

WELCOME TO JINGEMIA CAVE

Jingemia Cave is a distinctive natural feature in a band of low rocky hills that extend between the towns of Carnamah and Moora. The hills are an outcropping of chert and other very old rock types that formed between 2.5 billion and 542 million years ago (mid Proterozoic era).

Known as Noondine Chert, this geological formation is significant in the region for having unique plants that grow only in association with chert. The formation also influences an aquifer that supplies groundwater to local towns, and is a source of mineral silica, a vital component in many things used in our everyday lives.

CULTURAL CONNECTIONS

Jingemia Cave and the Noondine Chert lie within Yued country. The Yued People are the Traditional Custodians of this land. Yued are a dialect group of the Noongar Aboriginal people of south-west Western Australia who have been living and caring for country for over 40,000 years. The Yued tribal boundary includes the towns of Leeman, Jurien Bay, Cervantes, Two Rocks, Toodyay, Gingin, Calingiri, Dalwallinu, Coorow and Moora.



RESPECT FOR COUNTRY

The natural environment is extremely important to Yued cultural and spiritual beliefs. Everything in this vast landscape has meaning and purpose. There are a number of significant sites in the Yued region. These include ceremonial sites, rock art, paintings, artefacts and caves, some of which are the homes of mythological beings.

Kaya – Wanjoo Yued Boodja

Hello - Welcome to Yued Land

Noonakoort karnya nitja Noongar boodja Noongar kep Yeye benang boordahwan

Have respect for this is our land and waters today, tomorrow and in the future.

Drummond's grass tree (*Xanthorrhoea drummondii*) grows on the upper slopes of the chert hills.



Class 3
150m Allow 15 minutes return

The walk to Jingemia Cave is through low, open eucalypt and sheoak woodland to a cliff face 26m high in a rocky hill that offers sweeping views of the surrounding countryside. The walk is along gentle gradients with uneven ground, loose surfaces and some rock outcropping.

WALK SAFELY, TREAD LIGHTLY

To have a safe and enjoyable walk follow these tips:

- Wear boots or sturdy footwear and sun protection.
- Carry plenty of drinking water.
- Keep to the trail.
- Take extreme care near the cave. Do not scramble up or over rock formations or approach the cliff face from above.
- Read and heed warning signs and barriers - they are there for your safety.
- Bins have not been provided. Please take your rubbish home.

Milkmaids
(*Burchardia congesta*)



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OLD AND RARE

Jingemia Cave is a distinctive natural feature in a band of low rocky hills between Moora and Carnamah. The hills are an outcropping of Noondine Chert (also known as Coomberdale Chert) and other very old rock types that formed between 2.5 billion and 542 million years ago (mid Proterozoic era).

Chert is a variety of quartz consisting largely of the mineral silica. Although it contains other minerals, it is the silica in chert that makes this rock valued for mining. The silicon produced from chert has hundreds of applications in our daily life. Paint, abrasives and concrete are just a few of the products that require silica. Whilst chert is not rare, there are no other known chert resources in Western Australia that possess the chemical and physical characteristics necessary for producing high quality silicon.

ROCKY REFUGE

Noondine Chert is mostly found on private land, however there are two areas where it outcrops in conservation reserves, one here in Watheroo National Park and the other at Cairn Hill Nature Reserve. These reserves, along with remnant bushland growing on chert ridges on neighbouring farmland, are important because they support the Coomberdale Chert Threatened Ecological Community. This is a distinctive group of plants that grows on the exposed chert ridges and adjacent gravelly slopes.

This important vegetation community contains several declared rare or priority flora that are either totally or largely confined to the chert hills. A recovery plan has been developed for the vegetation community, which will require close collaboration with the local land managers to help protect the unique vegetation and threatened species.



Enjoy the wildflowers but please tread carefully. Help to conserve this bushland by keeping to formed paths and tracks.

PLANTS THAT GROW ON THE CHERT RIDGES AND UPPER SLOPES ...



