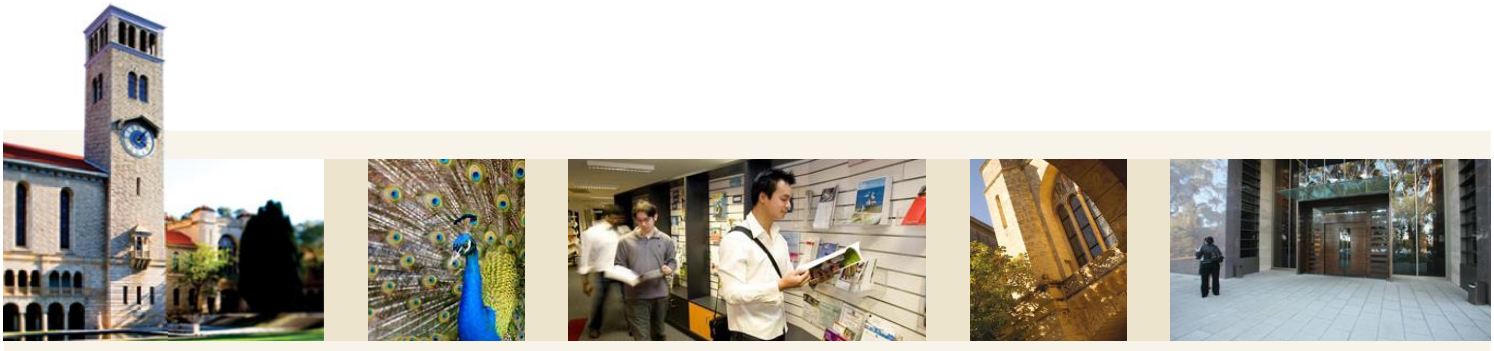
The University of Western Australia

Request for Quotation (RFQ)

Subterranean fauna survey review project – optimising species detection

Closing Time and Date: **17:00 WST, 23 November 2018**



1.0 INTRODUCTION

1.1. Overview

The University of Western Australia (UWA), on behalf of The Western Australian Biodiversity Science Institute, is seeking quotations for the provision of services to deliver on the project 'Review of survey and sampling protocols for subterranean fauna'.

The Western Australian Biodiversity Science Institute (WABSI) is an unincorporated joint venture that drives and facilitates the coordination of its partners' diverse and extensive biodiversity relevant scientific capabilities in pursuit of the end-user identified biodiversity research priorities.

In early 2017, subterranean fauna were recommended as a research priority for WABSI. A series of workshops involving end-users and researchers were organised with the aim to develop a program of research to close the knowledge gaps. One of the priorities identified during this process is *improved survey and sampling protocols to optimise the efficiency of survey and monitoring*.

WABSI is seeking a suitable applicant to undertake a project that addresses the first steps of the priority above by reviewing historical data to better understand sampling efficiency of subterranean fauna using current approaches, and to highlight areas of improvement. WABSI is governed by a board of skilled based directors and they have endorsed this project to proceed.

1.2 Objectives

The objectives of this project are to:

a) Identify supplier (s) for the provision of services to deliver on the project 'Review of survey and sampling protocols for subterranean fauna'.
b) Evaluate offers based on best value as detailed in Appendix B.

The requirements are outlined in the Specification (Appendix A).

2.0 CONDITIONS

2.1 Request for Quotation

The lowest priced quotation will not necessarily be accepted. No quotation shall be deemed to have been accepted until the provision of a Purchase Order by the University to the Supplier/Contractor. The University is not bound to accept any quotation, nor is it bound to provide any explanation of its decision relating to this Request for Quotation.

The University may seek to negotiate further on various aspects of quotations submitted. The University reserves the right to negotiate with more than one party at any time and to enter into any appropriate agreements without giving prior notice to other parties. The University may alter or modify the process outlined in this Request for Quotation at any time without giving prior notice or reason for doing so, or may terminate the process at its discretion. The University does not need to give any reason for such a change or termination and does not have any liability whatsoever to the Supplier/Contractor with respect to such termination or change.

