

Natural Resources Commission
GPO Box 4206
Sydney NSW 2001
Email: nrc@nrc.nsw.gov.au

Dear Sir/Madam,

Re: Submission on the NRC's Draft Report – Active and Adaptive Cypress Management in the Brigalow and Nandewar State Conservation Areas (SCAs), June 2014, currently on exhibition.

Thank you for the opportunity to comment on the above.

My position is that what is being proposed is totally inappropriate, and I am **OBJECTING** to all of the management proposals as set out in the Draft Report.

I have read the associated documents and I feel qualified to comment as a citizen of NSW, and as a person who is keenly interested in the preservation of the environment. I have studied Human, Physical and Environmental Geography (BA from Sydney Uni, 1996); I have qualifications in Cartography and GIS (digital mapping) and I am currently undertaking the Cert III in Land and Conservation Management at TAFE. I am also greatly interested in Global Warming, Greenhouse gases and Climate Change, and believe that we should be doing as much as possible to mitigate these problems in a pro-active effort to meet the challenges of the future.

Specifically, my objections to the management proposals in the Draft Report are these:

1. **There has been no consideration whatsoever given to the fact that White Cypress Pine is an excellent carbon sink;** indeed, it seems to be fairly hard to stop it growing and spreading: Even in severely degraded areas it seems to flourish. Instead of trying to manage it by so many expensive methods, mostly at a cost to the public purse, I think that it should be allowed to grow, to absorb carbon dioxide, and provide oxygen, all for free. Dense stands of White Cypress Pine store about 8.7 tonnes of carbon per ha¹, a very good reason to leave them where they are.
2. **In these times of global warming, one of the worst things we can do is to use trees, in whole or in part, to fuel large- or small-scale electricity generation.** The mindset of treating forests only as an economic resource is severely out of date: It is a hangover from the days when people were paid or encouraged by government to clear native forests for agriculture. There are native vegetation laws now in place that protect the last remnants of native forests as refuges and corridors for native wildlife, yet still many people are not satisfied with this;

¹ Quoted in Thompson, W.A. & Eldridge D.J. (2005) "White Cypress Pine (*Callitris glaucophylla*): a review of its roles in landscape and ecological processes in eastern Australia", Australian Journal of Botany, 2005, Vol 53, pps 555-570.
http://aridecologylab.com.au/pubs/Thompson_Callitris_review.pdf

We are fighting over the last stands of native vegetation, but we should *all* be protecting them. I see in the Draft Report that using White Cypress Pine forests for electricity generation is being suggested as an option for the “control” of the forests. The worst thing that can happen to native forests is to deliberately cut them down to burn them for electricity generation, it is an utterly senseless use for native forests, and must not be allowed under any circumstances. At the very least, it results in a huge amount of CO² being released to the atmosphere (far more than burning coal), while simultaneously lessening the natural production of oxygen. Then there is the question of removal of habitat, removal of nutrients from the landscape, and the risk of soil erosion. It is just not worth it, there is too much at stake, and it is time we realised it, and acted upon it. The White Cypress Pine forests in the Brigalow-Nandewar area **MUST NOT BE BURNED FOR ELECTRICITY**.

3. **Chopping down trees is not “carbon neutral” activity, and trees are not a true “renewable resource”**. If a tree is chopped down now and burned to generate electricity, that carbon is released to the atmosphere as CO² immediately. Even if dozens of trees are planted straight away to replace the one chopped down, there will be a time lag of dozens of years, perhaps decades, before the carbon released by burning is recaptured by the growing trees. This time lag is important, because with climate change we have to act **NOW**, not later. CO² in the atmosphere is already at record levels, and we need to start trying to stabilize atmospheric carbon dioxide **NOW**. The reading for June is **401.3ppm**, measured at the Mauna Loa Observatory in Hawaii³, already more than 50ppm above the desirable level of 350ppm.

