

# PRESIDENT'S REPORT

Dale Calnin

I cannot believe as I write this report there is less than two months to go until the much awaited ACKMA Conference in Margaret River, Western Australia.

I hope that there are many registrations and travel plans being finalised, and that we see a good turn-out of members for what promises to be another exciting and wonderful conference.

For me, this will be my third conference in Margaret River Region during my time with ACKMA and I must say I am really looking forward to spending another delightful week in that beautiful part of the world with ACKMA members.

The upcoming AGM will also be a time to elect a new executive team to continue to move ACKMA forward as an active and relevant organisation and I strongly encourage you to consider nominating for a committee position or approaching a fellow member to stand. It is vital that we have new voices and new ideas on the committee. We are blessed with strong leaders but we cannot expect them to continue to carry the load year after year. Many of our members have different backgrounds and areas of expertise so it is important that there be a reflective and meritorious Committee.

I would like to take this opportunity to acknowledge the great work done by the committee and others over the past 12 months addressing some key elements of structural and operational reform, finalised review of membership, the development of PayPal Payment page for the ACKMA website and a review of the Honorary Life Members' Fund. Although at times this work has been quite stressful and frustrating these are significant achievements that will help carry the ACKMA organisation forward.

Other positive accomplishments include:

- The release of ACKMA Guide survey. I would encourage all those involved with cave guiding particularly to complete the survey and support this worthwhile

initiative to help ensure guided tours in Australasia are kept to the highest quality in delivery and content.

- The Camooweal Caves National Park Submission drawing attention to the conservation significance and current management issues affecting the Camooweal Caves National Park in northwest Queensland – thank you Andy.
- Neil Collinson and others input into NZSS Te Waikoropupu Springs Golden Bay submission expressing concerns and highlighting the importance of protecting the existing aquifer.
- John Brush's submission to Help Save the Harman Valley Lava Flow, Byaduk, in Western Victoria
- Identifying the need to archive ACKMA's history.

I know these are just to name a few and I have no doubt there is an additional list of other great work being done by ACKMA members in the protection of cave and karst.

Unfortunately, over the past month or so we have all been truly tested again with some extremely sad and difficult times. The sad passing of ACKMA member Peter Wood and renowned ASF identity John Dunkley has left us with heavy hearts. Our sincere condolences and thoughts are with their families.

Finally, as flagged in my recent correspondence, I do expect this coming AGM to be my last as president. I feel that the time is now right for me to pass on the presidency baton and to provide the opportunity to another member. I can honestly say it has been a privilege to serve in this capacity and to work with people I truly admire for the great work they do in cave and karst management.

I am really looking forward to seeing you all at Margaret River in May. Until then, keep up the excellent work you all do in Cave and Karst Management.

***Below is the ACKMA submission regarding the Camooweal Caves National Park and the Minister's response***

## Australasian Cave and Karst Management Association



Hon Leeanne Enoch  
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Dear Minister Enoch

**Re: Camooweal Caves National Park**

The Australasian Cave and Karst Management Association (ACKMA) would like to draw your attention to the conservation significance and current management issues affecting the Camooweal Caves National Park in northwest Queensland.

ACKMA is an association of cave managers, rangers, scientists, cavers and other people interested in caring for Australasia's cave and karst. Although founded in Australia and New Zealand we have members world-wide – all devoted to caves and karst.

The Camooweal Caves National Park is the first protected area seen by visitors driving into Queensland along the Barkly Highway from the Northern Territory. They are directed to the Park by signage in the town.

It lies 15 km south of the town of Camooweal and facilities include a picnic table, signage and two short walking tracks. The park has a current grazing lease (expiring 2020) and stock have broken down fences as well as creating patch erosion and numerous tracks. During the wet season, soil and dung washes into the caves. Rubbish is also present around the parking area. There is little evidence of Ranger presence or interest in the park. This surely does not create a good impression of the management of the protected area. The groundwater is also used as the town water supply, so the introduction of pollutants (sediments, animal wastes, hydrocarbons) into this may have health implications for both residents and visitors alike.

