Leading a strategic approach for subterranean fauna conservation

Delivering new knowledge to lift environmental outcomes in Western Australia

The Western Australian
Biodiversity
SCIENCE INSTITUTE

Acknowledgements

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Acknowledgement of Country

We acknowledge the traditional custodians throughout Western Australia and their continuing connection to, and deep knowledge of, the land and waters. We pay our respects to Elders both past and present.
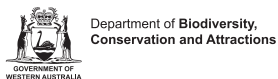
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Subterranean environments contain a unique and diverse fauna: either aquatic, living in the groundwater (stygofauna), or air-breathing, living in rock voids above the water table (troglofauna).

Western Australia has a particularly diverse subterranean fauna, much of which coincides with two areas subject to mining – the Pilbara and Yilgarn. It is significant factor in environmental impact assessments but despite research over the years, large knowledge gaps still exist in relation to basic biology and ecology.

Lack of knowledge has contributed to high levels of uncertainty in the environmental impact assessment process, leading to delays in proposal decisions, various appeals, and stringent Ministerial conditions on development approvals.

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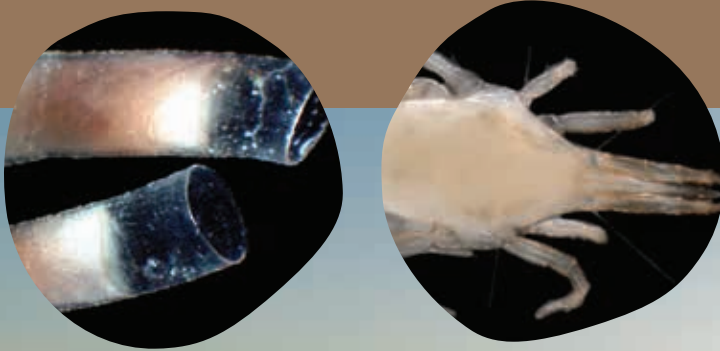
2017

WABSI brought industry and government together to strategically address knowledge gaps

In 2017, industry sought help from The Western Australian Biodiversity Science Institute (WABSI[1]) to help fill the knowledge gaps in subterranean fauna research. As an independent institute, WABSI was able to initiate broad consultation and brought together representatives from the resources sector, science research and the environmental regulator to better define the gaps.

The discussions were held through a series of workshops. These enabled representatives to reach a clear consensus on priority areas for research. WABSI helped address this critical gap in knowledge in a strategic and comprehensive way to deliver long-term benefit to Western Australia.

[1] https://wabsi.org.au/

2018

WABSI developed a shared vision to implement a strategic program to benefit a wide range of end users

Following successful consultation, WABSI developed and implemented *Shedding new light on the cryptic world of subterranean fauna: A research program for Western Australia*[2]. It set out the following research priorities as identified and agreed by all end users:

- More accurate, efficient and consistent species identification processes to increase taxonomic certainty.

- Improved sampling and survey protocols to optimise the efficiency of survey and monitoring.

- Improved understanding of habitat requirements to better define distributions.

- Improved understanding of resilience to disturbance to inform mitigation strategies.

- Data discoverability and accessibility to provide spatial and temporal context.

[2] https://wabsi.org.au/wp-content/uploads/2018/06/WABSI_Subterranean-fauna-research-program.pdf

2019-2021

WABSI secured investment to enable timely delivery of new knowledge

Once the research program was launched, WABSI established a steering committee comprising representatives from industry, government and the science community. WABSI led the Committee in its initial phase and now, as a member, continues to successfully engage with stakeholders to secure investment and engagement for the program. In 2021, WABSI appointed a project officer to better support the Committee and this helped drive additional industry funding to implement end user driven priority projects.

- To date, more than $1M has been invested by industry into the Subterranean Fauna Research Program.

- Stakeholders value WABSI's independence and ability to deliver. This attracts continued interest and investment into projects including in-kind contributions from industry, government and science researchers.

- Three post-doctoral students have been engaged in the research, building and retaining scientific expertise in Western Australia.

Without WABSI's leadership, end user issues would not have been effectively addressed, leading to significantly longer timeframes to access new knowledge and poorer environmental outcomes.
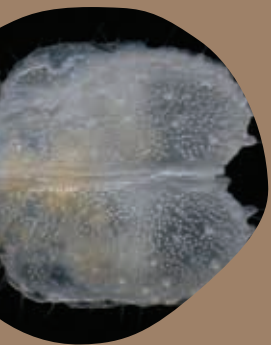
2021-2022

Access to a pipeline of new knowledge for immediate application

All new subterranean fauna data generated through the WABSI research program and collated from different sources, has begun flowing into the new central data repository, the Biodiversity Information Office of WA[3]. This is providing end users with a pipeline of timely and high-quality biodiversity information which they can apply to make more informed planning and development decisions.

New knowledge generated includes information on eDNA monitoring and survey, subterranean fauna sampling and 3D habitat modelling, as well as statistical appraisal of survey data.

- Research Update 2021[4], highlights progress in the research program.
- Optimising Species Detection: Survey Review Project Report[5] captures new knowledge, to help optimise species detection and is complemented by a new database.
- New tools are being developed to help identify and understand subterranean fauna species more accurately and enable better conservation methods.

End users apply new knowledge to improve environmental outcomes in Western Australia

The WABSI Subterranean Fauna Research Program has built a strong track record. It continues to deliver new knowledge enabling regulators, government agencies and industry proponents to consider new biodiversity science information in planning, development and Environmental Impact Assessments.

This important research program is a key component of WABSI's strategy in making an impact through '*Creating meaningful opportunities for biodiversity conservation and enabling sustainable development for Western Australia*' (WABSI Strategic Plan 2022–2032[6]).

Lifting conservation outcomes for subterranean fauna is helping to deliver greater opportunities for sustainable development in Western Australia particularly where species occur, in areas of significant development, like the Pilbara.

[6] https://wabsi.org.au/wp-content/uploads/2022/04/WABSI-Strategic-Plan-2022_2032.pdf

2023 and beyond

WABSI continues to drive momentum and provide support through the Subterranean Fauna Research Program Steering Committee. New projects, aligned with end user priorities, are being identified and developed. WABSI's ongoing engagement, its independence and the trust it has gained with stakeholders continues to sustain investment and participation delivering a pipeline of new knowledge.

2020–2021

- WABSI continued to lead and implement prioritised research through the Steering Committee
- Co-investment continued to grow
- Published Research Update
- Published project report
- Made a new database available to end users

2022–2023

- WABSI continues to maintain momentum and wide support across government and industry
- Co-investment grows
- Continues to successfully deliver new knowledge and ensure stakeholders can access new information to lift decision-making and practice

2023–2032

- WABSI leads the unified approach and continues to drive collaboration in prioritised research
- Enhanced understanding of subterranean fauna
- Better planning and conservation decisions enable sustainable development for Western Australia

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