

Submission by IFA

Forest Management Plan 2004 – 2013

Mid-term audit of performance report

The Institute of Foresters (the IFA) is the body that represents professional forest managers in Australia. The Western Australian Division has 130 members with professional qualifications and with many years experience in the management of forests in this State. The IFA has ratified a number of policies relating to forest management.¹ The comments offered by the IFA on this Mid-term review are consistent with those policies.

The IFA acknowledges that the Review is timely, and that there have been a number of achievements. However, the IFA has significant concerns about the management of a number of key issues, in particular fire management, thinning and use of timber residues, forest hydrology and other impacts of climate change. It is these issues that are focused upon in this submission.

The Institute is unsure to what extent the advice provided by the Departments of Environment and Conservation (DEC) and the Forests Products Commission (FPC) have been incorporated into the Mid-term review report. It is also unclear whether the Commission sought the advice of the Water Corporation or Department of Water with respect to stream flow, stream health, stream biodiversity and changes to hydrological processes that affect ecosystem health. It is strongly recommended that the EPA independently request that staff from the Water Corporation who have been closely involved with the Wungong trial and are fully conversant with the serious decline in stream biodiversity due to decreased stream flow be asked to provide the EPA with a briefing on their concerns. Alternatively the IFA could organize a briefing.

Overview

Montreal criteria

The FMP has adopted the Montreal Criteria to identify appropriate management actions in line with the principles of ecologically sustainable forest management. The criteria are: the conservation of biological biodiversity, the maintenance of productive capacity, the maintenance of ecosystem health and vitality, the conservation and maintenance of soil and water, the maintenance of forests contribution to the global carbon cycle, the maintenance of heritage, and the maintenance of socio-economic values.

The IFA supports the Montreal Criteria as an appropriate framework for ecologically sustainable forest management. However, the IFA has consistently maintained that a more balanced suite of sustainable human-forest ecosystem management actions is required that meets all of the criteria, including those related to socio economic and heritage values, rather than naturally functioning forest ecosystem management² which significantly promotes some criteria above others. It is our opinion that for some issues the recommendations in the Mid-term audit do not reflect such an appropriately balanced approach.

¹ The relevant policies include IFA Forestry Policy Statements on Forest management planning No 2.6, Timber production and biodiversity No 1.4, Timber production in native forests No 2.7, Silviculture in Australia's native forests No 2.9, The role of fire in Australia's forest and woodlands No 3.1, Managing fire in Australian forests and woodlands No 3.2, Australian native forests and water No 5.1, and Forests and climate change mitigation No 6.2. The full suite of policy statements are posted on the IFA website, www.forestry.org.au.

² Davis, L. S., K. N. Johnson, et al. (2001). Forest Management: to sustain ecological, economic, and social values - 4th ed., McGraw-Hill.

Precautionary principle

The IFA also supports the precautionary principle as an appropriate test for decision making under uncertainty³. However, the IFA is of the view that the precautionary principle supports intervention (such as thinning of dense regrowth forests to relieve water stress) rather than not thinning. Decisions about forest management in a time of climate change in particular, need to contemplate the full suite of precautionary actions and act decisively. Thinning of the forest has been carried out for decades and the science is well understood.

With a scenario of decreasing rainfall, falling water tables, drying streams, decreasing growth rates of timber and drought deaths of upland jarrah, the Conservation Commission proposes forest management action that is diametrically opposite to the conclusions and precautionary actions proposed by most other parties with professional experience. The Institute is most concerned that some of the strategies proposed in the current mid-term audit by the Conservation Commission are not grounded upon soundly based science.

Biodiversity

The Institute supports the Commission's concerns expressed in the report about dieback and the management of threatened species. These are critical issues in the management of the forests. The IFA has noted the recent review of threatened species management programs by the Auditor General, which found that a large proportion of threatened species recovery plans could not be implemented because of resource constraints. The IFA strongly recommends that the response to this finding should be the adoption of a more holistic approach focusing on threatening processes at an ecosystem or landscape level, rather than further proliferation of individual species recovery plans which are sometimes in conflict with each other.

Ecosystem health and vitality

About half of the forest area is now managed as national parks, nature reserves and conservation parks. These large areas will provide suitable controls as to whether this form of management will be successful in the long term. The remainder of the forest should not be managed in a similar way to these reserves. There is an opportunity here to apply the alternative management systems such as thinning that will be better suited to a changing climate and forest condition. All treatments should be monitored through evidence based analysis. There is evidence of severe stress in the forest, including areas that fall within formal reserves. Falling water tables indicate the forest is mining its stored water. This situation can't continue forever. It is expected the sites to be affected earliest include those on shallow soils, sites that are overstocked, and streams.