The National Park was acquired as a representation of Regional Ecosystems (especially the Mitchell grass downs) and geomorphological formations (sink holes and caves formed in dolomite bedrock) not found on any other Queensland National Park. The National Park is currently administered from Boodjamulla National Park, some four hours to the north. Consequently, Ranger presence at Camooweal is therefore episodic at best.

Unfortunately a grazing lease was issued over the Park in 1988 for 30 years. The abuse of the park by this grazing enterprise, especially in the grasslands on clay soils, is nothing short of breathtaking with impacts far greater **on the park** than on the adjacent properties. The QPWS appears to have established a number of grazing exclosures in the Park but there is no evidence of monitoring taking place.

The following shocking photo shows cattle impacts along the southern boundary of the National Park. The National Park is on the right-hand side of the fence. *(Editor's note: please refer to the article by David Gillieson and Keith McDonald for this image)*

The attachment below, prepared by ACKMA members, provides further information on the Park.

Our Association would like:

- To have your support that cattle be removed in the near future?
- That amelioration programs be undertaken if cattle are removed, such as control of the limited areas of buffel grass and *Vachellia farnesiana*, together with erosion control especially around waterholes and along creeks?
- That the development of a cave and karst specific management plan be implemented to protect the caves and their significant aquatic fauna from impacts resulting from overgrazing? ACKMA members would be happy to provide support here.
- An appropriate fire management program be implemented?

We thank you for your help in conserving the significant Camooweal karst.

Yours sincerely



Australian Vice-President, ACKMA  
International Affairs Officer, ACKMA  
31 January 2017

## Attachment

The Camooweal caves are extensive and are one of the few Australian karst areas developed in Precambrian dolomitic limestone. This is a relatively insoluble rock and caves are uncommon in this lithology on a global scale, other examples being found in Canada, South Africa and the Czech Republic. At Camooweal approximately 60 karst features (sinkholes, caves and springs) have been identified and speleologists have mapped 12 km of cave passages. Most of these caves descend in a series of steps to the groundwater table at 75m below the surface. In the last decade cave divers have explored and mapped 500 m of flooded tunnels in Great Nowranie Cave. These flooded levels are 22-30m below the watertable and it is likely that more will be found. Great Nowranie Cave and Little Nowranie Cave lie within the Camooweal Caves National Park and are not open to visitors without special permission. Many of the other caves, including Kalkadoon Cave (5400 m surveyed length) lie within remote, private pastoral properties and thus access is limited.

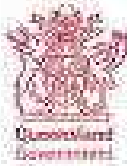
Eight of the caves at Camooweal contain populations of the Ghost bat *Macroderma gigas*, a species listed as Endangered in Queensland and Vulnerable at a Federal level. *Macroderma* is a large carnivorous bat that preys on smaller bats, birds, frogs and insects. In recent times population declines have been attributed to competition for prey with foxes and feral cats, and some prey species lost through habitat modification. Recent scientific surveys (White et al., 2016) of caves in both northwest Queensland and the adjoining Northern Territory (including Riversleigh, Boodjamulla NP and Pungalina) have shown that once more widespread populations of *Macroderma* have crashed, and that this may be due to these carnivorous bats consuming Cane Toads. The Camooweal population is now likely to be the largest extant. In addition, the Orange leaf-nosed bat *Rhinonictis aurantius* is often found in association with *Macroderma*. This species is listed as Vulnerable in Queensland. Both species seem to prefer caves with high temperature and humidity. The known threats to Orange leaf-nosed bats are the destruction and disturbance of roosts from human visitation to caves, mining activities, and the collapse or flooding of ageing mine roosts.

