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Paddy Pallin Science Grant

Bandicoot battlers: Understanding historical and contemporary coexistence between humans and a misunderstood native digging mammal

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Project Summary

Small mammals have suffered extensive declines since European settlement in Australia. These declines have been linked to alien predator arrival, but human-wildlife conflict was and continues to be a significant threat. Digging by native animals provides important ecosystem services, benefitting soil, plant, fungal and animal assemblages. However, unwanted digging damages urban greenspace and causes agricultural losses, creating conflict with humans. This can have deadly consequences to our native digging species.

Bandicoots have an extensive history of human-wildlife conflict due to their digging behaviour. Eight of the fifteen bandicoot species in Australia are either threatened or extinct. Yet the remaining species continue to persist alongside alien predators in peri-urban environments where their digging can reduce forest fuel loads but damage gardens and lawns. Bandicoots exploit multiple food sources (including plants, insects and fungi) providing an advantage in urban and other human-shaped landscapes. This project aims to understand multiple dimensions of human-wildlife conflict with a critical weight range digging mammal (bandicoots) to improve their profile in conservation and management of digging behaviour:

Aim 1: Approximate the population dynamics and pressures of bandicoots in Sydney using historical analysis of urban decline to test predictions about the drivers of range contraction.

Aim 2: Investigate the ecosystem services provided by southern long-nosed bandicoot (*Perameles nasuta*) foraging in Sydney to reveal the motivations and benefits of bandicoot digging.

Aim 3: Explore the use of chemical camouflage as a behavioural manipulation technique to reduce the adverse effects of bandicoot digging on an economical valuable crop (*Tuber melanosporum*).

Biography of Annabel Ellis

Annabel Ellis is a PhD student at the University of Sydney in the Behavioural Ecology and Conservation Lab. She developed an interest in human-wildlife interactions while studying invasion ecology of black rats during a Bachelor of Science (Advanced) (Honours). Combined with a Graduate Certificate of Applied Statistics, Annabel has a keen eye for finding the story among the data. Annabel continued to develop her research skills working in government and not-for-profit, before returning to undertake a PhD. Her research focuses on biodiversity conservation within transformed landscapes, creating novel approaches to promote human-wildlife coexistence with an ecosystem engineer.