

# Secretive crustaceans in underground waters

The Great Artesian Basin lies deep underground in Eastern Australia. In South Australia, there are areas where the waters from the Basin reach the surface and are known as mound springs. These springs support abundant plant and animal life at ground level and formed a vital source of water for Indigenous Australians and early European explorers and settlers.

[Dr Rachael King](#), Research Scientist, Marine Invertebrates is interested in mound springs for another reason. Hosting hidden populations of aquatic invertebrates, mound springs resemble little aquatic islands of invertebrate biodiversity.



*Blanche Cup mound spring near Lake Eyre, South Australia.*

Living within mound spring waters are tiny invertebrate crustaceans known as amphipods and isopods. Currently, scientists know very little about these creatures. Rachael's research aims to understand more about when, how and why these crustaceans went underground and into springs and what their relationships are with surface invertebrates.

Rachael plans to use her expertise in invertebrate morphology and classification systems as well as mapping of genetic relationships to explore these questions.



*Research scientist Rachael King sampling a spring near Lake Eyre, South Australia.*

What she discovers will feed into a broader pool of knowledge regarding invertebrate evolution, showing how Australia's landscape has changed over millions of years to create the environments and habitats we see today.

The team hopes their research into these crustaceans will improved our understanding not only of invertebrates, but also the ancient and modern landscapes of Australia.

The research is of fundamental scientific importance, but with underground water under threat from industrial, pastoral and domestic use, it also has much broader implications for conservation and land management.

Other current Museum projects that are related to this research include:

- Cooper, S. J. B., **King, R.**, Hughes L., Lowry, J. and Murphy, N. Systematics of Chiltoniidae (Amphipoda: Crustacea) in mound springs and calcrete aquifers of Western and South Australia
- **King, R.**, Cooper, S. and Humphreys, W. Resolving the systematics of stygobitic Amphipoda (Crustacea) using morphology and genetic analyses – The Melitidae and Paramelitidae of central Western Australia (Pilbara)
- **King, R.** and Cooper, S. Exploring the taxonomy, distribution and evolution of a unique subterranean fauna: amphipod crustaceans from the Yilgarn region of central Western Australia.