

Kingston project – responses of terrestrial vertebrates to timber harvesting in the Jarrah forest

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Our current understanding of fauna responses to timber harvesting in the jarrah forest is principally based on two ongoing DEC projects (Kingston and FORESTCHECK) and their closely associated and/or collaborative studies conducted by university students.

The Kingston Project (established 1994) intensively focuses on a single locality and the immediate to short-term responses in real time. FORESTCHECK (established 2001) has a broader spatial and management focus, investigating multiple sites across the jarrah forest and the medium-term responses based on a time-for-space approach (see McCaw and Robinson abstract within). The projects are deliberately complementary and each uses an integrated and comprehensive approach to investigate most flora and fauna taxa in conjunction with other structural and physical ecosystem attributes (e.g. coarse woody debris, soils, etc).

The Kingston Project component investigating the responses of medium-sized mammals is ongoing and includes threatened species such as the woylie (*Bettongia penicillata*; EN), chuditch (*Dasyurus geoffroii*; VU), ngwayir (western ringtail possum, *Pseudocheirus occidentalis*; VU), and wambenger (brushtail phascogale, *Phascogale tapoatafa* ssp.; VU), also the priority listed quenda (*Isodon obesulus fusciventer*), and 'near threatened' koomal (common brushtail possum, *Trichsurus vulpecula hypoleucus*). Bats, including the priority listed western false pipistrelle (*Falsistrellus mackenziei*), are currently being investigated by means of a PhD project (P. Webala, Murdoch University).

The woylie, chuditch and quenda were not apparently negatively impacted by timber harvesting. Koomal abundances respond negatively to logging and demonstrate that habitat trees and unlogged buffers are particularly important in mitigating these effects. Spotlighting evidence demonstrates that koomal remain abundant across the landscape in the presence of contemporary and recent logging. Ngwayir survivorship was reduced by at least 40% by the harvesting and extraction alone: principally due to an increased vulnerability to predation. Spotlighting evidence indicates a population collapse to undetectable levels after harvesting disturbance across the Greater Kingston area (including logged and unlogged forest). Ngwayir abundance in the Upper Warren region was negatively related to logging and fire intensity and age, and extent of fragmentation by agriculture. It was also positively related to fox control. The identification of the attributes selected for in diurnal den trees by both possums also inform the refinement of silvicultural guidelines for the selection and retention of habitat trees.

Threatened Species Research Forum



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A Review of WA Government Research into Threatened Species