Northern quoll in the Pilbara: Diet, space use and population dynamics of a marsupial carnivore

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Good knowledge of species ecology is critical for effective management and conservation decision-making. The remote and spatially isolated Pilbara population of northern quolls (*Dasyurus hallucatus*) had not been well studied, but the presence of this endangered species in rocky areas targeted by the mining industry requires careful management actions. Toxic cane toads (*Rhinella marina*) threatening northern quolls elsewhere have not yet invaded the Pilbara, where northern quolls suffer a different

suite of threatening processes including habitat loss via mining and associated infrastructure, inappropriate fire regimes, as well as introduced predators (especially feral cats, *Felis catus*). Pilbara northern quolls were prioritised for ecological and demographic research according to key knowledge gaps. We present an enhanced dataset of northern quoll distribution, population analysis via genetics, and temporal and spatial differences throughout the region. To better understand their habitat requirements, we analysed 498 scats collected across ~100,000 km^2, and calculated dietary composition for 10 study landscapes. This small marsupial was found to be highly omnivorous, consuming at least 23 species of vertebrates (mammals, birds, reptiles, frogs), as well as arthropods, molluscs, fruit, and carrion. There were not strong differences between sites within the Pilbara, but the species was shown to be highly opportunistic with dietary strategies of carnivory, herbivory and scavenging. A better understanding of this endangered species will assist in effective protection of the Pilbara population as future threats emerge.

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ABSTRACT BOOK