The early warning signs are already apparent.

In the north-western jarrah forest, following the drought in 2006, trees on shallower soils near rocks died. Some of the trees were over 70 cm in diameter, thus were probably over 100 years old. Tree deaths have also been observed in areas rehabilitated by Alcoa about 12 to 15 years ago. Many of these rehabilitated sites carry a density that exceeds 1,500 trees per hectare.

³ The Forest Management Plan 2004-2013 states :

“That if there are threats of serious or irreversible environmental damage, the lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation (Precautionary principle).

The precautionary principle is concerned with decision making under uncertainty. The precautionary principle recognizes that sometimes action should be taken to prevent damage even where there is no absolute certainty that damage will occur. The extent of caution built into management prescription is a matter of judgment and will depend on the level of risk, that is the likelihood and consequences of environmental harm occurring in the absence of prescription or as a result of a less restrictive prescription”

Streams that were considered perennial dried out for three months in the summer of 2006, and then again in 2007 and 2008. Stream biodiversity was affected, with all elements that required perennial flow disappearing.⁴ The IFA believes it is irresponsible to ignore these indicators and not alter forest management in response.

Forest protection

The Institute is concerned that the approach to the requirement to plan for biological diversity as the primary objective of prescribed burning is counterproductive and increases the risk to both biological values and social values. This is illustrated by an analysis of the notion of a negative exponential target to achieve a mosaic of biologically diverse communities in the forest. Even a favorable distribution of burn ages against a negative exponential target disguises the potential for serious and damaging wildfires. In the case of the Collie Wilga Landscape Conservation Unit the frequency distribution for time since fire generally conforms to the desired shape of the distribution curve, but over a third of the Unit is carrying fuels from 13 to 30 years of age that will support serious wildfires.⁵ These wildfires are inevitable, as is evident from the current fuel age distribution of the Monadnocks Uplands Valley Landscape Conservation Unit⁶ caused by the Mt Cooke fire in 2003. In this fire thousands of mature trees were killed and the fire refuge areas on the top of the monadnocks were severely burnt. In the 2005 Hills fire, 27,700 ha were burnt, killing over one million trees and resulting in severe erosion within the Helena catchment and negative effects on biodiversity.⁷

The way to maintain a mosaic in the forest is by even broader prescribed burning, with well protected areas of longer unburnt areas⁸. There is a relationship between a decline in the annual prescribed burning program and an increase in the size and number of serious bushfires⁹ and more intensive and destructive fires at a landscape level can be expected to occur.

The Commission expresses dissatisfaction with the way the DEC is catering to the demands of biodiversity conservation, asserting that the Department gives inadequate weight to biodiversity as an objective for fire management, but does not give any specific causes for concern, merely a vague call for further refinement. This comment is unsubstantiated and provides no guidance as to what should be done. Modifications to the prescribed burning program need to be based on well tested evidence, rather than theoretical notions or assertions. The conservative approach is to continue the prescribed burning program which aims to protect life and assets and mimic the pre-European fire regime. There needs to be evidence that the current, and past prescribed burning program in the south west forests have had an adverse effect on biodiversity. A recent paper by McCaw and Wittkuhn that examined the impact of different fire interval sequences over the last 35 years found no difference in biodiversity values.

The Commission calls for prescribed burns to be patchier. However they cite no evidence that current burns are not patchy enough, nor any criteria by which this judgement has been made. There is a trade off to be made between patchiness and burn effectiveness. From the perspective of improved bushfire suppression, increasing patchiness is counterproductive and will in the end lead to hotter larger fires.

⁴ Storey A. Aquatic Research Report. University of Western Australia. www.watercorporation.com.au/wungong

⁵ Page 176 Mid term review.

⁶ Page 177 Mid-term review.

⁷ Batini F and Barrett 2007 *Monitoring the effect of wildfire on water, vegetation and biodiversity*. The Forester 50: p. 21 and 24.

⁸ Muller Chris 2001 *Review of fire operations in forest regions managed by the Department of Conservation and Land Management*. Report to the Executive Director of Conservation and Land Management.

