a little further than need be on our wayward trip to the Shades of Death Cave....apologies to Danny and Phil.

The trip home through the beautiful Snowy River National Park, guided by Danny of Buchan Caves topped off a wonderful few days.



PETER BERRILL, THE CAVES, CENTRAL QUEENSLAND

Kerry Hamilton, Clive Kavanagh, Noel Sands and John Dunkley



Peter Berrill (right) at a dinner in Brisbane with Stephen Comino AM, solicitor for the Mt Etna case. Peter was being treated for leukemia at the time. Photo: John Dunkley.

One of Australia's leading cave conservationists and stewardship managers, Peter Berrill died on his 59th birthday on 27 February 2012 after several years battling cancer.

He will be forever synonymous with Mt Etna Caves near Rockhampton. A member of Central Queensland Speleological Society for 36 years, its President for 30 years to his death, Life Member of the Australian Speleological Federation, ASF President for over 5 years, and living in the village of The Caves just 1km from the mountain, Peter was the driving force behind a determined campaign to resurrect the faltering campaign against the Mt Etna quarrying and to establish a National Park over all the karst and caves. Lasting from 1962 to 1999, this epic was the longest environmental campaign in Australian history.

University of Queensland Speleological Society (UQSS) and Central Queensland Speleological Society (CQSS) cavers themselves funded the initial purchase from a local farmer of 80 acres of Limestone Ridge karst, but Queensland Parks & Wildlife Service for many years resisted placing this in public ownership. Meanwhile there was no progress on Mt Etna. After 20 years of legal and other setbacks, and emboldened by the success of the Franklin River case and a personal visit by Bob Brown, in 1986 key CQSS members led by Peter decided that both the Government and the mining company were intransigent and direct action was the only way forward. It is impossible to do justice here to the role he played in the remarkable conclusion to the long saga, but there is great reading in a whole issue of Australian Caver no. 151 (2000), devoted to a lengthy chronicle of colourful reminiscences from those associated with the campaign.

In December 1987, cavers filled drill holes above Speaking Tube Cave to forestall blasting, “occupied” Speaking Tube and Illium Caves, announced a blockade, and called the bluff of the miners. Five members including Peter soon found themselves in court, injunctioned against further entry to Mt Etna. The company destroyed the caves, and instead cavers took action against it for breaches of the Fauna Conservation Act (blasting killed the protected Ghost Bat). After the Supreme Court of Queensland held that CQSS lacked the necessary legal standing to do this, special leave was obtained to appeal to the High Court of Australia as an important legal principle was at stake. CQSS was unable to raise security for costs, was forced to discontinue the action, and the 5 members were left with an order for company costs estimated at \$213,085.

The costs order remained hanging over cavers’ heads for 8 years but in 1998 new management in the company began to relent, and Peter sought to negotiate a settlement of the matter with them. In time a truly remarkable reconciliation was effected and in 1999 the company agreed to release the cavers from the costs order and to help purchase Cammoo Caves for addition to the National Park. However the Parks Service was not prepared to consider converting the mining lease over Mt Etna Caves into a National Park. The mining company thus turned to Peter and Australian Speleological Federation (ASF), offering to gift the property to ASF. Peter effectively became an advisory cave manager as the company began to wind down its operations, removed the ugly infrastructure, began rehabilitating the quarry faces and eventually surrendered the leases. Nevertheless a National Park was always the preferred solution of Peter, CQSS and ASF, and in 2008 this was achieved.

Politicians prevaricate, academics consult, and managers frequently pass the running to outsiders. In the end it is vision, energy and enthusiasm coupled with dogged and uncompromising determination that brings about real achievements. Peter never lost sight of that ultimate goal, which was to see all of Mt Etna and its caves in a National Park. He always said it was a team effort, and it was, but someone had to lead the team.

Peter could be abrasive, authoritarian and an irritant, but this and his accomplished verbal persuasiveness levered governments, managers and supporters alike out of their comfort zones. The fact is that in several places in Australia there would not be caves left to manage other than for the tireless efforts of people like him, and their role has been ignored, discounted or undervalued by some managers and cave management authorities. Peter said this was why, despite his role at Mt Etna, he was never a member of ACKMA, and he was invited to, and attended its 2008 AGM at The Caves only after last-minute intercession from ASF members.

In a recent book about Australia’s 27 Prime Ministers, journalist Mungo MacCallum concluded that our most significant leaders have been those who were “the most

courageous, the ones who burst through the roadblocks not only in society but within their own parties”. Peter ran a successful business but both this and his family suffered from his championing of Mt Etna against Rockhampton’s then social norms. Without him the mountain may have fallen into the hands of the local Council or a private developer, both of whom had also expressed strong interest. But we now have that National Park, and Australia needs more people like him. To paraphrase a cliché, perhaps cave management is too important to be left to cave managers.

It was his great satisfaction in the last weeks of his life to see one of his initiatives, the ASF Karst Conservation Fund mounting a special appeal to fund the purchase by speleologists of Scrubby Creek Cave at Buchan and in support of research into his beloved Ghost Bats at Mt Etna that were pivotal to the conservation campaign. ASF has decided to commemorate him by prefacing its Award of Distinction for Cave Conservation with his name.

