Karst and Threat Assessment:

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Benchmark assessment . .

- It is vital to base all management in proper assessment of the resource and its values

- This should be done on a hierarchical basis – from broad to specific

The early assessments . . .

- **Provide the basis for management decisions**
- **Sets the baseline (or benchmark) against which any change can be measured**

Firstly, the hierarchy of assessment must be established

National or Regional context . . .

- **Geology, Geography, Hydrology, Geomorphology**
- **Sets the overall context**

Landforms and Geodiversity . . .

- **Depressions, Hills, Gorges, etc.**
- **Karren**
- **Water – springs, sinks, streams**
- **Deposited landforms and sediments**

Water and Air . . .

- **Flow patterns and levels**
- **Lakes**
- **Climate & Microclimates**

Underground forms . . .

- **Caves – types and patterns**
- **Age of caves**
- **Depth and length**
- **Relation to groundwater**

Cave Contents . . .

- **Sediments and stratigraphy**
- **Speleothems**
- **Palaeontology**
- **Archaeology and other Cultural artifacts**

Surface Biodiversity . . .

- **Fauna and Flora, especially if endemic**
- **Invertebrates, Microbiota**
- **Mosses and other lower plants**
- **Patterns of adaptation**

Sub-surface Biodiversity

- **Vertebrates, especially bats & swiftlets**
- **Invertebrates – terrestrial and aquatic**
- **Patterns of endemism and adaptation**

Cultural Importance . . .

- **Spiritual or religious sites**
- **Rock Art**
- **Aesthetic Values**
- **Recreation, education and research**

Human Benefits . . .

- **Water supply**
- **Food harvesting**
- **Production of food**
- **Shelter or therapy**
- **Recreation and Tourism**

Now, we can think about threats . . .

How well measured?

- **Select and measure appropriate indicators,preferably over long term**

If changes occur . . .

- **Will they cause degradation of the resource and its values?**
- **Are they likely to be long-term or are they only seasonal ?**

Do we understand what is causing them?

- **No – look for professional advice and/or comparable situations**
- **Yes – look for ways of restoring normal balance**

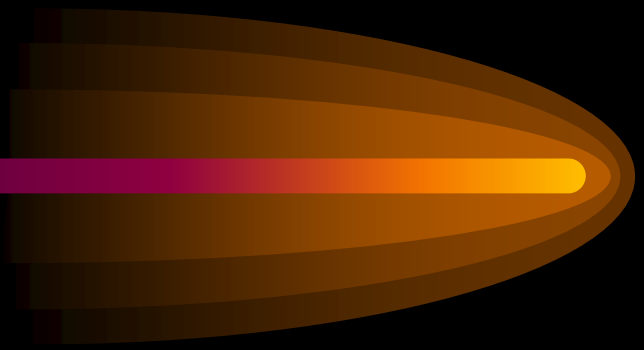
Outside the Protected Area . . .

- **Need partnerships with neighbours or with other threatening groups**
- **Generate understanding and shared responsibility**

Within the Park . . .

- **We have to act**
- **Action should be based on understanding the causes**

One Paradox . . .



- **No change ever has a single cause, and**
- **No action ever has only a single outcome**

Construction problems are generally avoidable . . .

- Road collapse at Liena, Tasmania

The Quarrying Example :

Siting and Development . . .

- Proper location and properly planned development can minimize damage
- Appropriate technology will also greatly reduce impacts

A Bad Example . . .

and a Good One . . .

Poor quality work practices . . .

More Poor design . . .

Restoration is important . .

Biodiversity Protection

- Minimise soil erosion or compaction
- Prevent pollution or contamination of any kind
- Avoid use of agricultural chemicals
- Limit introduction of invasive species