⁹ www.bushfirefront.com.au

Serious shortfalls are acknowledged in the review in the Department's prescribed burning program, including to protect karri regrowth and to reduce fuel build up in the rehabilitated mining areas in the northern jarrah. The deteriorating condition of access roads and bridges are also identified by the Department, with only a partially enhanced capacity to address the backlog of fire protection works as a consequence of the transfer of some funding in 2008. Yet the Commission has called for further refinement of the prescribed burning program through increased pre and post burning monitoring of biodiversity. This will continue the drain of resources away from basic infrastructure and operational requirements and generate more demands on fire management and field staff when they are already apparently overburdened.

Soil and water

If rainfall continues to decline, water tables continue to fall and perennial streams cease to flow, the drought stress on the ecosystem will increase. Studies in the 1990s showed that the forest competed strongly for water above tree basal areas of 20m²/ha. With declining rainfall, these values are now lower, possibly 12-16 m²/ha.¹⁰ Much of the regrowth jarrah forest in the northern higher rainfall zone exceeds 30m²/ha basal area.¹¹ An appropriate solution would be to decrease the competition for water by thinning where feasible and regular prescribed burning, not to maintain the existing competition by increasing the size of reserves, such as Fauna Habitat Zones, and reducing the sustained yield.

There is a suggestion that logging operations in the eastern forests be stopped. The IFA understands that regeneration after recent logging in the eastern jarrah has been successful. Initial results from the Forestcheck monitoring project have indicated successful regeneration following both gap creation and shelter wood harvesting in eastern jarrah stands where annual rainfall is less than 900mm.

Productive capacity

Most parties acknowledge that thinning of regrowth jarrah and karri is essential to optimize a range of management objectives. However there are impediments which have restricted the amount of thinning that should be occurring. Jarrah residue should be made available for biofuels as this allows the use of logs with no current commercial market. The Institute notes and supports the Commission's intention to review the level of allowable cut of the karri regrowth stands and notes that thinning will be necessary to allow safe protective burning to occur.

If rainfall continues to decrease and growth rates of trees are reduced, an appropriate solution would be to increase growth rates and maintain or increase the existing yield by thinning and removal and sale of cull trees (to generate green energy) not to retain a heavily stocked forest. It is estimated that the biofuel available from 100,000 ha of regrowth jarrah forest could produce at least 80MW of green energy annually.

Global Carbon Cycles

The Institute supports the proposal to establish an independent task force to consider the impacts of climate change on the long term integrity of Western Australia's temperate forest ecosystems and their ability to contribute to global carbon cycles. However the Institute is concerned that the Conservation Commission has taken as its starting position that forest management activities such as timber harvesting and prescribed burning present threats to the forest, rather than opportunities, which will be heightened as a consequence of climate change. Working Group III of the Intergovernmental Panel on Climate Change in its 2004 report assessing forestry mitigation options stated:

¹⁰ Stoneman G et.al. 1996 Tree Physiology 16 p.276-274

¹¹ J.Bradshaw. pers. comm.

“The design of a forestry mitigation portfolio should consider the tradeoffs between increasing forest ecosystem carbon stocks and increasing the sustainable rate of harvest and transfer of carbon to meet human needs. ...In the long term, sustainable forest management strategy aimed at maintaining or increasing forest carbon stocks, while producing an annual yield of timber, fibre or energy from the forest, will yield the largest sustainable mitigation benefit.” (page 549) ¹.

International consensus favours active forest management as the most viable long term strategy.

Product replacement

Any study of the impacts of climate change needs to take a broad view of forest management, including the effects of product replacement. The IPCC Working Group III further noted that: *“Wood products can displace more fossil-fuel intensive construction materials such as concrete, steel, aluminium, and plastics, which can result in significant emission reductions (Petersen and Solberg, 2002). Research from Sweden and Finland suggests that constructing apartment buildings with wooden frames instead of concrete frames reduces lifecycle net carbon emissions by 110 to 470 kg CO₂ per square metre of floor area (Gustavsson and Sathre, 2006). The mitigation benefit is greater if wood is first used to replace concrete building material and then after disposal, as biofuel.”* (page 551).¹²

Similar findings are available for Australian east coast temperate forests.¹³

There has been progressive replacement of Western Australian wood products by timber and manufactured wood imports. There will be a net adverse effect on global carbon cycles if these imports come from unsustainably managed forests. There is evidence that despite the best efforts of importers to avoid this, a proportion of Australia’s timber imports come from such forests.¹⁴

On the basis of these findings, an appropriate solution would be to promote the use of locally grown wood products.