2.2 No Commitment

This Request for Quotation does not commit or bind the University to accept any response, to commence negotiations with any Supplier/Contractor or to award any agreement. Notwithstanding the "acceptance" of a Request for Quotation response by the University, no binding contract or obligation shall be effected until issue of a formal Purchase Order by the University to the successful Supplier/Contractor.

2.3 Confidentiality

Without limiting the terms of any Deed of Disclaimer, by submitting a Proposal, each Respondent acknowledges and agrees that:

a all of the information contained in the RFQ is confidential;

b none of the information contained in the RFQ will be used or disclosed by or on behalf of the Respondent or any of its Associates in any manner whatsoever, in whole or in part, other than to persons engaged in the preparation of its Proposal or with the prior written consent of the UWA Contact Person;

c the Respondent will not reproduce or distribute the RFQ, in whole or in part, or any of the information in it, except with the prior written consent of the UWA Contact Person;

d UWA reserves the right to make all or part of the RFQ available to the public; and

e in accordance with this RFQ, UWA reserves the right, in its sole and absolute discretion, to require that all information, other than publicly available information, provided to Respondents by or on behalf of UWA (and copies of such information) be returned to UWA or, at the option of UWA, destroyed at any stage.

2.4 Verbal Representations

No representations or statements made by University staff or its agents shall constitute an official expression on its behalf, unless such representations are made in a written communication from an appropriate University person or duly authorised agent.

2.5 Quotation Preparation at Suppliers/Contractors Expense

All work undertaken by Suppliers/Contractors in the preparation of their quotation, all communication with the University, all demonstrations and presentations, and all other activities involved in the preparing of quotations shall be entirely at the Suppliers/Contractors expense. Furthermore, no statement in this document shall be construed as placing the University under any contract or obligation to accept any quotation or enter into any negotiations whatsoever.

2.6 Ownership of Submitted Responses

The ownership of all materials submitted as part of the Request for Quotation responses including diagrams, schematic drawings, samples etc. shall pass to the University on the date and time that the proposal is submitted. For audit reasons, the University reserves the right to retain at least one copy of all submitted quotations.

2.7 Suppliers/Contractors to Inform Themselves

Suppliers/Contractors shall be deemed to have:

a) examined the Request for Quotation documents and any other information made available by the University to Suppliers/Contractors for the purpose of responding;

b) examined all further information which is obtainable by the making of reasonable enquiries and relevant to the risks, contingencies and other circumstances, having an effect on their response; and

c) satisfied themselves as to the correctness and sufficiency of their response including price.

2.8 University General Conditions

Accepted quotations will be subject to the Terms and Conditions of UWA Purchase Orders http://www.finserv.uwa.edu.au/sp/policy/TCs_POs/services.

3.0 RESPONSE INFORMATION

3.1 Instructions to Respondents

UWA is seeking quotations for the requirements listed in Appendix A (Specification).

- Quotations should be submitted using the framework provided in Appendix B and be on Respondents letterhead;
- All information requested in Appendices B and C must be provided;
- Quotations are to be valid for a period of **45 days**;
- Respondents may submit an alternative quotation which may vary from the UWA Specification, provided that a compliant quote is also submitted;
- Quotations shall be evaluated on conformance to the Specification and best value;
- No quotation shall be accepted until the provision of a Purchase Order;
- Quotations must be submitted before the submission date and time (see 3.2 Timetable below).
- Quotations should be marked for the attention of Peter Zurzolo, CEO, The Western Australian Biodiversity Science Institute and can be returned via email or be hand delivered / posted to:
    - Email: peter.zurzolo@wabsi.org.au
    - Postal address: Level 2, 133 St Georges Tce, Perth 6000
- If hard copy quotations are submitted, two (2) copies must be submitted in addition to one (1) electronic copy (via email, CD or memory stick depending upon the file size).

3.2 Timetable

The Request for Quotation timetable is:

RFQ Issue Date	8 November 2018
Final Date for Written Questions	13 November 2018
WABSI Response to Questions	15 November 2018
Closing Date and Time for Responses to the RFQ	23 November 2018
Successful applicant notified	12 December 2018

Please note that these dates may be subject to change.