Trees are only “carbon neutral” and a “renewable resource” *over the very long term*. Our efforts should be more properly directed into building *genuine* renewables like solar and wind, geothermal, and tidal power, because we are at the point where **no part of the carbon cycle can be ignored any longer**: we have to stop burning fossil fuels, wood, and every other thing that produces CO₂, and start planting millions of trees rather than planning to chop down more. Under no circumstances should trees be regarded as “carbon neutral” or a “renewable resource” under the Renewable Energy Target, or in the Brigalow-Nandewar area.

4. **“SCAs... are areas where the management objectives are conservation, recreation and mineral extraction”**. This is stated in the Terms of Reference as the purpose of State Conservation Areas (Zone 3). Given that conservation is already incompatible with some types of recreation, say trail biking, and perhaps 4WD activities, and is *totally* incompatible with mining of any sort, it seems to me that Zone 3 SCAs are already under a great deal of pressure. To even consider that additional activities such as harvesting sawlogs, “ecological thinning” done by heavy machinery, and grazing by hard hoofed animals would help conservation is ludicrous in the extreme. The SCAs that have been recommended by the NRC to have “active and adaptive Cypress management” **MUST NOT** be subjected to such practices under any circumstances. If the White Cypress Pine forests in the other 97.5% of the Brigalow-Nandewar area cannot supply enough sawlogs for the two remaining sawmills, then that is just bad luck (or bad management). For goodness’ sake, leave us the 2.5% of the land that is designated for conservation as just that: *Places for conservation*. Coal Seam Gas will soon cause enough problems in these areas as it is, if the mining companies get their way.
5. **The only possible justification for a program of “ecological thinning” in the White Cypress Pine forests in State Conservation Areas should be for the purposes of restoring conservation values**. But before a program of “ecological thinning” is implemented, it would be good to first have, extensive scientific studies of the SCAs, control areas established for comparison, an EIS, etc. Then it could be established if the “locked up” sections of the White Cypress Pine forests really did need “improving” for *ecological* reasons, such as providing suitable habitat for an endangered animal, then (perhaps) limited “thinning” could be justified.

However, the plans and methods outlined in the Draft Report seem to me to be a thinly veiled scheme to introduce **commercial logging** again to forests where it has been stopped since 2005, in order to support the failing sawmill and haulage industry. Further, I see that all sorts of laws and regulations would have to be overturned or amended to enable this to happen, and I conclude that the whole NRC inquiry was initiated as a result of intense lobbying or behind-the-scenes agreements of a political or commercial nature. The plan for “thinning” White Cypress Pine forests is not only *not* necessary, but seems to have been prompted by considerations other than those of a conservation focus, which of course should be the **ONLY** considerations in State Conservation Areas.

³ Link to a website for atmospheric carbon dioxide in parts per million: <http://co2now.org/>

If another problem with “ecological thinning” is the expense of the operation, requiring a commercial operator to come in with heavy machinery to do the work instead of using manual labour, perhaps the government could consider using the “Green Army” instead – or even “work for the dole” people. That would be much better than heavy machinery destroying the forests and creating tracks everywhere. Again, I reiterate that if any “ecological thinning” of White Cypress Pine forests in SCAs is to be done, it must only be done after extensive independent and scientific surveys have confirmed that it is necessary; the “thinning” done manually and gradually so as not to overly disturb flora and fauna, and no commercial operator should benefit from it – that would be inviting overexploitation for certain.

6. **The Draft Report has been produced at great expense to the public purse:** There have been field trips by the NRC staff to all twenty-three SCAs, the engagement of various highly-paid experts, several rounds of consultation, narrowly focused research and analysis, and a huge report of 244 pages, which is almost impossible to read through quickly; but the most curious thing of all is the extreme expense of ordering LiDAR surveys all twenty-three State Conservation Areas – to find which ones contain the largest White Cypress Pine stands, and whether or not there are commercial volumes of timber to be harvested.