Effect of fire on carbon sequestration

It can be expected that the level of emissions from fire will vary depending on the fire regime that is applied to an ecosystem. As expected the debate is focusing on the relative emissions from prescribed burning regimes, which are generally frequent ‘cool’ burns, compared to less frequent but more intense wildfires.

Relative greenhouse gas emissions (carbon dioxide, nitrous oxides and methane) from mild prescribed burns and intense wildfires in temperate Western Australian forests need to be assessed. Moreover, greenhouse gas budgets for a range of potential fire regimes should be prepared so that the effects of different approaches to fire management can be compared. The IFA believes that fire regimes which minimise net emissions of greenhouse gases are likely to be compatible with achieving other Montreal criteria for conservation of biodiversity, maintenance of productive capacity, ecosystem health and vitality, and conservation of soil and water values.

¹² Nabuurs, G.J, O. Masera, K. Andrasko, P. Benitez-Ponce, R. Boer, M. Dutschke, E. Elsidig, J. Ford-Robinson, P.Frumhoff, T. Karjalainen, O.Krankina, W.A. Kurz, M. Matsumoto, W. Oyhantcabal, N.H. Ravindranath, M.J. Sanz Sanchez, X. Zhang, 2007: Forestry. In Climate Change 2007: Mitigation, Contribution of Working group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (B. Metz, O.R. Davidson, P.R. Bosch, R Dave, L.A. Myer(eds)), Cambridge University Press, United Kingdom and New York, NY, USA.

¹³ CRC for Greenhouse Accounting.

¹⁴ Andreas Schloenhardt 2008. The illegal trade in timber and timber products in the Asia-Pacific region. Research and Policy Series No.89. Australian Institute of Criminology. Australian Government

Indigenous burning practices in the tropical savannahs of northern Australia are the basis for a carbon sequestration project which will generate carbon offset payments to the Indigenous community. The West Arnhem Land Fire Abatement project aims to reduce greenhouse gas emissions by 100,000 tonnes per year of CO₂-e by applying a regime of early dry season fires over 28,000 km² to create patchy mosaics of burnt country, which act as firebreaks to reduce the extent and frequency of late dry season wild fires.¹⁵

While there can be no assumption of direct comparisons between the wildfire regimes that occur in the tropical savannahs and those in temperate eucalypt forests, nor should there be an assumption that there will be no difference between the carbon sequestration from prescribed burning and wildfires, as is sometimes supposed.

To re-iterate, there should be no assumption made that forest harvesting or prescribed burning will necessarily be deleterious to a carbon storage strategy.

Natural and cultural heritage

The Institute is supportive of the assessment made in the Mid-term review. The Institute notes that there may be interest from Indigenous communities in economic activities in the forests and supports these endeavours.

Socio economic benefits

The IFA is heartened to read the recent supplementary review of sustained yield, which shows a more favourable ratio of measured versus predicted yield for plots in forests other than those in the Swan region. Thus there should be no need to bring forward a reduction in the jarrah sustained yield prior to the end of this FMP. We understand that despite economic constraints facing the industry at present, jarrah timber purchasers continue to seek log supply and are generating sales.

Plan implementation

As already stated in this submission the Institute is concerned that there is a strong focus on one aspect of forest management at the expense of better balanced values. This focus leads to strategies that limit the flexibility to deal with future impacts, such as through climate change, and limits the range of social and economic benefits that could be derived from the forests.

There have been some difficulties in defining areas of Old Growth Forest. It would be better if this process, including field demarcation, was the responsibility of the forest manager, ie the Department of Environment and Conservation.

The Commission, and EPA, must also be mindful of the resource implications of implementing the requirements of the FMP, and the fact that the state government is currently targeting reductions in operating budgets across the public service.

The Commission has recommended the establishment of an independent task force to review many aspects of the FMP. The Institute would seek to be represented on this task force, which we believe should be chaired by a senior member of the Premiers Department, given the broad agenda and seriousness of the issues to be addressed. The Commission should be represented, with other stakeholders including the relevant Government departments.

¹⁵ Heckbert, S., Davies, J., Cook, G., McGivor, J., Bastin, G., and Liedloff, A. (2008) *Land management for emissions offsets on Indigenous lands*. CSIRO Sustainable Ecosystems: Townsville Qld.
http://savanna.ntu.edu.au/information/arnhem_fire_project.html