Progress Report SP 2006-003

FORESTCHECK: Integrated site-based monitoring of the effects of timber harvesting and silviculture in the jarrah forest

Ecosystem Science

Project Core Team

Supervising Scientist	Lachie Mccaw
Data Custodian	Verna Tunsell
Site Custodian	

Project status as of Dec. 11, 2019, 2:21 p.m.

Approved and active

Document endorsements and approvals as of Dec. 11, 2019, 2:21 p.m.

Project Team	granted
Program Leader	granted
Directorate	granted

FORESTCHECK: Integrated site-based monitoring of the effects of timber harvesting and silviculture in the jarrah forest

J Farr, G Liddelow, V Tunsell, B Ward, A Wills, L Mccaw

Context

FORESTCHECK is a long-term monitoring program and results will be used by forest managers to report against Montreal Process criteria and indicators for ecologically sustainable forest management. Initiated as a Ministerial Condition on the *Forest Management Plan 1994-2003*, FORESTCHECK has continued to be incorporated in the *Forest Management Plan 2014-2023* as a strategy for increasing knowledge on the maintenance of biodiversity and management effectiveness in Western Australian forests.

Aims

- Quantify the effects of current timber harvesting and silvicultural practices in the jarrah forest (gap creation, shelterwood, post-harvest burning) on forest structural attributes, soil and foliar nutrients, soil compaction and the composition of the major biodiversity groups including: macrofungi, cryptogams, vascular plants, invertebrates, terrestrial vertebrates and birds.

Progress

- A paper examining the effects of historical timber harvesting and fire regimes on the volume and condition of coarse woody debris at 48 monitoring grids was published in *Australian Forestry*.
- Monthly inspections to document flowering activity continued at seven monitoring grids burnt by the Lower Hotham bushfire in February 2015, facilitating the development of a flowering calendar and confirmation of plant juvenile periods.
- Floristic composition following prescribed fires was compared between fenced grazing exclosures and unfenced areas on grids at Amphion block in Perth Hills District.
- Nine monitoring grids in the Jarrah Forest South ecosystem were remeasured for plant species composition, cover and vegetation structure. Remote camera surveys of vertebrate fauna were also undertaken.
- Information from FORESTCHECK monitoring was provided for inclusion as a case study in Australia's State of the Forests Report 2018.
- Post-burn assessments were undertaken on grids at Barlee and Winnejup blocks burnt by prescribed fire.

Management implications

- FORESTCHECK provides a systematic framework for evaluating the effects of current silvicultural practices across a range of forest types and provides a sound basis for adaptive management. Sixty seven monitoring grids have now been established, with 50 of these sampled at least twice.
- Findings from the project continue to inform a variety of forest management policies and practices and have been incorporated in periodic revision of silvicultural guidance documents. Monitoring data have been used to verify predictive models for forest growth and species occurrence.
- The network of FORESTCHECK grids also provides a framework for monitoring responses to random disturbance events such as bushfires and extreme droughts, and for examining the impacts of a changing climate over the longer term.

Future directions

- Publish findings from the 10-year monitoring period (2002-2012).
- Review monitoring protocols and incorporate new techniques where these will improve efficiency and quality of data collected.

- Prepare manuscript on responses of vascular plants, forest structure and invertebrates following the 2015 Lower Hotham bushfire.
- Remeasure selected attributes on monitoring grids in the Jarrah Forest Sandy Basins ecosystem.