Extensive freshwater pools and flooded tunnels in the Camooweal caves are listed by the Bureau of Meteorology as having known and high potential subterranean groundwater dependent ecosystems. Reconnaissance surveys by Dr Stefan Eberhard (2003), an aquatic biologist with cave diving skills, have shown that the waterfilled passages of some of the Camooweal caves contain a new, undescribed species of amphipod. This small crustacean of the genus *Chillagoe* is known only from karst drainage systems and its nearest relative (and the type species *Chillagoe thea*) is at Chillagoe, some 1400 km away. Freshwater amphipods are more common in cooler subterranean waters and the markedly disjunct distributions in northern Australia may reflect the fragmentation of past, more continuous populations isolated by the Cretaceous sea that flooded much of the Gulf country (Bradbury & Williams, 1997). There are also colonies of filamentous iron-metabolising bacteria in the cave waters. These groundwater dependent ecosystems are at present largely unknown and experience elsewhere in Australia has shown their extreme vulnerability to pollution and increased stream sedimentation.

In areas remote from waterpoints the black soil plains are uncompacted and act as sponges for wet season rainfall. Runoff into cave entrances is generated from exposed dolomite pavements surrounding them, plus shallow surface channels with a lag gravel of chert. Under grazing pressure there is soil compaction and incised cattle tracks channel water and sediment into cave entrances. Wet season rainfall can cause surface runoff and the caves flood rapidly. Increased flow down these channels also entrains fine gravel which enters the caves as an abrasive sediment load, along with organic flood debris. This can only have a detrimental effect on the cave biology. The karst groundwater is also used as the town water supply, so the introduction of pollutants (sediments, animal wastes, hydrocarbons) into this may have health implications for both residents and visitors.

## References

- Bradbury, J.H. and Williams, W.D., 1997. The amphipod (Crustacea) stygofauna of Australia: description of new taxa (Melitidae, Neoniphargidae, Paramelitidae), and a synopsis of known species. *Records of the Australian Museum*, 49, pp.249-341.
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- White, A.W., Morris, I., Madani, G. and Archer, M., 2016. Are Cane Toads *Rhinella marina* impacting Ghost Bats *Macroderma gigas* in Northern Australia? *Australian Zoologist*, 38(2), pp.183-191.



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27 FEB 2018

Mr Andy Spate  
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Dear Mr Spate

Thank you for your letter of 1 January 2018 to the Honourable Leeanne Enoch MP, Minister for Environment and the Great Barrier Reef, Minister for Science and Minister for the Arts regarding management of Camooweal Caves National Park (the national park). The Minister has asked me to respond on her behalf. I apologise for the delay in responding.

The national park was gazetted in 1988 to protect some of the unusual dolomite formations of the Barkly Tablelands bioregion including the Great Nowranie Cave and Little Nowranie Cave. As part of the gazettal negotiations at the time a grazing lease was put in place for 30 years.

As you have pointed out, the current grazing lease over the national park expires on 21 October 2020. Queensland Parks and Wildlife Service (QPWS) will commence negotiations this year with the lessee regarding the finalisation of their grazing interests in 2020 and a stock management plan is being developed to ensure the removal of all stock by this date.

QPWS has constructed a fence around Nowranie waterhole to control impacts to that area. QPWS will this year determine existing fencing conditions and requirements for the construction and maintenance of boundary fences that will be required to ensure cattle are excluded from the national park beyond 2020. These proposed actions will safeguard the values of the national park from the impacts of grazing.

Pest management activities on the national park have largely been undertaken by the Lake Eyre Basin Indigenous Land and Sea Rangers, and have focussed on the sensitive riparian areas of Nowranie Waterhole and Nowranie Creek consistent with the national park's management statement. The National Park management priorities will require reassessment following the removal of cattle from the park and your offer to assist with providing advice in regard to specifics around cave and karst management is truly appreciated.

In regard to fire management, we are working closely with the Indjalandji-Dhukhanu Traditional Owners, the Dugalungl Aboriginal Corporation and neighbours to implement the 2018 planned burn program. Much of the national park was impacted by severe successive wildfires in 2009 and 2011, and planned burning has been reduced in the intervening years to aid the park's recovery.

