

TINY CREATURES HELP GUIDE PILBARA DEVELOPMENT

Over the past year, tiny animals—some of them so small they can live in the spaces between grains of sand—have been the subject of intense research into their distribution and ecology. The animals live in underground waters, and are collectively referred to as 'stygo fauna'. Most stygo fauna are invertebrates (animals without backbones), and most are crustaceans.

In an early study by the Department of Conservation and Land Management, five springs on the Fortescue, Ashburton, Robe and De Grey rivers were sampled for stygo fauna after small holes about half-a-metre deep were dug in the bed of the stream where the springs occurred. Following this, the department—in collaboration with BHP Billiton, Hamersley Iron and Hope Downs—began research into these microscopic life forms at Weeli Wolli Creek east of Karijini National Park, in the State's Pilbara region.

Principal Research Scientist Stuart Halse, from the department's Science Division, said that 18 species of stygo fauna were collected during the study, as well as 141 other species of aquatic invertebrates.

Many of the stygo fauna found in springs were previously known only from depths of 10 to 40 metres, in groundwater associated with deposits of calcrete (similar to limestone) in riverbeds, such as those at Weeli Wolli Spring. Finding them in shallow springs makes them easier to study and conserve, and comparisons between species found in springs and

those found in nearby groundwater bores are under way.

Conservation of stygo fauna is expected to become an increasingly important issue in the Pilbara, as the region appears to be rich in these animals. More than 100 species are already known from the Pilbara and Yilgarn—with many more expected to be found.

If we can discover more about the distribution and ecology of stygo fauna, it will lead to more effective conservation planning, as development of mineral deposits proceeds. Both the development of groundwater resources for water supplies to Pilbara towns and the dewatering of mine pits, to allow mining below the water-table, need to be carefully monitored to determine any adverse effects.

This preliminary study of stygo fauna in Pilbara springs is expected to lead to a more extensive biological survey of rivers, wetlands and terrestrial habitats of the Pilbara over the next few years, as well as into more detailed groundwater investigation.

From top: A primitive crustacean, 1–2 millimetres long, in the Family Bathynellidae; a primitive thermoshaenid crustacean (Halosbaena sp.) 1–2 millimetres long, carrying an egg sac on its back; a groundwater isopod crustacean (Pilbaraophreatoicus platyathricus) about five millimetres long that occurs in the bed of the Robe River; and an amphipod crustacean (Pilbarus millsii) about five millimetres long that occurs in groundwater around Millstream.

Photos – Jane McRae





Winner of the Alex Harris Medal for excellence in science and environment reporting.

LANDSCOPE

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Discover some amazing lifestyles of the little-known fungi of our south-west forests. See 'Forest fungi' on page 10.



One of WA's longest serving wildlife researchers looks at changes to nature conservation in the State. See 'For the times they are a-changin' on page 20.



Two unusual beetles are attracted to large bushfires. But why, and how do they find the fires and avoid getting burnt? See 'Australian fire-beetles' on page 36.



Two wildlife rescuers recently received Queen's birthday honours. See 'Kanyana to the rescue' on page 42.



What do wildlife officers do when a large whale weighing up to 80 tonnes becomes entangled? Turn to 'When nature calls...for help' on page 42.

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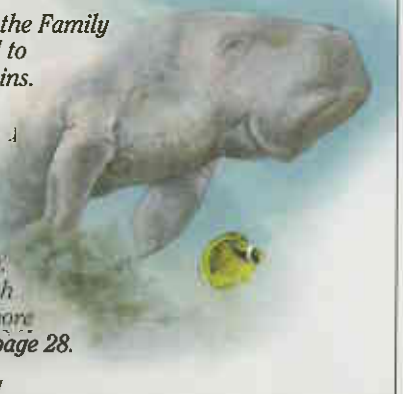
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COVER

The dugong is the only living species in the Family Dugongidae, and is more closely related to elephants than it is to whales and dolphins. One of the largest and most secure populations of dugong grazes on the extensive beds of seagrass in the shallow marine environment of Shark Bay. An estimated 10,000 dugongs, representing 10 per cent of the world's population, live in the bay. A new study, involving collaboration with local Aboriginal people, is discovering more about their movements in the bay. See page 28.

Cover illustration by Phillipa Nikulinsky



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