Response of terrestrial vertebrates to timber harvesting at Kingston

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Summary

Small vertebrates

Capture rates of most small vertebrate species were too small to take analyses beyond descriptive trends and species richness tests;

• For those taxa with >40 capture records, all (except the brushtailed phascogale), were present after disturbance within each treatment that were present prior to harvesting;

• For taxa with <40 records, the sample sizes were too small to comment on the impacts of logging;

• Species Richness:

- small mammals declined over time (phascogale and dunnarts)
- frogs and reptiles recovered to pre-logging levels within 5 years
- logging is not likely to be the principle cause for these trends as external controls behaved similarly;
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•*Brushtailed phascogale*:

- none have been caught on Kingston grids since June 1995,
- declines began before logging and occurred regionally,
- logging impacts remain unresolved.

Implications for Management

Small Vertebrates

•Extensive trap effort provided only limited data and it was only possible to draw conclusions about the impacts of harvesting on a few species

• No evidence of direct negative impacts of logging on native small vertebrates BUT the limitations of the data do not negate the possibility of impacts

• House mouse is a disturbance opportunist, which may have implications for native small vertebrates (competition & predation)

• Phascogale and Dunnart populations declined over the period of the study, but this did not appear to be related to timber harvesting

Quenda

• Populations responded positively to fox baiting

• No evidence of negative impacts from logging on population size (treatment populations equal or greater than control after logging)

• Recent declines on controls and treatments, although not directly related to logging, remain to be resolved

Woylie

• Populations responded very positively to fox baiting

• No evidence of negative impacts from logging on population size

• High densities of Woylies can affect the effectiveness of trapping other species because of trap saturation and future monitoring studies should take account of this

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)