Independent Forestry Panel

Public submission

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Organisation:	*N/A*	
Location:	*New South Wales*	
Supporting materials uploaded:	*Attached overleaf*	

Submission date: 10/8/2024 8:33:31 AM

MH Submission on the Forestry Industry Action Plan.

The climate has changed. Climatic conditions are making wildfires more intense and losses of forest resources more likely. Irrespective of whether one values forests for timber production, wildlife conservation, water catchments, scenery or whatever, hot, widespread and uncontrollable wild fires will degrade the values of forests. Forests should be managed in a way that minimises the damage due to wildfires.

The fire history in the Eden region has shown just how vulnerable the dense regrowth that develops following intensive logging is to wildfire. The November 1980 Timbillica fire burnt out 46,000 hectares in 6 hours. It was ignited by a massive bark dump accumulated in previous intensive logging for sawlogs and woodchips, on a "flare-up" day. (See the appendix to the Eden Native Forest Management Plan 1982, SFNSW May 1983)

In response to this devastating loss, State Forests of NSW introduced changes such as a limit to the size of bark dumps to 5 tons and a regime of post-logging burning and burning under regeneration at regular intervals. However, burning a regenerating stand cannot be sensibly carried out until the saplings develop about 2 to 3 mm of bark, in order to withstand damage from even a cool burn. In practice, this means the regenerating stand has to be about 15 years old (Cheney, Gould and Knight, 1992)

The ambitious prescribed burning regime introduced by SFNSW was never fully implemented, due in part to the shrinking window of opportunity for hazard reduction burning due to climate change and staff cutbacks. Howard and Leavesley (in AFAC 2020, pp 175,176) cite Zejbrlik 2017 saying "The NSW Forestry Corporation has undergone six restructures over several years and a downsizing from 1700 to 700 staff with a significant loss of fire management experience." Moreover, as pointed out by Phil Cheney in his section on fire in the EIS for woodchip exports beyond 1989,(HDA 1986) the policy of regenerating intensively logged forest in small alternate coupes made fuel hazard reduction by prescribed burning "difficult and expensive if not impossible to carry out." While very small alternate coupe logging was dropped in favour of coupe sizes of 40 ha or more, the sheer scale of intensive logging has meant that unmanageable areas of young regeneration have accumulated rapidly in the Eden management area.

I have read two important books on the issue of bushfires in forest areas since the "Border Fire" of January 2020 burnt our property. The first was "Prescribed Burning in Australasia. The science, practice and politics of burning the bush. Editors Leavesley A, Wouters M and Thornton R (2020) Australian Fire and Emergency Service Authorities Council Limited (Melbourne Victoria) (AFAC 2020). The second was The Fires Next Time. Understanding Australia's Black Summer. Editor Peter Christoff. Melbourne University Press, 2023.

Remarkably, neither book canvassed the issue of the effect of logging history on fire behaviour and the vulnerability of forests to wildfire. However, I commend both books to anyone interested in the future of forests, particularly the chapter entitled Scientific Evidence regarding the effectiveness of Prescribed Burning (Penman T, Collins L, Duff T, Price O and Cary G.) in AFAC 2020 pp 99-101.

I also recommend the chapters by Tom Griffiths on fire history and Greg Mullins on the Emergency responses in Peter Christoff's book. Greg Mullins sets out in detail how climate driven extreme

weather drove the “Black Summer” bushfires and gives a nuanced critique of the value and limitations of prescribed burning.

The vulnerability of young regrowth stands that develop following intensive logging is obvious because a protective bark layer takes several years to develop. There is also the vertical continuity of fine fuels which increases the probability that any fire will become a crown fire.

The MacArthur fire danger model was researched in mature forest with very little understorey. Physics based models, such a Rothermel (1972 and 1983, cited in Penman et al, AFAC 2020) have incorporated the shrub layer fuel components. The prescribed burning guide for regrowth forests developed by Cheney et al (1998) used the near-surface fuel component as the only fuel component in the nomogram to predict fire behaviour (in conditions chosen for prescribed burning, which included a temperature below 25 degrees and moderate winds). Penman et al (in AFAC 2020, page 102) cites Cheney et al 2012 and Zylstra et al 2016 in support of the notion that shrub layer fuels are significant in fire behaviour at higher fire danger ratings.

It is evident that prescribed burning is easiest to carry out without significant damage to established trees if the forest is in an oldgrowth condition. Oldgrowth stands in this region generally have fewer than 100 stems per hectare of mature trees and the understorey is relatively supressed by competition from the oldgrowth canopy and root systems.

The challenge for forest managers is how best to return our logged and burnt stands to an oldgrowth condition as quickly as possible. Failure to do so may mean that repeated wildfires in young dense regrowth stands will turn them into a malley-type scrub (local eucalypts tend to coppice) and eventually heathland.

Many conservationists advocate a complete cessation of native forest logging. I am not convinced that this is the best policy given the existing dire state of the climate and fire risk in our highly disturbed forests. Phasing out logging by selective thinning of regrowth stands may achieve the goal of safer and more resilient forests sooner. The aim should be to have fairly evenly-spaced trees at 10 meters apart. The thinnings could be used as wood fibre products or, if large enough, laminated into useful building materials.

Forest plantations are being established as carbon stores. This seems like a very vulnerable way to store carbon given the high likelihood of losses due to wildfire. Seaweed in the oceans seems like a better alternative. In addition, converting cleared land to plantations is likely to decrease the albedo and perhaps actually exacerbate warming. Converting cleared land to forest plantations undoubtedly increases water use and reduces flow-duration in streams. (Vertessey, 1999)

Mudbricks and other masonry such as “Timbercrete” and “Woodstone” can form the walls of houses without too much impact on the climate. However, roof structures, lintels, door jambs and window frames generally require timber, steel, aluminium or reinforced concrete. Of these, timber is associated with the lowest greenhouse-gas emissions.

To protect catchments from stream-bank erosion, logging operations should be limited to 15 to 25% of the area of any mapped first order stream in any 15 year period. Very intense rainfall events are more likely because the atmosphere can hold about 7% more water vapour for each 1 degree increase in temperature.

References

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