Brushtail Possum (Koomal) responses to timber harvesting at Kingston

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Implications for Management

Landscape level management

- Conservation objectives for arboreal fauna should be developed in the context of the full range of species that may potentially inhabit an area;
- Unharvested areas (including TEAS) within coupes are important in maintaining Koomal populations because of declines in gap and shelterwood cells;
- *Banksia, Gastrolobium,* and others shrubs are seasonally important food for Koomal that is impacted by logging and therefore may impose greater pressure on other resources (if available) and affect Koomal population abundances.

Habitat tree retention

- A few trees are used more extensively and are therefore more valuable to protect, in particular Marri, leaning trees, short & fat trees;
- Standing trees with a wider range of crown senescence should be considered for retention;
- Preliminary results show at least 3.5 standing trees per hectare are utilized by Koomal;
- Appropriate retention rates will be dependent on habitat type, possum density, and competition, all of which are dynamic over time.

Habitat log retention

- Koomal use of hollow logs will be dependent on possum densities, competition and habitat
- In some circumstances, Koomal may limit hollow log availability for other species such as Chuditch and possibly Numbats if hollow log densities are low;
- Hollow log recruitment in regrowth will be very low for a long period following harvesting;
- Natural hollow logs are used more extensively than logs from felled trees.
- Hollow log selective criteria could be expanded to include logs with:
  - external diameter >20 cm (currently 30-100cm)
  - internal diameter 6 to >30 cm (currently 6-15cm)
  - preference for natural hollow logs.

Monitoring and Research

- Environmental, Habitat, Observer and Survey variables affect Koomal spotlight detection and therefore need to be measured and accounted for in surveys;
- Survivorship of leaning habitat trees and hollow logs needs to be quantified;
- Continuing analysis of current data and further proposals for possum ecology research.

A WORKSHOP ON ENVIRONMENTAL EFFECTS OF TIMBER HARVESTING IN THE JARRAH FOREST
Perup Forest Ecology Centre
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A synthesis of recent research by the Science Division, Department of Conservation & Land Management

1. Objectives of the workshop

a) To provide forest managers and policy-makers with a comprehensive overview of research findings relevant to the environmental effects of timber harvesting in the Jarrah forest;
b) To identify mechanisms by which current research findings can be incorporated in the revision of silvicultural guidelines and the next Forest Management Plan (FMP).

2. Format for sessions

Presenters were asked to:
- Briefly overview the methodology used in their study, sufficient to make results interpretable.
- Summarise the key findings, giving priority to those that have implications for management and that can be manipulated by future silvicultural practices.
- Make recommendations for changes to management practices that could be considered in the context of the next Forest Management Plan.

3. Summary of presentations

Attached are brief summaries of most presentations made at the workshop, together with a statement from the authors regarding the key management implications of their findings:

- *Short term impacts of logging on understorey vegetation in the Jarrah forest* (Neil Burrows, Bruce Ward & Ray Cranfield).
- *Evaluation of key soil indicators of sustainability in Australian Mediterranean forests* (Kim Whitford)
- *Using electromagnetic induction to estimate soil salt storage* (Joe Kinal)
- *Hydrological response to logging in the intermediate rainfall zone of the jarrah forest* (Joe Kinal)
- *Logging and burning impacts on cockroaches, crickets and grasshoppers, and spiders in Jarrah forest* (Ian Abbott and colleagues)
- *Short-term Impacts of Logging on Birds in a Jarrah Forest at Kingston* (Graeme Liddelow)
- *Tree hollows in Jarrah and Marri* (Kim Whitford)
- *Response of terrestrial vertebrates to timber harvesting at Kingston* (Adrian Wayne and colleagues)
- *Brushtail Possum (Koomal) responses to timber harvesting at Kingston* (Adrian Wayne and colleagues)