

Urban sprawl promotes worm exchange across species

January 27 2015

New research has shed light on the complex exchange of parasitic worms between wildlife, rats and humans.

The increasing emergence of new human diseases contracted from animals has encouraged researchers from the University of Adelaide to study the link between parasitic worms found in [rats](#) and the [parasites](#) they share with other wildlife and humans.

The team of researchers, led by Dr Konstans Wells from the University's Environment Institute, examined 242 different [parasitic worm](#) species found in two [common species](#) of rats. They identified 781 other mammal species that share the same parasites as rats, including 77 that are shared with humans.

Dr Konstans Wells says this study demonstrates the importance of the 'spill over' effect of parasites from local wildlife hosts to invasive rats.

"The chance that house rats share parasites with any wildlife species in the world appears to be linked to how they share the same habitat and also, how related they are," he says.

"We discovered 32% of parasites found in rats are also found in humans. With both rat and human populations on the rise, there is concern that urban sprawl and global spread of [invasive species](#) will expose formerly isolated wildlife and their parasites to people and vice versa."

Some parasites are able to jump between species. People come into contact with these parasites by eating contaminated food, entering animal habitats and sharing living spaces with rats.

The team developed a new modelling approach that Dr Konstans Wells says may help advance the forecasting of parasitic infections and disease emergence in humans and animals alike across the globe.

"We developed a model concept that allows us to link the probability of worm species occurring in wildlife and occurring in rats, and linked them to the probability of this occurring in a certain geographical area," he says.

By recording all the geographical locations where these parasites have been recorded and characterising all other [mammal species](#) infected by the same worms, this study demonstrated that parasites found in rats are clearly linked to the distinct wildlife that occurs in different areas. Because rats live alongside humans, there is a potential increased risk to [human](#) health.

More information: Wells, K., O'Hara, R. B., Morand, S., Lessard, J.-P., Ribas, A. (2014), "The importance of parasite geography and spillover effects for global patterns of host–parasite associations in two invasive species." *Diversity and Distributions*. doi: 10.1111/ddi.12297

Provided by University of Adelaide

Citation: Urban sprawl promotes worm exchange across species (2015, January 27) retrieved 13 March 2024 from <https://phys.org/news/2015-01-urban-sprawl-worm-exchange-species.html>

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