

# Karst and Conservation

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Force on Caves and Karst

# KARST IS . . .

- An earth system formed by the dissolution of rock, and including:
- Distinctive Landforms
- Life and energy
- Water and gases
- Soils and Bedrock

# All of these . . .

- Interact in complex ways
- Alteration to any one will causes changes in many others

# Which means that . . .

- Conservation must consider all of these and their effect upon the whole
- And, one rule in karst areas is to always expect the unexpected

# However . . .

- Given that solution is basic to the formation of karst
- The relationship between water and the land is basic
- And cave managers must recognise and manage the total catchment

The background is a teal gradient, transitioning from a lighter shade on the left to a darker shade on the right. A thin, light teal curved line starts near the top left and sweeps across the upper half of the image towards the right. A larger, semi-transparent teal shape is visible on the right side, partially overlapping the darker background.

The Landforms may include:

# Caves . . .

- Exhibition Chamber, Jenolan, N.S.W.



# Dolines . . .

- Dalleys Sinkhole, Buchan, Victoria, Australia





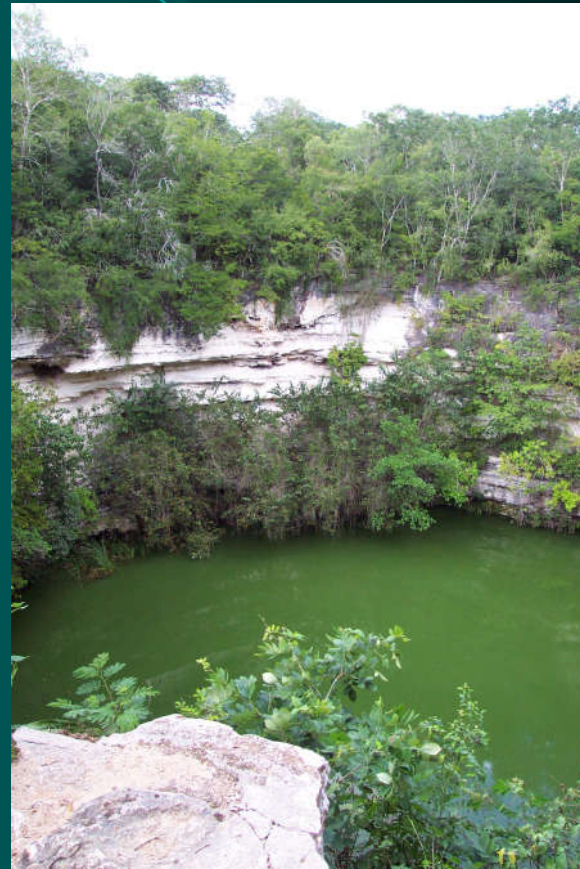
# Shafts . . .

- Atea Kanada, Papua New Guinea



# Cenotes

- This is the famous Chichen Itza of Mexico



# Cenotes again . . .

- and Ewens Ponds in South Australia



# Towers . . .

- The famous Guilin karst of South China



# Gorges

- Windjana Gorge in the Kimberleys of North-Western Australia





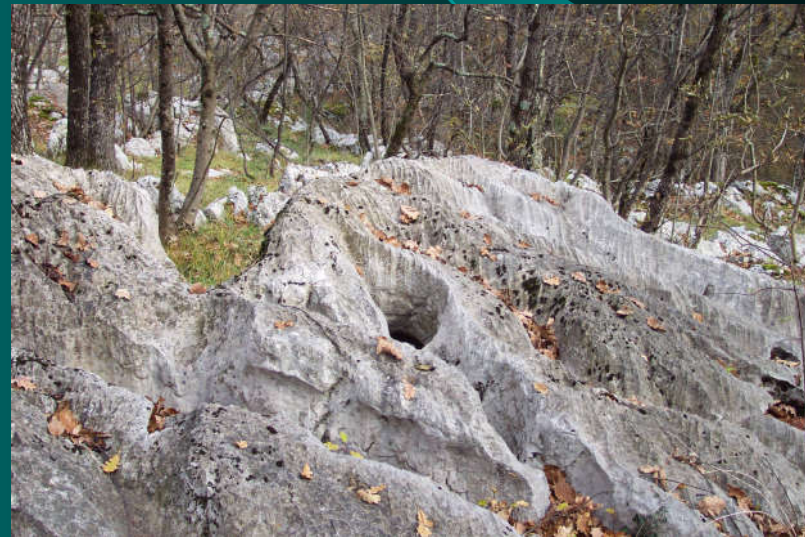
# and even Plains . . .