APPENDIX A – SPECIFICATION

Review of survey and sampling protocols for subterranean fauna

Background

In early 2017, subterranean fauna were recommended as a research priority for the Western Australian Biodiversity Science Institute (WABSI). A series of workshops involving end-users and researchers were organised with the aim to develop a program of research to close the knowledge gaps (https://wabsi.org.au/category/publications/research-plans/). The intent of the research program is to provide the framework for the development of research activities and to encourage collaboration. There was clear consensus on five broad focus areas to be progressed:

1) More accurate, efficient and consistent species identification processes to increase taxonomic certainty;
2) **Improved survey and sampling protocols to optimise the efficiency of survey and monitoring**;
3) Improved understanding of habitat requirements to better define species distributions;
4) Improved understanding of resilience to disturbance to inform mitigation strategies; and
5) Data discoverability and accessibility to provide spatial and temporal context.

This scope of work concerns the first steps of **focus area 2**.

Project Description

Adequate survey is integral to understanding both the species present and to estimate their distribution. Several studies have described sampling methodologies for stygofauna (e.g. Eberhard et al. 2009; Halse et al. 2014) and troglofauna (e.g. Halse and Pearson 2014). The EPA also provides technical guidance to proponents on the minimum requirements for subterranean fauna survey for the purpose of environmental impact assessment (EPA 2016a, EPA 2016b). However, the fact that these animals live underground creates certain challenges in designing a survey program.

As an assessment of impact requires knowledge of the distribution of species within and beyond a development 'footprint', it is important to determine the range of each species and the availability of suitable habitat beyond the impact area. Currently, assessments of subterranean fauna distributions often rely on bore holes created for minerals exploration or water supply, which may or may not intersect suitable habitat and are often highly biased spatially and environmentally. The restricted access and a generally low capture rate of individuals, means that survey strategies are relatively inefficient, with many species only detected in a single bore (i.e. singletons; Eberhard et al. 2009). There can also be a high level of false absences, whereby a species is not detected even though it is present, resulting in the underestimation of distribution (Eberhard et al. 2009).

While it is recognised that some level of repeated sampling is required to adequately detect a significant proportion of the species occurring at a site (Eberhard et al. 2009; 2016), there are uncertainties regarding the actual level of survey effort required. Some studies have indicated that the level of effort recommended by the EPA technical guidance (EPA 2016a, EPA 2016b) is inadequate (Karanovic et al. 2013; Eberhard et al. 2016), and that the survey design needs to consider regional and local influences on habitat suitability (Karanovic et al. 2013). Moreover, the

effort required for monitoring changes in abundance, which is often a Ministerial condition of a development approval, is substantial as the number of samples required to detect a decline is considerable (Eberhard et al. 2009). There is also uncertainty regarding the setting of thresholds to determine 'impact', as opposed to natural fluctuations in abundance over time.

A review and refinement of survey and sampling protocols is required to ensure contemporary approaches are efficient, repeatable and effective to accurately document the subterranean fauna of an area. The first step to improving current practice is a review of the historical survey effort, and sampling techniques used to date in tandem with survey findings. The subterranean fauna surveys undertaken for environmental impact assessment provide the primary source of information for this review.

Main objective

As a first step to establishing an optimal and consistent sampling strategy for both stygofauna and troglofauna, review historical data to better understand sampling efficiency using current approaches and highlight areas of improvement. This includes an assessment of both sampling methodology and effort.

