Disease transmission in dynamic social networks of dingoes

Supervisors

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Project description

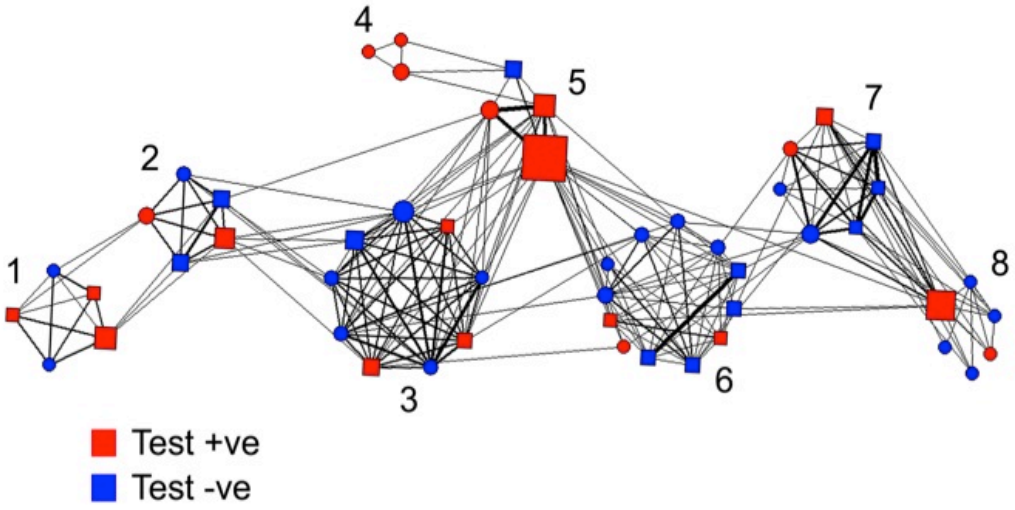
Animal domestication has been critical to the development of human society but has simultaneously created opportunities for the augmented transmission of infection between animals and humans. The behavioural traits of animals that lent themselves to domestication are inextricably linked to their potential as sources of infection. Relationships between the social behaviour of animals and their role in the maintenance and transmission of zoonotic infections are therefore close and long-established.

Dogs were the earliest animals to become domesticated and they now exist in a range of conditions of proximity to human society; from companion animals, to feral animals with loose connections to settlements, to fully wild dogs and dingoes, which essentially resemble their wolf ancestors. By conducting fieldwork with research partners in Australia, this project will investigate the social networks of dingoes and feral "camp dogs, in a range of ecological conditions, to examine how these relate to disease transmission and its control.

The dynamic nature of animal social structures and their effects on contact networks is a critical problem in the control of animal diseases. Rabies remains a major public health challenge in many countries, particularly in the developing world. We presently have minimal understanding of the impact of commonplace management interventions, such as culling and vaccination, or innovative measures, such as fertility control, on social networks and contact rates. The student will work alongside ongoing management to describe social networks of dingoes and wild dogs, before, during and after interventions. By collecting such real, dynamic network data they will then have the opportunity of modelling disease transmission across networks to examine the best means of disease control.

This is a novel and exciting project affording the student the opportunity of working with international research partners, using cutting edge technology and analytical approaches to study topics of fundamental importance to human health and animal behaviour.

Images: 1) Dingoes; 2) Infection in a wild animal social network.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