

September 2008

**Terrestrial subterranean diversity in non-karstic Archaean rock terrains
Terrestrial subterranean diversity in non-karstic Archaean rock terrains: another Aladdin's Cave opening in the Pilbara region of Western Australia**

Peter Bell

Stefan Eberhard

T. Mould

Katherine Muirhead

N. Stevens

Follow this and additional works at: https://digitalcommons.usf.edu/kip_abstracts

Recommended Citation

Bell, Peter; Eberhard, Stefan; Mould, T.; Muirhead, Katherine; and Stevens, N., "Terrestrial subterranean diversity in non-karstic Archaean rock terrains Terrestrial subterranean diversity in non-karstic Archaean rock terrains: another Aladdin's Cave opening in the Pilbara region of Western Australia" (2008). *KIP Abstracts* . 18.

https://digitalcommons.usf.edu/kip_abstracts/18

This Text is brought to you for free and open access by the KIP Research Publications at Digital Commons @ University of South Florida. It has been accepted for inclusion in KIP Abstracts by an authorized administrator of Digital Commons @ University of South Florida. For more information, please contact scholarcommons@usf.edu.

*Abstract of paper presented at the 19th International Symposium of Subterranean Biology 2008
Fremantle, Western Australia 21-26th September 2008.*

Terrestrial subterranean diversity in non-karstic Archaean rock terrains: another Aladdin's Cave opening in the Pilbara region of Western Australia

Stefan Eberhard, Peter Bell, Timothy Moulds, Nicholas Stevens & Katherine Muirhead

Subterranean Ecology, Scientific Environmental Services, PO Box 280, North Beach, Western Australia
6920, Australia (✉info@subterraneanecology.com.au).

Until recently most terrestrial troglobites in Australia were known only from large (macro-) caves developed, predominantly, in karstified carbonate rocks, and less commonly from lava tubes developed in basalt. Excepting a few isolated earlier reports, and despite the accumulated evidence from other countries, there had been little searching for troglofauna in smaller (meso-) cave habitats developed in non-karstic rock terrains. This situation changed abruptly a few years ago when diverse communities of short range endemic terrestrial troglobites were discovered during routine stygofauna sampling in Tertiary channel iron deposits in the Pilbara region of Western Australia. This discovery (described elsewhere this symposium), triggered a spate of troglofauna surveys instigated for pre-mining environmental impact assessment. Here we report the discovery of diverse assemblages of terrestrial troglomorphic fauna occurring in Archaean ore-bearing rocks in the north and central Pilbara. The higher level systematic composition of the troglomorphic assemblages in the Pilbara includes arachnids (Araneae, Pseudoscorpionida, Schizomida, Palpigrada), insects (Diplura, Thysanura, Coleoptera, Hemiptera, Blattodea), myriapods (diplopoda, chilopoda) and isopods. The richness of troglomorphic species recorded at some localities (12 to 26 species) is comparable to, or exceeds, that recorded from the most intensively surveyed karst localities and lava caves in Australia. In the Archaean ore-bearing rocks, secondary porosity is developed by tectonic, mineralisation and/or weathering processes, and provides prospective habitat for troglofauna. Examination of diamond drill cores shows air-filled fractures and meso-caverns extending many metres below ground level, while regolith and colluvium may provide additional shallow subsurface habitats analogous to the *milleu souterrain superficial* that harbours diverse troglofaunas outside Australia. The limited sampling at just a few localities to date has confirmed that the arid Pilbara region harbours a significant diversity of troglofauna, and like stygofauna, this poses research and conservation challenges in the face of increasing demand for mine developments.