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MITRANI DEPARTMENT OF DESERT ECOLOGY

Predation and community structure in Australian deserts

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This talk describes the population and community dynamics of small mammals and other vertebrates over 25 years in the Simpson Desert, central Australia. In this extreme environment, rodents and the carnivorous marsupials that prey upon them increase during short but spectacular boom periods after heavy rainfall and crash during prolonged droughts. Insectivorous marsupials, by contrast, show the opposite pattern, and appear to suffer mass mortality after heavy rains. Populations are also affected by wildfire, competitive and facilitatory interactions between species, and especially by predation from introduced cats and foxes. These varied processes are seldom reported as drivers of the population and community dynamics of desert mammals and other vertebrates, and suggest that arid Australian systems differ markedly from desert systems elsewhere. Some of these key differences will be highlighted and their diverse causes—including highly unpredictable rainfall and predation from large carnivorous lizards—uncovered. I will propose some simple conceptual models that attempt to describe and predict the dynamics of small desert mammals, and will also discuss the likely effects of climate change on the biota of arid inland environments.

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https://www.sydney.edu.au/science/about/our-people/academic-staff/chris-dickman.html