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Parasites may be cause of recent woylie 'crash'

The recent catastrophic decline of the critically endangered woylie (brush tailed bettong) may be linked to infections with the protozoan *Trypanosoma* parasite.

Credit: Murdoch University

Associated in humans to Chagas disease in South America and sleeping sickness in Africa, *Trypanosoma* species are found in a wide range of animals and vary in degree from non-pathogenic to highly pathogenic.

A newly published study led by researchers from Murdoch University's School of Veterinary and Life Sciences challenges the long-held view that, while pervasive in Australian marsupials, trypanosomes have little impact on the animals' health.

'In testing 600 native marsupials, we found positive results in 67 per cent of live-trapped and released woylies and 60 per cent of those which had been killed by automobiles,' said Murdoch PhD candidate Mrs Adriana Botero.

'Parasite species fell into three groups, or "clades", with a marked difference in the composition of *Trypanosoma* infections between woylies who came from stable populations, as opposed to those from declining populations.

'Ninety-six per cent of animals from the declining populations which tested positive were infected by a parasite species from Clade A, similar to *Trypanosoma copemani*, or had a mixed infection.

'On the other hand, woylies from stable populations who tested positive were infected by a parasite from Clade B, similar to *Trypanosoma gilletti*, which our group at Murdoch have named *Trypanosoma vegrandis* sp. nov.

‘This suggests that trypanosomes from Clade A could be important contributors to the dramatic decline of the woylie.’

Mrs Botero said woylies infected by the *T. copemani*-like parasite showed moderate to marked inflammation in tissues as well as evidence of damage to heart muscles.

She added that *T. copemani* had been reported in the blood of other endangered marsupials, including Gilbert’s potoroos and quokkas from WA as well as koalas from Queensland.

Since 1999, populations of woylies have undergone a dramatic 90 per cent reduction in abundance, despite no apparent increase in the number or type of predators and no apparent decrease in natural resources.

Woylies were once found over 60 per cent of the continent but are now confined to a few spots in WA and SA.

Researchers have called for further studies to confirm this hypothesis and inform a new conservation strategy.

The open access article can be found in the *International Journal for Parasitology: Parasites and Wildlife*.

Source: Murdoch University