- The Nullarbor Plain of Australia



# Karren . . .

- Karren along the walking track at Vilenica Cave, Slovenia



# Sinking Streams . . .

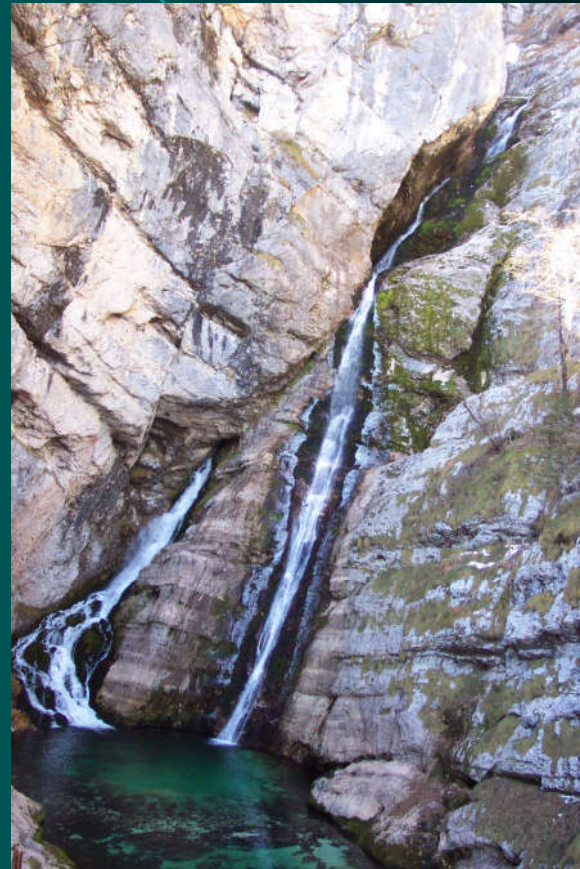
- A blind valley at Buchan, Victoria, Australia





# Emerging Springs . . .

- One of the springs arising from the Triglav karst at Bohinj in Slovenia



# Immense Diversity of Spelothems . . .

- Gem of the West,  
Jenolan Caves,  
N.S.W., Australia



# Cave Pearls . . .

- Cave Pearls,  
Jenolan Caves,  
N.S.W., Australia



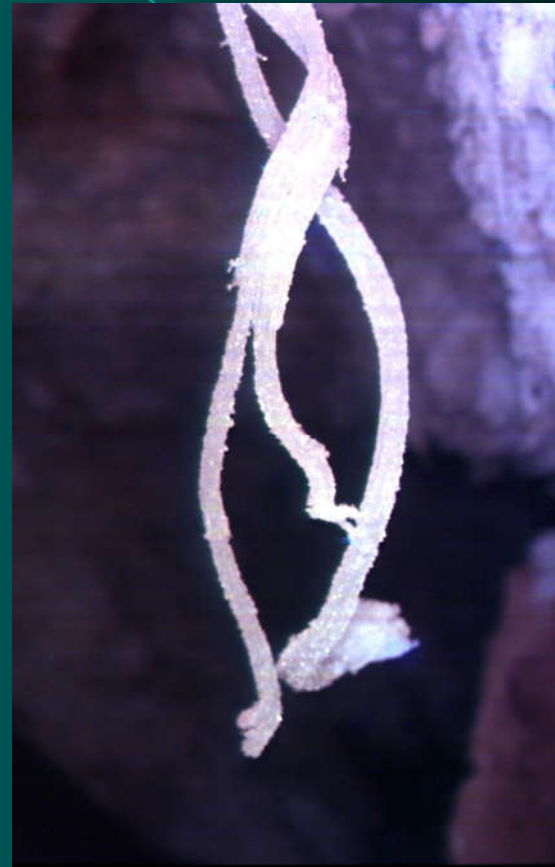
# A Nice Reflection . . .

- The Mirror,  
Alexandra Cave,  
Naracoorte,  
South Australia.



# Salt speleothems . . .

- From Mullamullang Cave, Nullarbor Plain, Australia





# “Craybacks” . . .

- From Wombeyan Caves, N.S.W., Australia



The background of the slide is a gradient of teal and dark blue. A curved line, lighter in color, starts from the top left and curves towards the bottom right, creating a sense of movement or a design element. The text is centered horizontally and vertically.

The Values of Karst include . .

