

SUBMISSION ON THE EDEN REGIONAL FOREST AGREEMENT REVIEW.

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SILVICULTURAL SUSTAINABILITY.

The Eden Regional Forest Agreement (RFA) included the supply of 20,000 cubic meters per annum of sawlogs from native forests in the Eden region. At the beginning of the Integration phase of the Comprehensive Regional Assessment of forests (CRA), State forests representatives put up a GIS data layer which showed where the multi-aged forest sawlog resource was located. Conservation representative pointed out that considerable areas of the mapped forest had already been logged for sawlogs. State Forests came back the next day with a plan to bring forward logging of fire regrowth areas to supply sawlogs during the last 3 years of the 20-year RFA.

Since this time, some areas of Koala habitat in the Murrah and Mumbula forests have been withdrawn from logging and replacement sawlogs will be drawn from forests further to the north with a subsidy using funds from the EPA Environmental Trusts accounts.

On ABC radio on 13/2/2018 (ABC Rural), Alan Richards for Blue Ridge Hardwoods said that sawlogs from the Eden region would run out by 2031. This seems wildly optimistic. Perhaps he meant to say 2021?

In any event, the policy of mining out the old growth/multi-aged forest sawlog resource without taking into account the rate of regrowth of sawlogs from the cut areas has inevitably lead to a hiatus in sawlog supplies, perhaps for many decades. This would have occurred irrespective of the changes in land tenure that occurred following the Interim Assessment Process (IAP) and RFA, due to the unrealistically high sawlog quotas allocated in the earlier years of management for woodchips and sawlogs (e.g. 83,000cubic meters per annum cited in the 1982 Eden Native Forest Management Plan) (FCNSW 1983). It has long been known that regrowth forests produce wood that is subject to collapse when sawn at a youngish age.

This leaves the Eden region forests as a pulp farm for the next 20 years or so. The few jobs there are at Blue Ridge (?17) will go unless sawlogs can be sourced from outside the region. Harvesting of pulp is by excavator based machines so there are not very many jobs in the bush.

The silvicultural strategy should be to maximise the rate of growth of potential sawlogs. This could be difficult with fewer workers in the bush to help manage the major risk of wild-fires.

Fire Risk.

Cheney, Gould and Knight (1992) studied fuel types in regrowth forests in order to develop a prescribed burning guide. They found little difference in fuel loads between different areas of regrowth forest of a similar age, but important differences in fuel structure. They divided fuel types based on bulk density, that is:

- surface fuels (the dense litter on the ground)
- near-surface fuels (grasses, ferns and trailers and the dead litter caught up in this layer)
- shrub layer fuels.

In the relatively mild conditions chosen for prescribed burning, they found that the only fuel parameters of importance were near-surface fuel height (or percent cover, the two being correlated) and near-surface dead fuel moisture content.

These findings have important implications for fire management policy in the regrowth forests. While in extreme fire weather all fuel types may become important, the driver of fire rate of spread in the earliest stage of wildfire development is likely to be the very dry and perfectly aerated near-surface fuel component.

Given that some plants like bracken-fern (*Pteridium Sp.*), wallaby grass (*Danthonia species*) and wire grass (*Tetrarrhena juncea*) are real pyrophiles (that is, they respond rapidly to burning by growing back faster than many competitors), repeated prescribed burning may actually increase the near-surface fuel component over time.

Another finding by Cheney et al was that about 10% of the crop trees were damaged by a prescribed burn to the extent that bark at ground level might no longer be an effective barrier to the entry of fungi or termites. The proposal to burn regrowth at 5 to 7 year intervals (1994 EIS) would likely result in very few crop trees surviving undamaged until their eventual harvest.

In practice, the ambitious fuels management program outlined in the 1994 Environmental Impact Statement for the Eden region seems to have fallen by the wayside following staff cuts and the realisation that the window of opportunity for safe burning is rather limited. Post-logging burning and some limited strategic burning to protect assets/settlements seem to be the priority.

With many years of weather data and some data on fuel types and moisture content, it should be possible to realistically evaluate the previously stated fuels management plans.

Avoidance of catastrophic wildfires will largely depend on effective initial attack on ignitions. This in turn depends on adequate staffing levels (for all land tenures) and maintenance of access tracks.

Many small creek and gully crossings get washed out from time to time and their repair may not occur in a timely manner. While the construction of log bridges is a well-developed skill among some forestry staff, this takes time and money. Many smaller creeks and gullies could be effectively bridged by small diameter pipes (say, 90 mm PVC with a weldmesh strainer to prevent blockage by litter) and a road-base causeway. This would only be appropriate where the creek/ gully upstream does not represent significant native fish habitat (fish do not like to enter pipes). A high-flow bypass of, say, 1 to 2 meter s width, would give such a structure longevity.

Such structures would represent a small detention basin, thus partially ameliorating the increase in quick-flow runoff from logged areas and the likely reduction in flow duration. Forest access roads are typically constructed along ridge lines so that the minor logging roads pass down spurs and snig tracks branch off these spur roads towards gullies (see pretty-well any harvesting plan for the Eden region). Therefore, snig tracks will more rapidly conduct hortonian overland flow from bare and compacted areas towards drainage lines. Mackay and Cornish (1982) found that logged and burnt areas showed an increase in stormflow runoff that persisted well after the effects of fire alone had passed.

For more advanced fires, suppression can depend critically on re-supply of water to tankers and ground crews. This can also be very important for rounding up small spot-fires and blacking out areas after a major fire. The provision of “helicopter dams” has been trialled in Victoria and consideration should be given to extending this into NSW, particularly since most natural water sources are very low in the landscape.

Carbon Balance.

State Forests has yet to produce a whole-of-cycle greenhouse gas emissions budget for the conversion of old growth/multi-aged forest to regrowth and its eventual use. The “Seeing Report” some years ago emphasized the sequestration of CO₂ by regenerating forests but neglected to mention the release of CO₂ in the logging and burning that occurs prior to regeneration. One can only assume that all draft budgets prepared so far look pretty disastrous for industrial forestry.

Given that forests are likely to become net emitters of CO₂ (through increased wildfire frequency and decomposition rates of litter) as the planet warms, and that forest have a relatively low albedo compare with other land uses, an objective examination of the greenhouse impacts of industrial forestry now seems imperative.

References.

- Cheney N.P. Gould J. S .and Knight I. (1992). *A prescribed burning guide for young regrowth forests of Silvertop Ash*. FCNSW Research Paper No. 16.
- MacKay S M and Cornish P M (1982) *Effects of wildfire and logging on the hydrology of small catchments near Eden, NSW*. Proceedings of the First National Symposium on Forest Hydrology. National Conference Publication No. 82/6. Institution of Engineers of Australia. 111-117