Caves and geotourism in Australia

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At the Inaugural Global Geotourism Conference *Discover the Earth beneath our Feet* held in Western Australia in 2008, I and others presented a paper titled *Show Caves: Australia's oldest form of geotourism?* This prompted geotourism enthusiast Angus M Robinson to suggested that I prepare a contribution for TAG, which to my shame I did not complete – until now (2022).

Caves are places that people from all walks of life will visit at least once in their lives, and an important heritage to pass on to future generations ... as well as being wonderful at places to inspire interest in one of the spectacular processes in geology. Plus, palaeontology, archaeology, significant cave-adapted faunas, and stunning underground aesthetics.

Although Aboriginal Australians have used caves for millennia to gather resources, for access to water, for funerary practices, art galleries and as living sites we know comparatively little about these activities. Although-in some parts of Australia, caves may have been thought to contain evil spirits or to be otherwise unavailable for use, but we know that on the Nullarbor and in Mount Gambier region, for example, caves were penetrated well into the dark zone by First Peoples. In Nullarbor caves these visits extended many hundreds of meters in total darkness for access to flint for tool making and probably for water. Many art sites are known in these areas. Although caves appear to have been regarded as 'taboo' sites in south-eastern Australia, there is increasing anecdotal evidence that calcite crystals from deep within caves were used for medicinal and ceremonial purposes.

The Nullarbor caves document Australia's drift north into aridity. In wetter times calcite was deposited, followed by gypsum and then halite. Here in Witch's Cave, we see a dark calcite column being wedged apart by today's salt.

Image courtesy of Kirsty Dixon.

European use of Australian caves seems to have started with the rudimentary development for tourist access in Limekilns Cave, near Bathurst, in 1822. By the 1860s and 1870s formal cave tourism was well underway in most States. Australia began to export innovative show cave management practices to the world by the 1890s although some of those practices are regarded with horror by modern managers!

There are currently 26 show cave operations in all states - except the Australian Capital Territory - where Cotter Cave was operated as a small-scale operation in the 1930-50s - my first cave! The location of these 26 is shown on the map in *Figure 2.*

