Government of Western Australia
Department of Water and Environmental Regulation

Media statement

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Unlocking DNA crucial to healthy rivers

The Department of Water and Environmental Regulation (DWER) is working Edith Cowan University's Centre for Ecosystem Management to investigate the genetics of native freshwater crayfish throughout the south-west of the state.

Dr Tim Storer, Manager of River Science with DWER, said native freshwater crayfish are a recognisable icon of many of our rivers and streams, and are critical in maintaining a healthy ecosystem.

"The department's Healthy Rivers program uses freshwater crayfish community measures as one of the key diagnostic indicators in assessing river health and condition, and in setting priorities for protection and system-specific requirements for management," Dr Storer said.

Determining the species of a crayfish and how closely related they are to other species in the region or in other parts of the world is achieved by analysing a section of DNA.

Dr Kat Dawkins, conservation geneticist at the university, uses 'barcoding' to identify species, which involves looking at short sections of DNA from specific genes. These are genes that don't change between individuals within a species but vary between species.

"This work aims to build our understanding of the species we have and where they can be found."

The south-west region of Western Australia is recognised as one of the world's 25 biodiversity hotspots. We know of six species of crayfish in region, which includes the smooth marron - the third largest freshwater crayfish on the planet - and the critically endangered hairy marron.

"All of our crayfish species are endemic to the south-west, which means they are found nowhere else in the world," Dr Storer said.

Results of this work will help the state government and other natural resource management organisations to prioritise areas for protection and provide guidance on specific management needs for the range of aquatic ecosystems, based on the ecological requirements of the different species that exist.

"This partnership with ECU began in 2019, and our river scientists will be in the field this week collecting more samples. We are already seeing a number of exciting results," Dr Storer said.

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