



The Royal Society
of Western Australia

RSWA Talk

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5.30 pm Kings Park Administration Building, Fraser Avenue

Free admission

To register online via Eventbrite click [here](#)

"Quantifying predation impacts of cats and foxes on Australian biodiversity"

by

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Abstract

Introduced predators are a major cause of animal extinctions globally. In Australia, the major drivers of documented Australian native mammal declines have been attributed to synergistic effects of habitat modification and introduced generalist eutherian predators. The domestic cat (*Felis catus*) was introduced to Australia about 250 years ago, and the red fox (*Vulpes vulpes*) about 100 years later. Both introduced predators have been implicated in the extinction and suppression of many native wildlife populations. We reviewed 60 years of diet studies collected across the geographic distribution range of cats (n=48 diet studies spanning 53 years of collection) and foxes (n=73 fox diet studies spanning 68 years of collection) to determine whether (1) there were spatial and (2) temporal patterns in their diet, (3) identify what distinguishes the diets of these two predators, and (4) use these findings to calculate their biodiversity impacts.

The red fox has a very broad diet. The most common component of their diet is mammals, which are present in 70% of all samples. They take mammals of all sizes, both as live prey and carrion. For example, foxes are a significant threat to livestock, consuming lambs, piglets and poultry. In terms of native species, foxes are 1.8 times more likely to have

consumed possums/glidens than cats, and are 8.8 times more likely to have consumed marsupial moles than cats. Foxes also more commonly consume invertebrates (1.2 times) and plant material (1.3 times) than cats.

By contrast, cats are a lot more specific in what they eat. Mammals are also the most common component of their diet (61% of all samples), with the largest proportion being small mammal prey about one eighth of their own body mass that are captured live. Cats were 1.7 times more likely to have consumed rodents or dasyurids than foxes, and 3.5 times more likely to have consumed bats than foxes. Cats also take 2.2 times more birds and twice more reptiles than foxes.

The diets of both predators vary spatially, indicating that they are opportunistic in what they eat, altering their diet according to prey availability. Both species exploit rabbits (*Oryctolagus cuniculus*) when they are present, but when rabbits are removed via biocontrol, foxes (which increase their intake of invertebrates and carrion) show a greater decline in numbers than cats (which switch to reptiles, birds and invertebrates). Associated with decline in abundance of rabbits, both predators show pronounced changes in diet.

Extrapolating from their predicted population densities across the country, and accounting for different prey availability, foxes are estimated to take 600 million birds, reptiles and mammals annually, with the greatest impacts for southwest and southeast Australia. But cats eat smaller animals, and therefore more of them, and are also found across more parts of the continent. We therefore estimate that cats kill 2 billion animals each year.

Presenter Biography

Having grown up loving animals, I have been privileged to live my dream of working with wildlife. The more I have experienced and understood, however, the more I have come to realise that we urgently need to address the threats they face if we are to save our amazing and extraordinary Australian biodiversity. Over the last decade, I have been collaborating with other researchers to understand more about the biology of cats and foxes, as predation by these two species has been directly attributed to the extinction and range reductions of many Australian species. This talk is our story coming together public service in WA. Now retired, she is an Adjunct Research Associate in the School of Molecular and Life Sciences, Curtin University, and a Research Associate of the WA Herbarium.