The national park has a current management statement, which was prepared in November 2013. The management statement recognises the importance of the caves and waterholes as a key conservation purpose for the park and prioritises them for management, and provides a number of management directions, actions and guidelines in relation to the cave system and groundwater (including the catchment) that directly relate to their protection under the desired outcomes for the landscape, natural values and pest management. As the national park has a current statement, QPWS are not intending to review the statement in the immediate future.

If you require any further information, please contact Ms Sarah Jess, Senior Ranger, Central Region, QPWS of the Department of Environment and Science on telephone (07) 4787 3388 or by email at [sarah.jess@des.qld.gov.au](mailto:sarah.jess@des.qld.gov.au).

Yours sincerely



**Daniel Lato**  
**Chief of Staff**  
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**Minister for Science and Minister for the Arts**



*Harmans Lava Flow. A close view of the crushed area with a cave entrance (which was not damaged) and some of the rock heaps. Refer to John Brush's article for the Harmans Lava Flow story and ACKMA's involvement.  
Photo: John Brush*



## Australasian Cave and Karst Management Association

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### Cliefden Caves Region Proposal for listing on the NSW State Heritage Register

The Australasian Cave and Karst Management Association Inc (ACKMA) strongly urges the NSW Heritage Council to list the Cliefden Caves and associated features on the State Heritage Register.

ACKMA is an association bringing together karst and cave managers, cave guides, scientists, tour operators and cavers to better manage and interpret our karst resources in Australia and New Zealand in a professional manner. ACKMA members have provided professional expertise across the two countries and elsewhere across the Southern Hemisphere from South Africa to Tonga in the Pacific and in many Asian countries.

Cliefden Caves are the most significant karst areas in NSW outside the National Parks estate and the Wellington Caves. Indeed, Cliefden ranks highly when compared with the significant areas within the NPWS estate and Wellington<sup>1,2</sup>.

Why do we say this? There are very many caves and other karst features, some with aspects not seen or are very uncommon elsewhere such as the rare polyhedral stalactites and blue calcite speleothems<sup>3</sup>. In contrast to many other areas in the Eastern Highlands of Australia, the caves do not appear to be stream-cut but rather by upwelling hydrothermal waters later modified by streams<sup>4,5</sup>.

Natural warm springs are uncommon in NSW (as opposed to artificial artesian and sub-artesian waters). There seem to be only three – all associated with karst areas<sup>2</sup>. Other than the warm spring at Cliefden (which may be related to the upwelling waters mentioned above) the others are at Yarrangobilly and Wee Jasper. Little study has been done on any of these springs.

The tufa terraces along Davys Creek are the best developed in NSW and offer opportunities for climate change research<sup>6,7</sup> – as do the caves and their contents.

The cave biota is diverse and includes taxa not found elsewhere. The list, based on the literature and two short visits, reveals 38 taxa including at least six trogloniles, three troglobites and one stygobite<sup>8</sup>. Further investigations are very likely to reveal a far greater biospeleological diversity. The caves are home two, perhaps three, at least bat species<sup>2</sup>. If an Eastern Horseshoe Bat (*Rhinolophus megaphyllus*) maternity site exists here it will be at the far western end of the range for this species in NSW<sup>2</sup>. The three species are not necessarily threatened but are increasingly under threat through habitat change amongst other factors. There are perhaps 6-8 'forest' bat species that forage along the Belubula River at Cliefden.

Although there does not appear to be any Indigenous use of the caves, skeletal remnants were found in at least one cave<sup>9,10,11</sup>. These remnants, dated to 6250+/-430 years BP, provided useful information on the living environment of the individual. There are trees carved by Indigenous peoples at Cliefden.

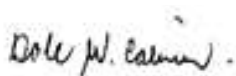
From a European historical viewpoint Cliefden is the site of the first limestone discovered in NSW (1815); the site where Ordovician rocks were first identified; and a long history of effective conservative cave management to the present day by the Rothery family and descendants who first occupied the site in 1832.

Although outside the remit of ACKMA, mention must be made of the outstanding Late Ordovician fossil site at Cliefden (see, for example, Brocx<sup>13</sup> for a summary). The significance of the site led to its listing on the former Register of the National Estate. Many papers attest to the palaeontological values of the limestone at Cliefden.