The use of LiDAR data is an established practice in the forestry industry to predict harvestable timber volumes based on the height of trees and known growth characteristics. LiDAR surveys cost “\$3 per ha to capture, process and analyse” (Draft Report, p 144). Using figures from the SCA maps on the NRC website, I have extracted the following information about the size of each SCA, and calculated the cost to the public purse of the data analysis to be about \$580,000, (see table below):

SCA name	Area in ha	Cost: ha x \$3
Goonoo*	54,522	\$163,566
Trinke*	10,229	\$30,687
Pilliga*	33,386	\$100,158
Pilliga West*	34,415	\$103,245
Pilliga East	24,669	\$74,007
Adelyne	148	\$444
Beni	1,849	\$5,547
Biddon	3,352	\$10,056
Bingara	1,979	\$5,937
Bobbiwaa	2,688	\$8,064
Bullawa Creek	99	\$297
Cobbara	2,261	\$6,783
Durrigere	6,172	\$18,516
Goodiman	569	\$1,707
Goonoowigal	1,055	\$3,165
Gwydir River	2,607	\$7,821
Killarney	1,858	\$5,574
Leard	1,176	\$3,528
Merriwindi	1,730	\$5,190
Tingha Plateau	3,413	\$10,239
Warialda	2,913	\$8,739
Wondoba	1,663	\$4,989
Woodsreef	331	\$993
Totals	193,084	\$579,252

** Denotes the four SCAs recommended for “Active and Adaptive Management” of their White Cypress Pine forests by the NRC in the Draft Report, as they have large stands of White Cypress Pine forest. (Pilliga East SCA, although another large SCA, turned out to have very little White Cypress Pine forest, and therefore was not recommended for this type of “management”).*

\$580,000 is an awful lot of taxpayer money to spend on LiDAR data and analysis. If the true purpose of the inquiry was to assess conservation values in all twenty-three SCAs, then this money would have been better spent doing proper scientific surveys on the ground. I believe the Draft Report to be a very thinly disguised exercise to find out the potential volume of sawlogs that might be available to a failing industry, if the laws were changed to allow logging in SCAs. And the taxpayer is footing the bill for this “research”.

Where is the pressure coming from? The two sawmills at Gunnedah and Baradine employ very few people, surely it would be cheaper to completely shut down this tiny sawlog industry which is diminishing all the time and negotiate a further exit package for the workers, maybe with some retraining? There will soon be plenty of manual jobs in the Coal Seam Gas industry in the same area, judging by the number of exploration licences and applications in the area.

A great deal of taxpayers' money has already been spent in this region a few years ago on restructuring the White Cypress Pine sawlog industry – about \$50 million, I believe. It was agreed at the time to have some of the White Cypress Pine forests conserved in SCAs. Nevertheless, we find that just a few years later, there is renewed pressure to open up the conservation areas to logging. This is totally unacceptable, and I object to taxpayers' money being used to fund the type of research in the Draft Report, in support of commercial interests, when the Draft Report should have focused only on the conservation aspects of the pine forests.

Those writing the report have spent considerable time and thought on the best way to “manage” the forests of White Cypress Pine for commercial activities, although they know that currently it is not allowed under the laws pertaining to SCAs and the uses of native vegetation – it is illegal at the moment to burn native vegetation for electricity generation, and logging is not allowed in SCAs. They go on to suggest various ways of getting commercial interests to do the work of “thinning” the forests to lessen the cost to the public purse, and then they examine in detail the volumes of sawlogs which could be extracted per year. This is NOT a report on how best to manage the SCA forests for conservation, but a blatant attempt to open up the forests for logging.

It is my opinion that the overriding consideration should be to preserve the forests as carbon sinks/oxygen generation first; secondly, as ecological conservation habitat; and thirdly as a place for limited recreation. I cannot see any justification whatsoever for allowing logging (or mining!) in such areas.

