Short-term Impacts of Logging on Birds in a Jarrah Forest at Kingston

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Summary

The introduction of modified silvicultural treatments in jarrah forest (*Eucalyptus marginata*) in 1985 raised some concerns on the impact of these treatments on the avian population. A combined study was set up in Kingston Block looking at aspects of these impacts on fauna and vegetation in 1994. Mike Craige (Phd student UWA) commenced the study on the birds in autumn 1994 and continued until 1996. The area was logged in summer 1994/95 and silvicultural burnt in November 1996. The Science Division, Department of Conservation & Land Management, took over the censuses in autumn 1997.
A total of 54 species of bird have been recorded on the grids with a further 8 being recorded in the vicinity.
Mike Craige found in his study (BACI) there was a significant decrease in the bird density in all the treated areas after logging, a non-significant decrease in species numbers and no change in the diversity of species in the treated areas. Since the Science Division has continued with the study (to Spring 2000) the Buffer areas have changed from a 30% decrease to a 10% decrease(BACI), the Shelterwood from 22% decrease to a 25% increase(BACI) and the Gap showing no change at around 25% decrease(BACI).
Overall the individual treatment trends show no change in abundance in the Control, Buffer and Gaps with a slightly increasing trend in the Shelterwood.
Some individual bird species are showing decreasing trends ie. Western Yellow Robin in the treated areas, but this species prefers open understorey and would be disadvantaged by the dense regeneration at this time. In contrast the Inland Thornbill and the White- browed Scrubwren are showing increasing trends at this stage of the forest regeneration.
Even though we have recorded over 12000 individuals during this study there are still too few numbers for any meaningful statistical analysis, we can only show trends within the treatments with time since treatment.

Management Implications

This study should be continued as it will be the only long term study on the impact of logging on the avian fauna in the jarrah forest, and can be compared with a similar study in karri forest at Grey block. The study should be continued on an annual basis until at least 10yrs since the silvicultural burn (2006) or until there is crown separation in the regeneration. Censuses should then continue on 5yr intervals from that time.
We should look at modifying our logging practice in the Shelterwood areas by retaining un-logged refuge areas within the coupes. The spacing of these un-logged refuges should be approximately 300 m.

A WORKSHOP ON ENVIRONMENTAL EFFECTS OF TIMBER HARVESTING IN THE JARRAH FOREST
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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)