As well as the National Estate listing for geological values the site has areas of the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland – a critically endangered ecological community.

In summary, ACKMA believes that The Cliefden Caves region has a wide range of natural and cultural values that fully deserve listing on the New South Wales State Heritage Register.

Yours sincerely



Dale Calnin, President ACKMA

9 March 2017

<sup>1</sup>NSW NPWS, 2010, *Guide to New South Wales Karst and Caves*, NPWS Karst and Geodiversity Unit, Sydney

<sup>2</sup>Andy Spate, *pers. comm.* (Formerly 22 years as Senior Project Officer, Karst; NSW National Parks and Wildlife Service)

<sup>3</sup>Associate Professor Armstrong Osborne, University of Sydney, *pers. comm.*

<sup>4</sup>Osborne, R.A.L., 1978, Structure, sediments and speleogenesis at Cliefden Caves, New South Wales, *Helictite* 16(1): 3-24.

<sup>5</sup>Houshold, I. & Osborne, A. 2017, *Hypogene? caves modified by meteoric flows – Geomorphology of Cliefden Caves and the Belubula River Valley* (abstract only – paper for presentation at The International Union of Speleology Congress in Sydney in July, 2017)

<sup>6</sup>Carthew, K.D. & Drysdale, R.N. 2003, Late Holocene fluvial change in a tufa depositing stream: Davys Creek, New South Wales, Australia, *Australian Geographer* 34( 1), 123–139

<sup>7</sup>Drysdale, R., Lucas, S. & Carthew, K. 2003, The influence of diurnal temperatures on the hydrochemistry of a tufa-depositing stream, *Hydrological Processes* 17: 3421–3441

<sup>8</sup>Eberhard, S. & Spate, A. 1995, *Cave Invertebrate Survey: Toward an Atlas of New South Wales Cave Fauna*. Report to the Department of Urban Affairs and Planning, Sydney

<sup>9</sup>Pardoe, C. 1990, Sharing the Past: Aboriginal Influence on Archaeological Practice, a Case Study from New South Wales. *Aboriginal history* 14: 208-223

<sup>10</sup>Pardoe, C. & Webb, S., 1986, Prehistoric human skeletal remains from Cowra and the Macquarie Marsh, New South Wales. *Australian Archaeology* 22: 7-26

<sup>11</sup>Spate, A.P., 1997, Karsting around for Bones: Aborigines and Karst Caves in Southeastern Australia. *Australian Archaeology* 45: 35-44.

<sup>12</sup>Stevens, N.C. 1952, Ordovician stratigraphy at Cliefden Caves, near Manurama N.S.W, *Proceedings of the Linnean Society of New South Wales* 77: 114-20

<sup>13</sup>Brocx, M. 2013, Geoheritage values at Fossil Hill, central western New South Wales, *The Australian Geologist*, September 2013:14-15

<sup>14</sup>Register of the National Estate - [http://www.environment.gov.au/cgi-bin/ahdb/search.pl?mode=place\\_detail;search=place\\_name%3DCliefden%3Blist\\_code%3DRNE%3Bkeyword\\_PD%3Don%3Bkeyword\\_SS%3Don%3Bkeyword\\_PH%3Don%3Blatitude\\_1dir%3DS%3Blongitude\\_1dir%3DE%3Blongitude\\_2dir%3DE%3Blatitude\\_2dir%3DS%3Bin\\_region%3Dpart;place\\_id=958](http://www.environment.gov.au/cgi-bin/ahdb/search.pl?mode=place_detail;search=place_name%3DCliefden%3Blist_code%3DRNE%3Bkeyword_PD%3Don%3Bkeyword_SS%3Don%3Bkeyword_PH%3Don%3Blatitude_1dir%3DS%3Blongitude_1dir%3DE%3Blongitude_2dir%3DE%3Blatitude_2dir%3DS%3Bin_region%3Dpart;place_id=958) (accessed 4 March 2017)