7. Where is the scientific evidence which supports “thinning” of so called “locked-up” or “whipstick” White Cypress Pine forests? Why is there an assumption that dense White Cypress Pine forests are not good wildlife habitat? There is very little understorey, it is true, but there is instead a rich mix of mosses and lichens and other non-vascular plants on the ground which form “crusts”, and there are very active Funnel Ants everywhere, which together with earthworms, turn over vast amounts of soil and leaf litter, aiding infiltration of water, the addition of nutrients and carbon to the soil, and preventing erosive runoff.⁴ This view is not shared by local residents who equate the lack of understorey with an “obvious” potential for erosion. But erosion is much more likely to occur when land has reduced tree cover, or none; is overgrazed; or where the delicate “crust” of lichens and mosses has been broken.⁵



Above are two pictures of soil erosion in the Eumungerie area: This is what happens when tree cover is removed.⁶

⁴ Thompson, W.A. & Eldridge D.J. (2005) “White Cypress Pine (*Callitris glaucophylla*): a review of its roles in landscape and ecological processes in eastern Australia”, Australian Journal of Botany, 2005, Vol 53, pps 555-570.

http://aridecologylab.com.au/pubs/Thompson_Callitris_review.pdf

⁵ Ibid.

⁶ Eumungerie – the effects of soil erosion, photos on Google Earth by Sandyriva, 27/12/2013.

<http://www.panoramio.com/photo/101011948> Note: Eumungerie is just to the west of Goonoo SCA.

The soil crusts are extremely effective at reducing soil damage by splash erosion and overland flow, and the trees trap sediment and runoff.⁷ To deliberately introduce “thinning” into areas of dense White Cypress Pine would undoubtedly break this delicate crust and thereby initiate erosion. Heavy machinery would also do this, obviously, and so would too many manual labourers trampling about doing the “thinning” by hand.

I have a further question on the assumptions used during the aerial photo and LiDAR imagery processing and analysis: Why is a patch size of more than 1ha of White Cypress Pine deemed to be “crossing a threshold of management concern”? Why not 5 ha or 100ha or 0.5ha or any other number for that matter? What is the justification for this assumption? And the data was arbitrarily divided up into 5 categories:

1. No canopy cover
2. Class 1, canopy cover 1-10%
3. Class 2, canopy cover 11-20%
4. Class 3, canopy cover 21-30%
5. Class 4, canopy cover >31%

Classes 3, 4 and 5 were then grouped as dense White Cypress Pine forest, which is patently silly. Only the top one, Class 4 should have qualified as “dense”, where the canopy covered more than one third of the ground. Even so, I feel that the first three classes should have been grouped with “no canopy”, and the top Class divided further so that the *really* dense cover was identified – say those areas where canopy covered 60% or more of the ground. To me that sounds much more sensible, and would have yielded entirely different results in the analysis, and perhaps the Draft Report would have been written in an entirely different way? Perhaps the White Cypress Pine forests aren’t so dense after all?

8. **The Terms of Reference** – if the Draft Report was truly meant to be about *conservation*, as stated - “Identify approaches, methods and suggested next steps as options to develop an adaptive and active management program for Cypress forests to ***maintain and enhance environmental values in Brigalow and Nandewar SCAs***” [my emphasis], most of the Report as written would be redundant. In particular, the following term of reference should NEVER have been included: “the NRC should consider... commercial opportunities derived from adaptively managing these forests, including costs and benefits of silvicultural or thinning programs.” This sentence betrays the *real* reason for the inquiry and report, and it is NOT one of conservation. Quite the opposite in fact: It is one of deliberate destruction for commercial purposes.
9. **The use of fire:** Mild fires, or low intensity burns for management purposes would reduce the fuel load, kill young White Cypress Pines and reduce seed production of older pines for up to 7 years,⁸ thereby preventing or lessening the likelihood of a mass germination event. This would be much more effective than “thinning” or grazing, if one’s purpose was to minimize damage to the more mature trees so that they could be logged at a later date. It would also promote a more diverse range of plants in the understorey due to a less dense canopy cover. Recent studies have found that an intact canopy of mature trees suppress wildfires to some extent, whereas logged areas exacerbate the intensity of wildfires.⁹ Intact forests are the best defence against wildfires, therefore there should be no fuel reduction, no thinning, no grazing done, for this reason alone.
10. **Grazing.** This has been used in the past to suppress young White Cypress Pines and seedlings, but would be totally useless in the dense stands of pines. Stock would get lost and it would be impossible to muster them. Grazing would only be useful in more open areas which could be fenced, but even then there is the danger of over-grazing, leading to topsoil loss and erosion. Then there are issues of trampling, soil compaction and

