

Abstracts only

The special nature of karst environments

Professor David Gillieson

Caves and karst have retained and protected important pieces of Earth's long and tumultuous geological past. These range from ancient mineral deposits, long gone oceans and early forms of life, to unique cave adapted organisms, extinct megafauna remains and the early manifestation of human art. Without caves and karst, such information would have been largely unavailable to us. Karst and caves are among the most exquisite and valuable landscapes in our planet, with intrinsic touristic and economic value.

Protecting caves and karst is vital to the preservation of our history and that of the planet. Karst and cave knowledge is essential to safeguarding a healthy coexistence between karst and our civilisation, minimising and avoiding environmental impacts that will, ultimately, be reflected upon us.

I summarise the main points from the Guidelines for Cave and Karst Protection, 2nd Edition, published in 2022 and now translated into 28 languages for global distribution. The first edition of the Guidelines was published by IUCN in 1997. This second edition was published by the International Union of Speleology – UIS in April 2022, with support from the International Union for Conservation of Nature – IUCN. They were written by Members of the Caves and Karst Working Group, part of the IUCN World Commission on Protected Areas. The writing team was drawn from Australia, Brazil, Croatia, England, Germany, Italy, Laos, Malaysia, Romania and Portugal.

The original guidelines were primarily concerned with geoheritage, and while this remains an important consideration in the second edition, we have also covered the biological issues involved in cave and karst conservation.

The climatic effects of tourists on Australian Show caves: A case study of Cathedral Cave, Wellington Caves, NSW

Connor Gilmore

Show caves are caves that have been made accessible for guided public visits and are a large tourism industry globally, amassing \$850 million per year. However, with the increase of people entering these caves, there is an increased concern of the impact that people may have on the condition of the caves. This has brought attention within the caves, as the attraction of tourists can build up and raise the temperature, in comparison to their natural range.

To assist in the understanding of human impacts on cave temperature levels, the study compiled temperature data from a probe within Cathedral Cave, Wellington NSW, Australia into a database. This was then used to create a time series for analysis of significant temperature peaks, which was compared with visitor numbers within the cave system. These comparisons were analysed using several linear regressions and scatter plots, to determine the major temperature peak trends.

The research found that there were three key factors influencing the change in temperature: the size of a tour, the time of day that a tour takes place, and the tour composition (i.e. the number of adults vs children). These factors were found to display a range of impacts upon how the temperature would change, in comparison to the baseline data that was collected by the same logger which showed no temperature changes in the absence of visitors.

Potential new avenues for research include restriction of tour sizes, detailed studies into the impacts of children, seasonal variabilities, the value in multiple, more accurate climate loggers, and looking at other caves. This can be used to help cave management in the future, balancing displaying the cave's natural beauty with the health of the cave ecosystem.

Safety inductions, cave checks and CO2 monitoring at Wellington Caves

Rebecca Pedemont

Wellington Caves has a high standard of occupational health and safety procedures for show cave operations. This presentation will give an idea of the requirements necessary to ensure safety and quality of visitor experience, cave infrastructure and staff communications.

- An overview of what is involved with staff completing a cave safety check prior to tours commencing for the day and reporting.
- An overview on the mandatory safety briefing that all guests attending a cave tour must be present for before the tour departs.
- An overview on Co2 monitoring in Gaden Cave and the equipment used past and present.

An audiovisual history of the fossil and phosphate mines at Wellington Caves

Rebecca Pedemont & Christine Robinson

This will be an audiovisual presentation showing the history of the mines, as access is currently closed.

Multiple caves were turned into a phosphate mine during WW1 to assist with the war effort. At the end of WW1 in 1918, it was closed and remained dormant for almost 80 years.

The mine was restored and open for tours in 1996. The tour also included Bone Cave; floor to ceiling sediment with a huge variety of bone fossils still embedded. It has been closed due to significant changes and workplace health and safety concerns because of the site experiencing three significant floods in 2022. We are endeavouring to reconstruct and recommence tours in the future.

Let's look at Australian caves and karst – are they of interest and significance?

Andy Spate

By world standards Australia has little in the way of caves and karst – but some of what we have is of World Heritage significance and is recognised by UNESCO.

But there are sites which should be listed. There are also economic values to be considered.

This talk will look at what is karst and looks at its values and significance across Australia. It outlines what is important and deserving of conservation and proper recognition by this nation recognising two sites in particular – the Nullarbor and the Devonian barrier reef system in the Kimberley.