

Why parasite extinction could be a problem for endangered woylies

October 27 2017

Murdoch University researchers have identified the woylie parasites most vulnerable to extinction and warned their demise could be bad news for their critically endangered host.

Emeritus Professor Andrew Thompson and co-researchers from the School of Veterinary and Life Sciences say that not all parasites are bad for the animals they rely upon, mediating disease, regulating breeding and positively influencing the behaviour of their hosts.

The relationship between the woylie and its parasites is complex and not fully understood. But the researchers believe that most parasites normally live in harmony with hosts unless certain stressors change this relationship.

"Over the course of a decade, woylies have been declining and in that period, we have been able to deduce that disease could be playing a role," Professor Thompson said.

"We identified a parasite called *Trypanosema copemani* as being pathogenic and contributing to the decline.

"During this 10 year process, we have been able to understand that the relationship between the woylie and this parasite has changed. It would appear that some stressors, like increased predation or a change to their diet, have caused this parasite to behave differently.

"What is now clear is most parasites don't cause the animals any harm. They seem to be living in some kind of balance. But when this balance is upset, it creates issues."

Professor Thompson said researchers need to understand better the parasite fauna of wildlife in order to understand how to maintain the delicate balance which helps species.

Woylies, or brush-tailed bettongs, were distributed across 60 per cent of mainland Australia before European settlement. It is now confined to only three wild populations in the southwest of Western Australia.

For their study, the researchers detected 36 different parasites in and on woylies, including species of ticks, fleas and nematodes. Of these species, they deduced that 11 species were in danger of extinction during the woylie decline, and/or following its extinction.

The researchers developed a framework to identify the vulnerability of each parasite to extinction, finding that host specific parasites with more complex life cycles, which rely on the proximity between hosts to transmit, as being the most threatened.

Professor Thompson said that a significant cause of parasite loss is likely to be the actions taken to save the host by conservation managers.

"In captive breeding for example, species are treated with anti-parasitic drugs to reduce disease threat. But when the animal is reintroduced to its natural environment, naive individuals are exposed to novel parasitic organisms, resulting in poor outcomes for the host and parasite," he explained.

"For endangered species like the woylie, translocation is another major conservation tool that is likely to lead to the loss of parasites.

"Hosts are often translocated in small numbers, which means only a small subset of parasitic fauna is taken with them, and often the parasite population is too small to become established in its new location. Again this would impact the all-important balance for hosts and parasites, so we must look carefully at this approach."

Professor Thompson said wildlife management plans for [species](#) like black rhinos and Iberian lynx have carefully considered how to conserve their [parasites](#), and similar strategies should be employed for woylies.

A paper on the research was published in *Trends in Parasitology*.

More information: R.C. Andrew Thompson et al. Parasites at Risk – Insights from an Endangered Marsupial, *Trends in Parasitology* (2017). [DOI: 10.1016/j.pt.2017.09.001](https://doi.org/10.1016/j.pt.2017.09.001)

Provided by Murdoch University

Citation: Why parasite extinction could be a problem for endangered woylies (2017, October 27) retrieved 27 April 2024 from <https://phys.org/news/2017-10-parasite-extinction-problem-endangered-woylies.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--