# Important economic qualities:

- Rich and productive soils
- Water Storage and supply
- Limestone
- Tourism



# Tourism . . .

- Abercrombie Cave,  
N.S.W., Australia



# and specific products . . .

- Guano
- “White Gold” – swiftlet nests
- Other foods, e.g., mushroom farming

# Social & Human Values:

- Spiritual and religious
- Beauty and excitement
- Educational Values
- Cultural history

# Spiritual Values. . .

- Here, demonstrated at Khayon Cave, Myanmar



# and again . . .

- At Weibyan Cave, Myanmar

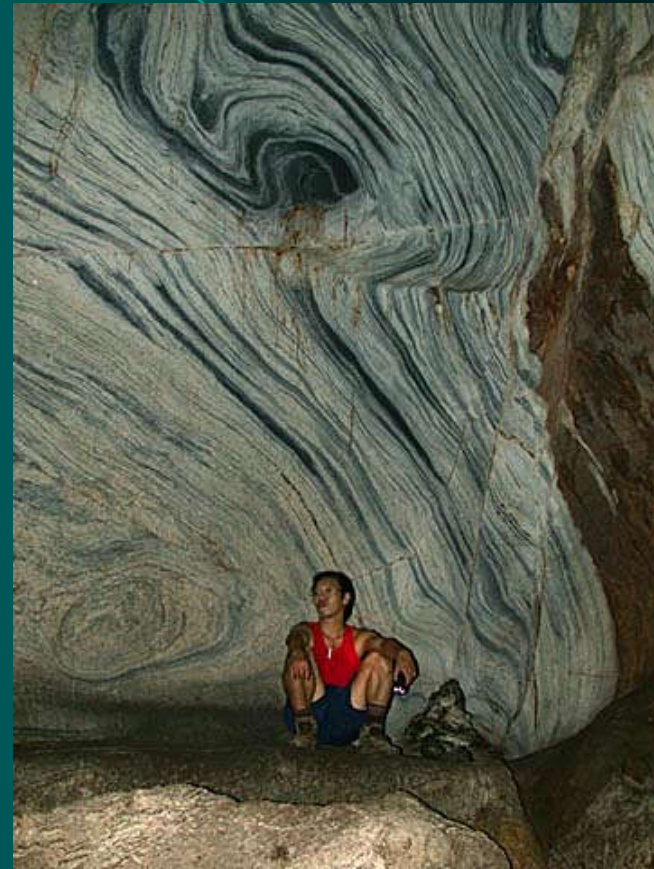


# Scientific Values . . .

- “Caves are the books in the Library of the History of the Earth”

# Geological data. . .

- Evidence of early tectonic movement in a cave in Perak, Malaysia
- (Photo Liz Price)



# More Geological History

- Frost-shattered Rock in Murray Cave at Cooleman, N.S.W.
- Australia





# And Again . . .

Palaeokarst in a  
former cave  
exposed on the  
wall of a quarry  
at Wombeyan,  
N.S.W., Australia



# Fossils . . .

- The Victoria Fossil Cave Deposit, Naracoorte, South Australia



And again . . .



# Archaeological sites . . .

- The Cave of Early Man, Cuc Phong N.P.,
- Vietnam



# Rock Art . . .

- From Menyous Gap Cave, Kimberleys, NW Australia



# Various fauna . . .

- The famous Proteus of Slovenia and Croatia





# Bats and Swiftlets . . .

- The bat flight at Carlsbad Caverns, U.S.A.




# Invertebrate Communities. .

- Syncarid commonly found in groundwater, N.S.W., Australia





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There are many threats  
to the integrity of karst  
and these include . . .

# Destruction or disturbance:

- Quarrying or Mining
- Submergence
- Filling
- Changes in water levels or flows
- Land Clearance or Construction

# Pollution. . .

- Sewerage or other human wastes
- Industrial wastes
- Chemicals
- Microbial infections
- Sediment

# Sedimentation . . .

- At the Junction of the Chay and Son Rivers,
- Phong Nha, Vietnam



# Human Activities . . .

- Agriculture, viticulture, forestry
- Military action
- Urban Settlement
- Tourism

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And so to Conservation  
Policies and Actions . . .


In so far as possible, the normal interaction of the karst system should be preserved

This demands management  
of the  
**TOTAL WATERSHED,**  
not just a cave, or a nature  
reserve, or even the karst  
only



Always remember that the watershed probably extends well beyond the karst

AND, the underground divide may well be outside of the surface divide

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Continuous assessment  
and monitoring of karst  
can provide an early  
warning of damage

And specifically in  
management of  
protected areas . . .

# Endeavour to . . .

- Develop a total catchment program
- Avoid soil erosion
- Avoid excessive paving or construction
- Observe minimum impact practices whenever relevant