Peter is survived by his wife Diane and sons Luke and Nathan and their families.



Top. At the 2008 ceremony transferring the mining lease to Mt Etna National Park. Mine Manager Chris White (left) hands Peter Berrill a cheque for \$12,500 for the ASF Karst Conservation Fund. Photo: John Dunkley
Bottom. Mt Etna, ACKMA AGM 2008. Photo: Steve Bourne

VALE **STEPHEN BLANDEN**
Cathie Plowman - Northern Caverneers



Stephen Blenden at Galignite Hole, Mole Creek.

Australian speleology is much the poorer with the recent death of ACKMA member Stephen Blenden from Tasmania. Stephen lived at Gunns Plains and his considerable cave exploration and documentation in Tasmania includes Gunns Plains, Mt Cripps, Moina, Loongana, Wilmot River, the Vale of Belvoir and especially the Mole Creek karst. He sought out karst areas and then inched his way over every part of them carefully seeking out caves and verifying previous records. He had a keen eye for detail and could readily retrace his steps in untracked bush and recall minute features in caves.

A member of the Northern Caverneers for the past 10 years, Stephen embarked on an effort to check all details of the Mole Creek karst, re-checking all recorded caves and seeking out all possible options for new caves. To date there are 451 numbered cave entrances in the Mole Creek karst and Stephen numbered 212 of

these. All trips were documented and caves meticulously surveyed. Nothing was 'put off'. If a trip or a report could not be completed he got back to the bush as soon as possible, and rose early the following day to complete documentation. Being a farm manager, his usual start was 6.00 a.m. so rising early meant 4.00 a.m.

Stephen's search for new caves was coupled with an enthusiasm for past caving efforts and his 'spare time' was spent in the Burnie library delving into old newspaper accounts of caving trips. From gravestones and historic cave graffiti to the internet site Trove, he was relentless in pursuing details of historic caving details and piecing together historical details.

His life on the land and courteous manner earned him the respect of private land owners and managers and he was able to gain access to karst on private properties

where managers have been reluctant to allow cavers in recent times. His gentle manner extended into his fostering of new cavers, assisting them to gain not just physical skills but also encouraging their interest in the many details of caves

Stephen's neighbours at Gunns Plains were fellow ACKMA members and Gunns Plains Cave managers Trish and Geoff Deer. He knew this cave intimately and self-published a photographic souvenir booklet for cave visitors. Other publications include his book *Caves of Gunns Plains* and many records, maps and trip reports in the Northern Caverneers publication *Troglodyte*. Deliberately unpublished, however, were records of caves on private land where this had been requested by the land owners.

In recent years Stephen became engrossed by the karst at the Vale of Belvoir, near Cradle Mountain, which he explored, researched and documented. He was a keen supporter of the Tasmanian Land Conservancy which has acquired the Vale to manage for conservation.

Local and interstate cavers were regularly given hospitality at Stephen's Gunns Plains' home and he would give extensive assistance to others in planning

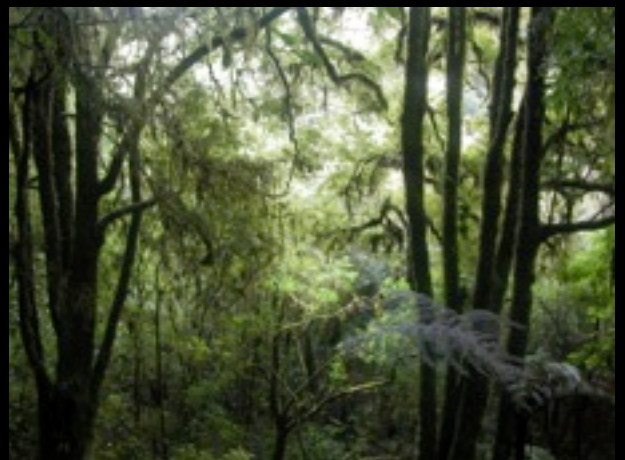
and undertaking trips in Tasmanian karst areas. He assisted in planning the field trips for the 2011 ACKMA conference and had planned to lead some trips but was stopped in his tracks with the diagnosis of a brain tumour a couple of months prior to the conference.

While undergoing medical treatment, Stephen re-directed his caving energies into carefully checking the details of the numbered caves at Mole Creek and updating the list previously prepared by Arthur Clarke (*Speleo Spiel* 321). As Stephen wished, this updated list was published in the June 2012 issue of *Troglodyte*. ACKMA members can locate this online via the Southern Tasmania Caverneers' website.

Stephen was previously a member of the Savage River Caving Club and was also a member of the National Speleological Society (USA). He was awarded an Australian Speleological Federation Certificate of Merit in 2005. He is greatly and sadly missed by his family, friends and caving mates. While we are the poorer at his far too early death at age 54, his efforts have greatly enriched and fostered our knowledge and appreciation of Tasmania's caves and karst. We will miss his company, and blue overalls, on all the trips ahead.



Stephen with a ute load of rubbish collected by Karstcare from Harry Creek Cave, Mole Creek.





ACKMA
Waitomo 2013
the triple bottom line

