

# Subterranean fauna **capability statement**



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Surveys



Phoenix offers complete subterranean survey solutions that are well-planned and employ cutting edge, best practice field and laboratory methods that follow rigorous HSE standards. We deliver high quality reports and practical, scientifically-sound advice to manage subterranean fauna issues.

Dr Volker Framenau is one of Australia's leading arachnologists and an internationally-respected invertebrate expert. He has significant experience in troglofauna taxonomy, with past and present research on troglobitic wolf spiders and schizomids (short-tailed whipscorpions).

## **ABOUT SUBTERRANEAN FAUNA**

Subterranean fauna are animals (usually invertebrates) that live beneath the surface of the ground. They are usually classified into air-breathing species (troglofauna) and aquatic species (stygofauna).

Troglofauna inhabit cavernous networks within rock and alluvial sediments, and stygofauna are usually associated with aquifers and the hyporheic zones (water logged sediments) of rivers and lakes.

Some subterranean species (troglobites and stygobites) are so specialised to life underground and cannot survive anywhere else. They typically have no pigmentation, reduced or absent eyes and wings, elongated bodies and appendages, no circadian rhythms (regular day / night behaviours like sleeping) and greater sensory dependence on vibration.

Troglobites and stygobites are usually specialised to their habitat to the point

that they are incapable of dispersal and can be classified as extreme short-range endemics (SREs). Their usual small distributions also make these species vulnerable to modification of their habitat, through mining and water abstraction for example.

The EPA's objective for subterranean fauna are to maintain representation, diversity, viability, and ecological function at the species, population and assemblage level. In environmental impact assessment (EIA), proponents must demonstrate that they will meet these objectives according to EPA's *Environmental Assessment Guideline 12*, 'Consideration of subterranean fauna in environmental impact assessment in Western Australia'.

In Western Australia, the Pilbara and Yilgarn regions (including the WA Goldfields) have become known for their rich diversity of subterranean fauna. Limestone systems in southern WA also support significant subterranean fauna.

## **INDUSTRY ISSUES**

Sampling subterranean fauna habitats is challenging because there is limited access to the target fauna. Confusion arises from the fact that the extent of troglofauna habitats is never clear from the outset, each bore may or may not intersect suitable habitat, and there are frequent instances where bores intersect



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### Mitochondrial genome

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