Scope of work

1) Collation of data
    i) Determine data sources with the project working group (i.e. funding partners)
    ii) Liaise with the project working group and environmental consultants to identify a common set of data parameters to be collated (refer to Table 1 below)
    iii) Establish a procedure for reconciling nomenclature with advice from the WA Museum (i.e. specimen codes, name changes)
    iv) Determine method of data capture and storage in consultation with Department of Water and Environmental Regulation (e.g. database, custodian)

2) Statistical analyses to compare detection rate based on the sampling strategy used (techniques and effort) noting that this step will be dependent on the available data
    i) Liaise with the project working group and consultants to determine the level of data interrogation required i.e. what are the main questions? (refer to Table 2 below)
    ii) Report on the outcomes of the analyses, including recommendations

Milestones

1) Identification of data sources and data to be captured
2) Delivery of historical data for analyses in an appropriate format
3) Identification of questions to be addressed
4) Delivery of outcomes from analyses, including database and report with recommendations

Key deliverables

The successful applicant will deliver:

- A database collating all data identified in Task 1
- A report on the outcomes specific to the questions identified in Task 2

The database and report must be provided electronically to WABSI (Lesley Gibson; lesley.gibson@wabsi.org.au) by the due date. The report must be provided in Word and PDF format. The data is to be provided in an appropriate database format as determined during the project.

Expected outcome

It is expected that the above analyses will provide baseline information to help identify a consistent sampling strategy/s that optimises the detection of subterranean fauna species (both stygofauna and troglofauna) within a prescribed area. It may also indicate areas of improvement and guide further research to test new sampling methodologies in the field and laboratory.

Schedule and timing

The project delivery date is **12 months** from commencement date.

The successful applicant is required to provide the following:

1) Quarterly progress presentations and short summary to the project working group
2) At least one presentation to the Subterranean Fauna Research Program Steering Committee
3) A draft report, along with the associated database, that details the methods, results and interpretation of the results comparing detection rates based on the various sampling strategies within **10.5 months** of award or as negotiated with the Subterranean Fauna Research Program Steering Committee.
4) A final report addressing reviewer comments within three **(3) weeks** of provision of comments.

Contact

If you have any questions on the above, please contact Lesley Gibson (Chair of the Subterranean Fauna Research Program Steering Committee) at lesley.gibson@wabsi.org.au or on 0417 648 285.

Tables

Table 1: Examples of types of data to be considered

Specimen information	specimen code
	species code
	DNA barcode
	preservation and storage
	date recorded
	location
	number of individuals per sample
Sampling methods	trap type
	bait type
	haul net mesh size
	trap depth
	haul depth
Characterisation of bores sampled	type
	age (time between drilling and sampling)
	depth of hole
	angle of hole
	hole diameter
	depth to water table
	drill core samples collected
	physicochemical information
Sampling effort	number of bores sampled
	number of sampling events per bore
	timing of sampling
	haul/scrape/trap number per bore during single survey event
	seasons sampled
	duration of trap deployment
Survey area information	hydrogeological setting
	geomorphology/geology
	topography
	climate information including prevailing weather (e.g. rainfall during and preceding)
Sampling configuration	distance between bores sampled
	number of bores sampled inside and outside of the impact (needs to be defined according to circumstances of each site) area
	stratified according to geology and/or hydrology

Table 2: Examples of types of comparisons

1	Sampling frequency (e.g. how many repeat visits to optimise species detection?)
2	Sampling methodology (e.g. scraping vs trapping)
3	Duration of trap deployment (e.g. how many trap-days to optimise species detection)
4	Number of traps per bore (e.g. how many traps per bore to optimise species detection)
5	Temporal variability (e.g. does detection rate vary with season?)
6	Regional differences (e.g. are there regional differences in detection rate?)
7	Geological/hydrogeological variation (e.g. does detection rate vary with geology?)

References

Eberhard, S.M., Watts, C.H., Callan, S.K. and Leijs, R. (2016). Three new subterranean diving beetles (Coleoptera: Dytiscidae) from the Yeelirrie groundwater calcretes, Western Australia, and their distribution between several calcrete deposits including a potential mine site. Records of the Western Australian Museum, 31: 27–40.

Eberhard, S.M., Halse, S.A., Williams, M.R., Scanlon, M.D., Cocking, J. and Barron, H.J. (2009). Exploring the relationship between sampling efficiency and short-range endemism for groundwater fauna in the Pilbara region, Western Australia. Freshwater Biology 54: 885–901.