⁷ Thompson, W.A. & Eldridge D.J. (2005) “White Cypress Pine (*Callitris glaucophylla*): a review of its roles in landscape and ecological processes in eastern Australia”, Australian Journal of Botany, 2005, Vol 53, pps 555-570.

http://aridecologylab.com.au/pubs/Thompson_Callitris_review.pdf

⁸ Ibid.

⁹ Link to an ABC report on a recent research article about wildfires: “Logging can ‘greatly increase’ fire severity for 50 years, researchers say”, 4-8-2014. <http://www.abc.net.au/news/2014-08-04/logging-greatly-increases-fire-risk-black-saturday-study/5646220>

nutrient addition via the dung of the animals – what problems would that cause? It seems that this option is a non-starter.

11. **Heavy equipment** used for “thinning” would be a *total disaster*, churning up the topsoil, smashing roads through numerous areas, breaking vegetation, opening up areas to weeds and feral animals. If ANY “thinning” is to be done it should be **ONLY** by manual means, **NOT** by any type of heavy machinery. Another non-starter.
12. If the government wants to experiment with “active and adaptive management” it should first be tried in the State Forest areas, and **NOT** in the SCAs. I reiterate that **SCAs are Conservation areas**, not future logging coupes, and should not be seen as a resource to be exploited. *That is what State Forests are for.*
13. If any management were to happen in the SCAs, I suggest that it should include **a program of planting Eucalypt species** indigenous to the area, to reverse the former policy of ringbarking every tree in sight that was not a White Cypress Pine. Ringbarking was practiced and encouraged for decades, so that the White Cypress Pine would thrive, for logging purposes. It is largely due to this long term policy that we now have dense stands of White Cypress Pine with few other species. Perhaps the Green Army could be employed planting Eucalypts and other species among the pine forests? This might contribute to biodiversity, and would certainly help with carbon sequestration over the long term. Please consider this.
14. **Dangerous precedent.** My main and overriding concern is that if the government takes up the recommendations in the Draft Report for the Brigalow-Nandewar SCAs, this will set a dangerous precedent for the future management of all other areas designated as being for conservation. It is bad enough that mining is allowed in SCAs; to allow logging and other commercial practices would condemn most of our remaining remnant vegetation and habitat refuges to degradation, as it would soon become a common practice to “active and adaptively manage” for commercial or private industry purposes, rather than for conservation, as intended.

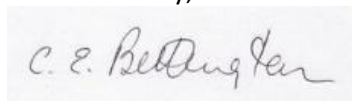
Conclusion:

Under no circumstances should the recommendations in the Draft Report be taken up by the State Government.

It is a blatant grab for scarce resources for private profit, to the detriment of publicly owned assets. The Terms of Reference should never have been written as they were in the first place as they in no way reflect the fact that the SCAs are set aside for CONSERVATION, not for exploitation - that's what State Forests are for. A great deal of public money has been expended already upon this Draft Report, which could have been much better spent on proper scientific investigations of the SCAs to ascertain their status as refuges for biodiversity. Too many ungrounded assumptions have been made, and conclusions drawn upon these false assumptions. Important considerations such as keeping forests as a carbon sink, the production of oxygen and the burning of wood increasing CO², in these days of Global Warming and Climate Change, have been totally ignored. This Draft Report is partial, biased, deceptive and destructive in concept and recommendations. I conclude that the Draft Report should be consigned to the waste paper bin, for recycling of course.

Thank you again for the opportunity to comment,

Yours sincerely,



Claire Bettington

Copy to: Hon Mike Baird, Premier of NSW
Level 40, Gov Macquarie Tower
1 Farrer Place, Sydney, 2000