Grey-leaved coastal guinea flower (*Hibbertia subvaginata*) is common in the low heath.



Large-flowered regelia (*Regelia megacephala*) is found only on the ridge tops where the chert is exposed.



Piawaning clawflower (*Calothamnus accedens*) is a critically endangered plant.

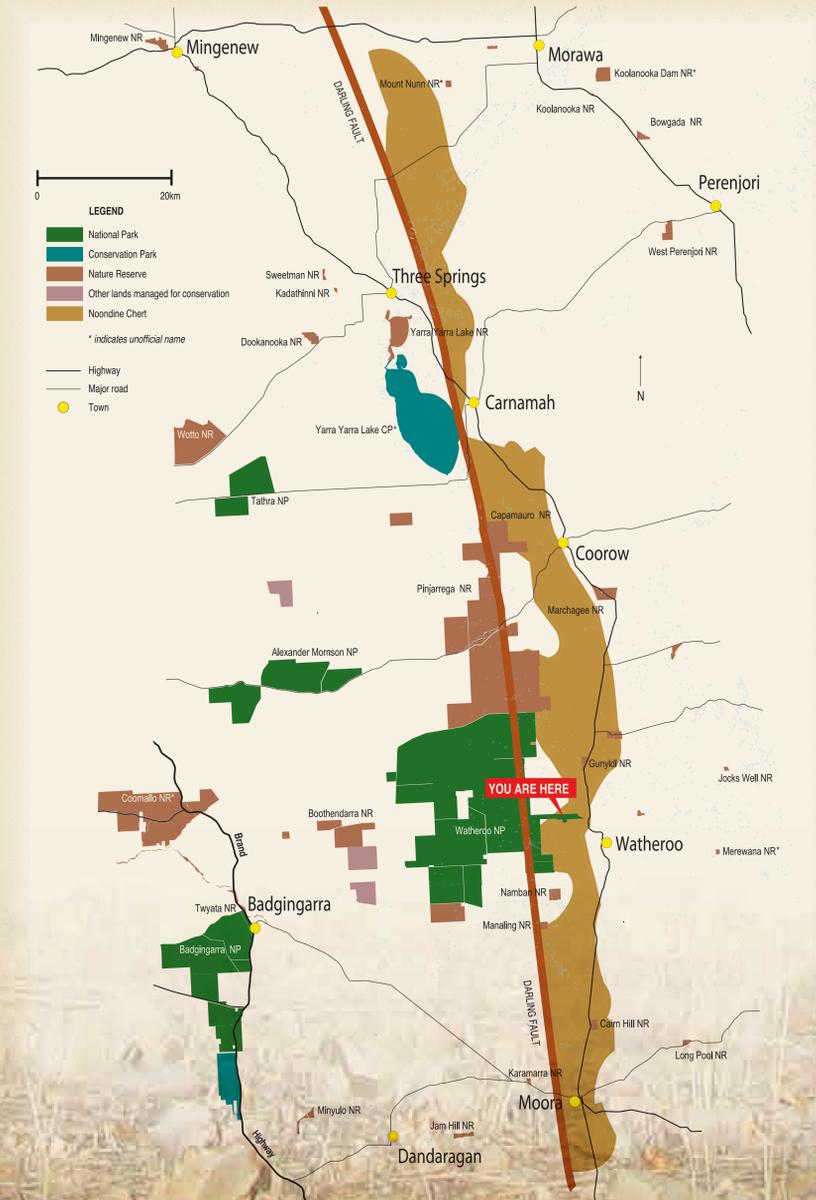


Quartz-loving synaphea (*Synaphea quartzitica*) is also critically endangered.



Tamma (*Allocasuarina campestris*) grows on the ridges or slopes in deeper soils.

