NORTH WEST ECOLOGICAL SERVICES

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Submission to Terms of Reference for Natural Resources Commissions assessment of management options for White Cypress Pine in the State Conservation Areas of the Nandewar and Brigalow Belt bioregions.

On behalf of the Northern Inland Council for the Environment Inc.

Situation Statement

I have worked as an ecologist throughout the majority of the SCA's to be considered for White Cypress logging, and I sat for three years on the advisory committees that developed the management plans for the SCA's.

Virtually all of those forests have been heavily logged and are now dominated by immature trees. They lack the natural abundance of large hollow trees and logs that provide critical habitat for many threatened species.

The other feature consistent to most SCA's is extensive areas of White Cypress regrowth, which in many places is unnaturally thick, to the point that Cypress competition and suppression is limiting grass and herb ground cover.

The SCA forests conserve a very high diversity of fauna and flora species; however species abundance/conservation value is limited by the unnatural immature structure of the forests and the mix of tree and shrub species.

For the SCA's to reach their full potential for conserving flora and fauna they need to be managed to achieve;

- mature woodland and open forest structure
- a natural mix of tree and shrub species
- a natural mix of grass and shrub ground layers
- and remain free of weeds

It will take a minimum of 150 years for such woodlands and forests to regenerate a mature state, and another 150 years for them to return to a natural structure dominated by old mature trees that would provide optimal habitat/benefit for threatened species and biodiversity in general.

The optimal/natural woodland structure for biodiversity (pre 1770 condition) would have looked like;

- a mix of tree species, but dominantly eucalypt species,
- large mature trees spaced apart and mostly not touching,
- a mix of age classes, but dominantly mature
- and a mix of grassy and shrubby ground layers of vegetation, but dominantly grassy.

The optimal open forest structure (pre 1770 condition) would have looked like;

- a mix of tree species but dominantly eucalypt species,
- large mature trees mostly touching,
- a mix of age classes,
- and a mix of grassy and shrub dominated ground layers of vegetation.

The time taken to regenerate woodlands and open forests back to mature states will likely depend on whether the process of natural selection and thinning is driven by; time, extremes of hot or dry, fire, or a combination of all factors.

Time alone could result in very long period, as many of the forests and woodlands are bordering on becoming locked up, stagnant and stunted.

Forests or woodlands in such a state are sometimes released by an extreme weather event that will kill off all the weaker trees and allow the stronger ones to mature.

Another way they are released is from the effect of fire that thins the trees and allows the stronger more fire tolerant ones to mature. In such a case Cypress is often disadvantaged, although if the seasonal conditions are suitable another mass regeneration event of Cypress can occur post fire.

Pre 1770 mature forest or woodland structure was maintained by the dominance and suppression effect of mature trees and the occasional cool fire.

The disturbance post 1770 resulting from clearing and logging created an abundance of gaps which in the absence of fire was exploited by White Cypress. Hence the situation of immature and abnormally thick structure that we have today.

We need to be careful how we manage the forests from here on. Allowing more disturbance that is not specifically tailored to the conservation needs of the woodlands and open forests will result in further regrowth effectively setting back the process to achieve mature structure and more threatened species habitat.

Objectives for management of SCA's

The primary objective for SCA's should be to achieve mature woodland and open forest structure, which will provide maximum biodiversity benefit.

White Cypress is not to be removed, but maintained in its natural state as a sub dominant species in a mix dominated by eucalypts. Once achieved the mature woodland and open forest structure will naturally perpetuate the same mature mixed age structure. The dominance and competition from mature trees naturally limits and suppresses regeneration to gaps created by tree death, windfall or fire.

Regrowth structure can be enhanced to mature mixed age structure by;

- cool controlled fires that don't destroy existing habitat, but advantage eucalypts over White Cypress
- manually thinning trees to enhance eucalypt dominance
- extreme weather events over time

Problems with using silviculture to try to achieve biodiversity benefits.

The objectives of timber production and the objectives of regenerating mature woodland and open forest structure for biodiversity benefits are not normally compatible, as logging disturbance will perpetuate the dominance of regrowth.

That said it is not impossible, if the silviculture practice was tailored specifically to the conservation needs of every hectare of SCA, where the timber salvaged was limited to only taking millable logs that required thinning because the Cypress is dominant and unnaturally thick.

It is my opinion that such a practice would not be economically viable, because the average age/size of the trees that need to be thinned would be too small to provide viable mill logs. With so little return from millable timber the cost of felling to waste would not be offset by the usable volume of mill logs.

Existing silviculture practices are production orientated to maximise timber production overtime. Production forests have tree retention standards for size and density to achieve specific growth rates.

From an environmental/biodiversity point of view the habitat values of managed forests are much less than unlogged woodlands and open forest remnants, and overtime those values continue to decline.

What is required for the SCA's is thinning that will enable selected trees to mature and dominate to limit regrowth into perpetuity. Such silviculture would enhance the maturity process with the intention that those forests and woodlands would become self-sustaining with no silviculture in the long term.

With any disturbance in remnant vegetation comes the risk of introducing weeds. Historically there were few weeds that were capable of invading natural woodland and open forest remnants. However these days the risk is very much higher, as several serious tropical grasses have proven themselves to be very capable of totally dominating the ground layer, even in shaded areas beneath a thick shrub layer.

Those grasses are growing along most roadsides in the localities of the SCA's. The SCA's are already under serious threat, any increase in vehicle or machinery use in the SCA's will increase that risk greatly. A feature of silviculture and logging is the requirement for temporary logging tracks, such tracks would highly likely result in the incursion of weeds and feral animals.

To seriously enhance the biodiversity value of regrowth woodlands and open forests requires mapping to identify the areas where White Cypress is a limitation to biodiversity and site specific silviculture plans.

Recommendations for Terms of Reference

- Seek independent expert scientific opinion to determine optimal management to achieve conservation objectives.
- Determine how many thinning events it will take to re-establish the natural mix of tree species and age classes.
- Determine the timber value of the dominant age class of Cypress and determine if that return justifies the expense of thinning of trees with no commercial value to waste.
- Is the extraction of low quantities of timber economically viable, considering the majority of the regrowth will be thinning to waste?
- Determine what are the real long-term conservation needs to maintain viable populations of all woodland flora and fauna. Bearing in mind continued illegal and legal clearing, clearing for mines, and loss of vast areas of woodlands and open forest due to weed invasion.

Conclusion

The Brigalow and Nandewar SCA's are crucial to the conservation of woodland flora and fauna. Thick White Cypress regrowth is reducing biodiversity values in the SCA's. It does require control, how it is best controlled from an economic and environmental viewpoint is the contention. Should it be left to the natural controls of time, extreme weather events or fire, or should it be thinned?

Conventional management of White Cypress for timber harvesting is not compatible with conservation objectives. The present diminished conservation value of the SCA's is largely due to disturbance from Cypress logging and lack of fire.

One off fire does not solve the problem, extensive areas of the Pilliga have had significant fires which have killed off the large White Cypress, however suitable conditions post fire have resulted in another regeneration event of White Cypress. Fire use can potentially do more harm than good; it can remove critical habitats of hollow trees and logs that take 150 years to replace.

Re-establishing the dominance of mature eucalypts is critical to enhance biodiversity values. Unfortunately extensive areas of the SCA's were thinned to remove eucalypts and increase White Cypress dominance.