Mole Creek Karst

Mole Creek National Karst National Park

Declared in December 1996, the Mole Creek Karst National Park is the most recent addition to Tasmania's outstanding network of reserves. The park provides protection for some of the finest and most visited cave systems in the State, including Marakoopa (from the Tasmanian Aboriginal word meaning 'handsome') and King Solomons Cave. Both caves are open to the public, and provide the opportunity to take a deeper look into the fascinating world of 'karst' landscapes.

Caves — taking a deeper look

Marakoopa and King Solomons Caves are but two caves in an area that contains over 300 known caves and sinkholes. These features are characteristic of a 'karst' landscape.

Karst is a Slovene/German word used to describe landscapes that are developed principally by chemical processes rather than physical processes. Such chemical processes consist of the erosion of limestone rock by acidic water. Water can become acidic as it moves through vegetation matter on the Earth's surface. While caves and caverns are characteristic features of karst areas, not all karst areas have caves.

The Mole Creek area is renowned for its caves. Other typical karst features in this area include sinkholes, gorges and large underground streams and springs. Another feature of karst areas is the close relationship between the ground above and the below-ground environments. This means that above-ground activities such as vegetation clearing and the dumping of rubbish generally impact on the cave environment. Where soil is eroded it may be washed underground, clogging cave systems and even altering drainage from farmland paddocks.

How old are the caves?

The Mole Creek caves have a long and complex history. Along with mainland Australia, South America, Antarctica, India and other southern landmasses, Tasmania was once part of the supercontinent, Gondwana. The limestone in which the caves have developed began forming in the Ordovician Period (400-500 million years ago). At that time, Tasmania, as part of Gondwana, was closer to the equator and covered by a warm and mostly shallow sea. Limestone was deposited in this marine environment

Image: Paul Flood

mainly as coral reefs, but also in a deeper sea where it formed as the result of the accumulation of microscopic marine organisms after they died. Most of western Tasmania was covered by limestone during this time, but much of it was later covered by younger rock formations.

Today, the limestone does not generally occur on the surface, although significant outcrops occur in southern, western and northern Tasmania.

The processes that give rise to caves and karst features probably began relatively soon after the limestone was deposited. However, the caves we enjoy today started forming in more recent geological times — after streams had cut down through the rocks overlying the limestone at the ground surface.

Evolution of the caves in the Mole Creek area has possibly been influenced by the uplift of the Central Plateau to the south. As Australia began to break away from Antarctica and a circum-polar current was

established, glaciers developed in Antarctica and the Tasmanian mountains. Glacial sediments were deposited in the Forth Valley around 30 million years ago and, particularly in the last two million years, there have been a succession of glaciations and intermittently episodes of less severe climate — such as that which we are now experiencing. Meltwaters from glaciers and snowfields may actively have formed some caves, but in other cases caves were blocked by the sediment swept into them. Remains of some of this sediment can be seen in the roof of Marakoopa Cave (above the Coral Gardens).

The past and the future

Changes occur slowly inside caves — decomposition rates are slow and the environment is sensitive to change. Because of this, caves can give us an insight into the history of the Earth and its people. This includes priceless records about the evolution of the Earth, the lifestyle of people during the last ice age and the development of human technologies such as tools and art. Significant information gained from the caves of Tasmania includes the extent of occupation of Aboriginal people prior to and during the last ice age and the life style of those people. Aboriginal people were living in caves in south-west Tasmania as long as 40,000 years ago.

Caves can assist in predicting future environmental conditions such as the greenhouse effect. Because of their relatively stable environment and the types of deposits which occur in caves, past trends in environmental conditions may be used to predict future changes. For example, charcoal fragments can tell us of fire history, pollen deposits can reveal vegetation change and bone deposits reveal changes in the fauna. Oxygen isotopes from stalagmites sensitively record the temperature at the time various parts of the stalagmites formed.

Our geoheritage

While many people have an appreciation of aspects of the natural environment such as plants and animals, our geological, pedological (soils) and geomorphological heritage is often taken for granted. Caves are part of this heritage and provide places where we can appreciate the splendours of earth science and the links between the Earth's structure and other facets of life on our planet.

Further information

Mole Creek National Park
Phone: (03) 6363 5182
This office is not always attended but if you leave a message the Parks & Wildlife staff will get back to you as soon as possible.

Prospect Offices: (03) 6336 5312
(Monday – Friday 9am – 4pm)

Cave Terms

Dolerite — a type of rock that crystallises from molten rock beneath the Earth's surface. In Tasmania, dolerite caps many mountains such as Cradle Mountain and the Great Western Tiers.

Dolines — a shallow depression in the ground (often saucer-shaped) formed by the collapse of limestone beneath the ground or by water percolating underground.

Geology — the scientific study of rocks and their history.

Geomorphology — the scientific study of the characteristics, origins and development of landforms.

Helicite — stalactites showing erratic growth such as growing sideways or twisting.

Karst — the name that defines a type of landscape caused by the erosion of limestone rock by chemical processes.

Pedology — the science of soil and soil classification.

Speleology — the scientific study of caves.

Speleologist — a scientist who studies caves.

Speleothems — a collective term to describe formations in limestone caves. Spelothems include stalactites, stalagmites, helicites, shawls and flowstones.

Stalactite — a formation, usually of calcite, that hangs from the **c**eiling of a cave.

Stalagmite — a formation, usually of calcite, that grows from the **g**round.

Internet: www.parks.tas.gov.au

Department of Primary Industries, Parks, Water and Environment

Tasmania