EXTENT OF NOONDINE CHERT



A HIDDEN WORLD

In 1912, Western Australian Government geologist Harry Woodward explored the Noondine Hills as part of a Statewide geological survey. In his report of the expedition he described 'the striking spectacle' of a sheer rock face 70 feet high, forming an amphitheatre pierced at its base by a large cavern called Jingemia (an Aboriginal word signifying 'devils abode'). He also described another cave about four and a half miles south-east of Jingemia on land belonging to the Benedictines of New Norcia. This cave had been called Devil's or Bishop's Hole by the Bishop Salvado.



Prospectors at Jingemia Cave in 1912. Photo taken by Harry Woodward. Courtesy of the Geological Survey of Western Australia, Department of Mines and Petroleum.



Exploring Jingemia Cave during a government geological survey in 1912. Photo taken by Harry Woodward. Courtesy of the Geological Survey of Western Australia, Department of Mines and Petroleum.

THE BREATHING EARTH

Devil's Hole is not on a hill like Jingemia but situated at the bottom of a depression. Woodward described it as a 'crevasse-like pipe about 90 feet deep'. He also wrote, 'there is said to be too strong an air current in this cave to allow a naked candle to burn; if this is the case the cavern must be connected with others, which in turn communicate with the surface.'

Woodward was quite right. Devil's Hole, Jingemia Cave and the Noondine Hills are a 'karst' landform that contains an underground system of fractures and voids. These have formed where water has dissolved the softer rock. Jingemia Cave was exposed when the roof of one of those voids collapsed. When connected to the surface, air flows in or out of these voids with changes in the weather and daily variations in air temperature and pressure.

LIVING CAVES

Six to 15 metres below the ground, fractures and voids in the Noondine Chert contain groundwater. This is a regionally-significant water source and is likely to also be an important habitat for a unique community of specialised animals. These creatures have survived millions of years of environmental change by taking refuge underground. They are extremely sensitive to any activities that may affect their underground environment and so it is vital that we protect this important part of the State's biodiversity.



An aquatic amphipod (Neoniphargidae sp.), adapted to life underground where light is absent, lacks eyes and pigment. Photo © Jane McRae / Bennelongia Environmental Consultants.

CAVE RICHES

Jingemia Cave is in the Shire of Moora, which was first settled in the 1840s. By 1910, Moora had become an important pastoral and agricultural district. In those early days, before chemical fertilisers, guano was in great demand by local farmers. Guano is a phosphate-rich fertiliser derived from the accumulated droppings of birds and bats on rocky shores, islands or in caves.



Drawing of guano deposits in Jingemia Cave by Harry Woodward during a Government geological survey in 1912.

THE GOOD EARTH

In 1908, the State Government engaged Mr. Goeczel, a Hungarian geologist, to look for commercial quantities of guano to combat the high cost of imported phosphate. He investigated guano deposits in the Nambung Caves near Cervantes and recommended that it be mined for use on crops.

Four years later Government geologist, Harry Woodward reported finding guano deposits in Jingemia Cave ...

'The floor of the main cavern is covered by a fine soft powdery deposit of sandy guano, which has been sunk to a depth of 22 feet. The prospector, Mr Bonnar, states that a bar was driven down a further distance of 12 feet without striking solid rock. Upon the floors of the side caverns and around the edges of the main cavern the deposit is of superior quality owing to the droppings of the bats and birds, the latter nesting upon the ledges.'

The guano in Jingemia Cave was subsequently mined by Kia-Ka Mina Caves Guanos Ltd. for agricultural use. At the base of the cave you can see what remains of the old timbers used for hauling out the guano.

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Advert in the Northam Courier Newspaper 19th November 1909.

THAR'S GOLD IN THEM THAR HILLS

Woodward's exploration of the Noondine Hills was one of many surveys in search of minerals and water supplies. His term as a Western Australian Government geologist was an extremely busy one as it coincided with the discovery of gold in the Pilbara, Ashburton, Murchison, Yilgarn and Eastern Goldfields. There wasn't any mineral gold to be found at Jingemia but there is gold of another kind here. Golden orb weaver spiders can be found at the cave. It is chemical compounds in the threads that make their webs shine like gold in the sunlight.



Golden orb-weaver (*Nephila edulis*).