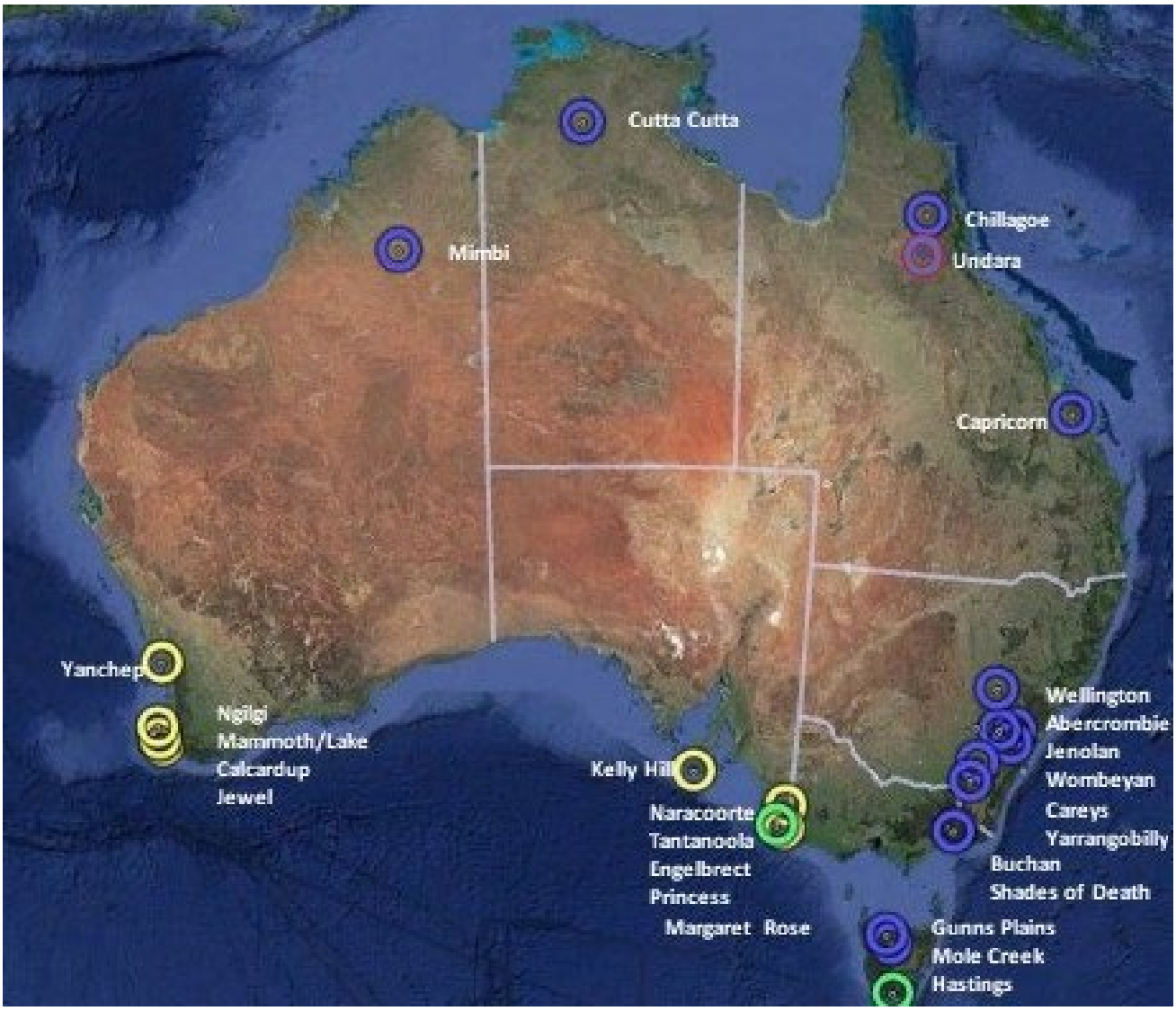

Figure 2: Show cave distribution in Australia. Blue = Palaeozoic age limestone; Yellow = Cenozoic age limestones; Green = dolomite. Hastings Caves = Cambrian age; Tantanoola Cave = Pleistocene age; Undara = Miocene age lava.

The actual number of caves shown on tours conducted nationally is unknown but is around 70 with the reason for this uncertainty is that more than one tour may be operated in the same cave, as takes place at Jenolan and in Careys Cave at Wee Jasper, for example.

Most of the show caves are in limestone (in which Australia has some significant karst features on a world scale - especially in the very young (geologically) syngenetic karst of the Quaternary aeolian limestones of southern Australia). Two are in dolomite and there are several lava tube caves at Undara in Far North Queensland.

What has this to do with geotourism? Somewhere toward half a million people pay to visit Australian caves each year - some of the numbers are 'commercial in confidence' so accurate visitor numbers are unavailable. For many, this visit will be the first exposure they will have to Australia's (or any) geoheritage - and where there will be at least some interpretation. The standards of cave interpretation vary widely in terms of quality and content generally. Caves, and cave tour operations are, unfortunately, great generators and perpetuators of myths - and the 'Chinese Whisper' phenomenon is alive and well. Be that as it may there is almost always an attempt to impart some geological and geomorphological information as part of cave tours.

In defining its place in geotourism, the natural heritage of Australian show caves is a celebration of their geodiversity, biodiversity as well as their cultural heritage extending over 45,000 years through their significance to Australian Aborigines, and post 1788, for their European occupiers and developers.

With the advent of the Australasian Cave and Karst Management Association (ACKMA) in 1987 the standards of show cave interpretation lifted dramatically but sadly, there has been a decline in many areas over recent years despite ongoing efforts by ACKMA. its individual members and some of the show cave operations. Not only were these efforts aimed at increasing the quality of material presented but innovative ideas have been introduced, such as the need for some guides to have voice training as an OH&S issue.

ACKMA has a significant international reputation in show cave development, management and interpretation with individual members or the organisation itself undertaking consultancies in show cave lighting, show cave infrastructure, interpretation, development and evaluation of World Heritage proposals related to karst, and so on. These have been mainly in Asia and the Pacific. The organisation has, or has had, members in Australia, New Zealand, South Africa, Malaysia, South Korea, Canada, the USA, Great Britain, Bermuda, Ireland, France, Italy, Slovenia, Slovakia, Oman, China and Japan. ACKMA was the main proponent and supplier of information to Geoscience Australia's 2000 publication *Discovering Australia's Caves*. It also publishes a quarterly journal and has an effective website www.ackma.org.

Geologists taking cave tours may undoubtedly on occasions have been less than happy at the geological information being imparted. Some discussion after the tour will usually be appreciated by tour conductors - debate on the tour will not be! It must be remembered that guides and their management usually have had little formal exposure to geology. Many show cave operators, ACKMA and individual guides would welcome input from visiting geologists.

Specialists need to understand how difficult cave guiding and interpretation can be. As an example, on Boxing Day some years ago I was on a guided tour at Jenolan. The Christmas-New Year and Easter periods are the busiest for show caves and are regarded with trepidation by those rostered on! My guide that day was a mature male, but new to guiding. His party size was 27 with 11 nationalities! Some with no English. This would be a challenge to anyone, and he coped as well as could be expected - or somewhat better. Jenolan with its large numbers of overseas clients obviously has real challenges as does Margaret River for the same reasons. But the smaller operators often lack the resources (or inclination) to educate their guides - and here there is an opportunity for the GSA to assist whilst promoting geological understanding as the basis of natural and cultural heritage interpretation.

Angus Robinson and David Gillieson provided welcome input to this article, and I thank them warmly for their contributions.