EPA (2007). Mesa A/Warramboo Iron Ore Project: Report and recommendations, Bulletin 1251. Environmental Protection Authority, Perth.

EPA (2012). A review of subterranean fauna assessment in Western Australia: Discussion Paper. Environmental Protection Authority, Perth.

EPA (2016a). Technical Guidance: Sampling methods for subterranean fauna. Environmental Protection Authority, Perth.

EPA (2016b). Environmental Factor Guideline: Subterranean Fauna. Environmental Protection Authority, Perth.

Halse, S. and Pearson, G.B. (2014). Troglofauna in the vadose zone: comparison of scraping and trapping results and sampling adequacy. Subterranean Biology 13: 17–34.

Halse, S.A., Scanlon, M.D., Cocking, J.S., Barron, H.J., Richardson, J.B. and Eberhard, S.M. (2014). Pilbara stygofauna: deep groundwater of an arid landscape contains globally significant radiation of biodiversity. Records of the Western Australian Museum, Supplement 78: 443–483.

Hose, G.C., Asmyhr, M.G., Cooper, S.J. and Humphreys, W.F. (2015). Down under down under: Austral groundwater life. In: Austral Ark: The State of Wildlife in Australia and New Zealand (eds. A. Stow, N. Maclean and G. Holwell) pp. 512–536. Cambridge University Press, Cambridge.

Humphreys, W.F. (2008). Rising from Down Under: developments in subterranean biodiversity in Australia from a groundwater fauna perspective. Invertebrate Systematics 22: 85–101.

Karanovic, T., Eberhard, S.M., Perina, G. and Callan, S. (2013). Two new subterranean ameirids (Crustacea: Copepoda: Harpacticoida) expose weaknesses in the conservation of short-range endemics threatened by mining developments in Western Australia. Invertebrate Systematics 27: 540–566.

APPENDIX B – SOLUTION AND PRICING REQUIREMENTS FORM

TO BE COMPLETED AND RETURNED BY THE SUPPLIER / CONTRACTOR ON THEIR LETTERHEAD

B.1 Respondents Solution

Respondents are required to use this section B.1 to submit details of their proposed solution(s) to the Specification (Appendix A) above, including all relevant details.

Please provide in your submission:

- A project plan (approach and methodology)
- Timeline and breakdown of milestones/deliverables
- Itemised budget of time and any resources
- Team proposed, and skills and experience of key personnel

The evaluation criteria will not necessarily be based on lowest cost, but on the "best value" concept. For this project, "best value" will be assessed based on price, proposed time allocations, team experience and level of detail.

B.2 Pricing

Applicants are requested to provide a deliverable-based pricing and billing schedule. The cost proposal must be a fixed fee rate. A detailed cost breakdown should be provided including hours and nominated personnel.

In the fee estimate please allow for:

- Quarterly progress meetings
- Time for meetings to be held with stakeholders as required
- Production of the draft and final report
- Any additional costs expected, but not included in the above

Payment for services is likely to be in three stages:

1) 40% on project commencement
2) 30% on delivery of historical data for analysis
3) 30% on final delivery

Please use the space below to provide further comments, added value or details of discount propositions for evaluation by the University:

B.3 Respondent Information

Company Details	
Full Name of Legal Entity:	
Trading Name (if different from above):	
ACN Number:	
ABN Number:	
Registered Address:	
Telephone Number:	
Authorised Representative	
Name:	
Title:	
Telephone Number:	
Mobile Number:	
Email Address:	

APPENDIX C – FINANCIAL INFORMATION

TO BE COMPLETED AND RETURNED BY THE SUPPLIER / CONTRACTOR ON THEIR LETTERHEAD

Financial Information	
What was your turnover in the last two years?	
Has your organisation met the terms of its banking facilities and loan agreements (if any during the past year)?	☐ Yes ☐ No
If No, what were the reasons and what was done to put things right?	
Has your organisation met all its obligations to pay its creditors, subcontractors and staff during the past year?	☐ Yes ☐ No
If No, please explain why?	
What is the name of and branch of your bankers (who could provide a reference)?	
Name	
Branch	
Contact details	