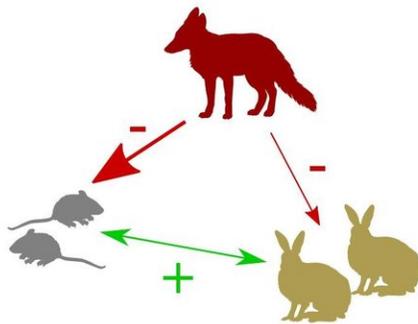


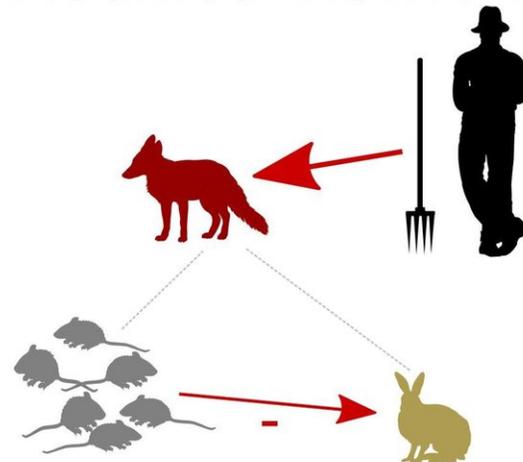
Social network models provide new tool for ecology studies

May 17 2018

'Natural' network



'Modified' network



Credit: University of Queensland

Social media networks such as Twitter and Facebook have inspired a new method of describing how other species interact with one another.

University of Queensland School of Veterinary Science researcher Dr. Nicholas Clark said the models used to show people's social [interactions](#) offered an exciting way to address a gap in scientific knowledge.

"Widely used analytical methods have been inadequate to identify how

co-occurring [species](#) interact in nature, or assess how they influence the makeup of natural communities," Dr. Clark said.

"We've adapted statistical models—originally derived in physics and recently applied in social [network](#) analysis- to study these interactions."

Dr. Clark said these relationships were crucial for explaining variation in biodiversity, but as [species interactions](#) were changeable, they proved difficult to map.

"Most methods did not adequately account for indirect interactions, where an interaction between two species was masked by their shared interactions with a third species," he said.

The researchers used two case studies, one involving blood parasites infecting New Caledonian birds, and another describing interactions between predatory insects and four larval mosquito species.

"In the first case study, parasites that infect the same bird host, called a co-infection, were considered to 'positively' interact, just like people might interact with their contacts in social networks," Dr. Clark said.

"Identifying these interactions can help uncover biological mechanisms that affect parasite infection rates.

"In the second study, predatory 'negative' interactions were identified to determine which insect species might play bigger roles in reducing local mosquito abundances.

"In addition to accurately uncovering species' interactions, we showed these networks predicted how such interactions would change as environmental conditions changed," Dr. Clark said.

"This could be increasingly important as habitat modification and climate change continue to disrupt natural communities."

The study also involved researchers from Griffith University and the University of Turku in Finland, and is published in *Ecology*.

More information: Nicholas J. Clark et al. Unravelling changing interspecific interactions across environmental gradients using Markov random fields, *Ecology* (2018). [DOI: 10.1002/ecy.2221](https://doi.org/10.1002/ecy.2221)

Provided by University of Queensland

Citation: Social network models provide new tool for ecology studies (2018, May 17) retrieved 11 May 2024 from <https://phys.org/news/2018-05-social-network-tool-ecology.html>

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.