

EXPERIMENTAL EVIDENCE FOR THE ROLE OF FERAL CATS IN NORTHERN MAMMAL DECLINES

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Small mammal species are declining across northern Australia. Predation by feral cats is one hypothesised cause. We conducted experimental translocations to measure the effect of predation by cats on two species of native small mammal. We established two 12.5 ha enclosures at Wongalara Sanctuary (NT). Each enclosure was divided in half, with cats allowed access to one half but not the other. In the first experiment, we introduced about 20 Long-haired Rats, *Rattus villosissimus*, into each of the four compartments. The rodents were sourced from a cat-free island, and bred up in captivity to reach the required release numbers. Mark-recapture analysis and radio-tracking showed that rat populations persisted in the predator-proof treatments, but declined to extinction in the two predator-accessible treatments. Feral cat incursions, revealed by camera surveillance, and track/scat searches, corresponded to rat mortality events. In the second experiment, we reintroduced Pale Field Rats, *Rattus tunneyi*, in a wild-to-wild translocation, using a source population from Mornington Sanctuary (Kimberley) that is exposed to feral cats. The translocation was accompanied by cat control at the release site. However, the result was similar: Pale Field Rat populations in the rat-accessible plots declined rapidly, with mortality events coinciding with cat incursions. This study provides direct evidence that cats are capable of extirpating small mammals; it supports the hypothesis that predation by feral cats is contributing to the northern mammal declines; finally, it suggests that the recovery of native small mammals in northern Australia requires intensive control of cat populations, including large cat-free enclosures.

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