

North East Forest Alliance Inc.

NORTH EAST FOREST ALLIANCE

Dailan Pugh OAM
NEFA President

7 December 2021

Third Submission to DA183/1993

General Manager,
Singleton Council
Email: council@singleton.nsw.gov.au

The North East Forest Alliance Inc strongly objects to the proposed modification of DA183/1993 for the Redbank power station to use biomass.

This submission is made to supplement NEFA's submission to the second exhibition of DA183/1993 made on 26 September 2021, and must be considered with that more substantive submission. It has been made to address issues made in the additional documents in the third exhibition, with particular focus on DPI's Dr Cowie's [Expert report on Climate Change and Ecologically Sustainable Development matters](#).

NEFA reiterates our concerns that the ad-hoc and piecemeal attempts to pretend this new development is "*substantially the same development as the development for which the consent was originally granted*" is farcical. This is clearly a very different proposal, so a new DA and EIS are clearly required.

In summary this submission contends:

There are significantly greater community benefits accrued from not logging public native forests for biomass. The public interest resides in using public native forests for recreation and tourism, water supply, and carbon sequestration, not biomass production. Allowing trees to remain standing to increase CO₂ sequestration of as they grow is essential to help stabilise the climate in our current climate emergency, rather than cutting them down and burning them to release millions of tonnes of CO₂ into the atmosphere to worsen the climate emergency. This proposal is not in the public interest.

The various reports, including Dr Cowie's, fail to identify the volumes that will be sourced from landclearing. The failure to document or consider this is misleading. In a public information session tonight, the consultants preparing the EIS admitted that an unspecified volume of biomass will be coming from landclearing, this cannot be considered sustainable forest management.

The identification of fuel sources is vague and unprecise. There needs to be an accurate identification of the volumes of each of the proposed fuel sources, the anticipated moisture content of each source, and the volumes of fresh wood this will entail.

While the supplementary air quality report does have a section on Greenhouse Gasses it still only considers CO₂ emissions associated with transport to Redbank, and refuses to consider or admit the volumes of CO₂ that will be released by burning biomass on site. Neither does it consider the volumes that will be released from residues left on site (roots, stumps, branches, leaves), damaged trees, disturbed soils, logging machinery, transport to secondary processing sites, or at secondary processing sites.

NEFA concurs with Dr Cowie's statement that as the as the plant is currently not operating it is valid to compare it to other energy sources, particularly solar and wind power. NEFA considers that the advantages of solar and wind far outweigh the proposal to burn biomass due to the low carbon emissions involved in the construction of such facilities, the removal of the need to transport feedstock, the lack of environmental impact in obtaining that feedstock by degrading forests, their economic advantages, and the fact that they are not pumping millions of tonnes of CO₂ into the atmosphere each year.

The DPI proposal is to only remove pulplogs over 10 cm small end diameter overbark, and a minimum of 2.5 m in length, not tops and off-cuts as claimed by Cowley. Many trees would not be cut down without a market for pulplogs, and if those pulplogs felled were left in the forest half can be expected to last for over 50 years, with a portion of their carbon being added to soils.

NEFA considers that there is no doubt that a market for biomass will increase the felling of live trees which will be classed as forestry residues, involve more extensive soil disturbance, and increase the removal of logs which would otherwise be left as wildlife habitat to slowly decay over decades. NEFA considers that the prime motivation in creating clearfelling zones, increasing allowable logging intensity (ie live tree removal), and removing protection for trees under 20 cm diameter in the 2018 Coastal IFOA was to make more resources available for biomass.

NEFA does not agree that the CO₂ emitted from cutting down trees, removing logs that would otherwise decompose slowly, soil disturbance, post logging burning, machinery, truck transport and burning of biomass will be quickly replaced by tree growth as claimed by Dr. Cowley, rather it will take many decades or, in some cases, centuries, for regrowth to reabsorb the emissions. Whereas if the trees were left standing they would absorb much more CO₂.

Given that an unidentified proportion of the resources will be coming from landclearing it needs to be recognised that there will be no regeneration what-so-ever. Surely the anticipated volumes and sources need to be identified and counted as emissions.

NEFA considers that Dr. Cowley's claim that "At the point of combustion, wood and coal have similar CO₂ emission factors" itself lacks scientific credibility, and that the evidence is that it does, though the quantum of increase from eucalypts requires a rigorous review. NEFA strongly rejects Dr Cowley's claim that "woody biomass as an energy source reduces atmospheric CO₂ over time scales relevant to climate stabilisation", as the evidence is that at 2020 emission rates Australia will have consumed all of its carbon budget to limit global warming to 1.5° C within 7 years, by which time very little of the CO₂ emitted by this project will have been reabsorbed by regrowth at the affected sites. NEFA further considers that to reduce atmospheric

CO2 over time scales relevant to climate stabilisation will, in part, require the cessation of logging in public native forests.

Dr. Cowie claims "NSW has strong regulations governing forestry operations that require that sustainable forest management practices are applied, to ensure forest health is maintained, and adverse impacts of forestry operations are minimised". NEFA considers that there is abundant evidence that the rules and regulations governing land clearing and forestry are inadequate (and are getting worse), are poorly implemented and are inadequately enforced. This is not ecologically sustainable management, rather it is sustained land degradation. While conveniently ignored by Dr. Cowie, unspecified volumes of biomass will be coming from landclearing, this can not be considered sustainable forest management.

The Transport Assessment is considered deficient in that it has not considered transport to and from secondary processing facilities, sawmills or waste sites, and the impacts that 41,500 truck movements will have on transportation routes. Most significantly there has been no attempt to consider the potential of over 75,000 truck movements to and from the forest and waste disposal sites to secondary processing facilities and the potential impacts on often narrow rural roads, deteriorating rural bridges and rural towns. A biomass market could increase volumes removed from a forestry operation, and thus traffic, by 60-80%.

Public interest.

NEFA does not consider that the logging of forests to supply biomass to Redbank is in the public interest. The community does not support the logging of native forests, the community would benefit economically from stopping logging, and the avoided carbon emissions and significant carbon sequestration by the recovering forests will assist in redressing climate change.

As more fully described in NEFA's submission to the second exhibition: introduction to 'Section 3, Environmental Impacts', it is clear that the logging of native forests has no social licence. The unpublished Forestry and Wood Products' report "*Community perceptions of Australia's forest, wood and paper industries: implications for social license to operate*" surveyed 12,000 people from throughout Australia in 2016 and found.

- *Native forest logging was considered unacceptable by 65% of rural/regional and 70% of urban residents across Australia, and acceptable by 17% of rural and 10% of urban residents. Eleven per cent of rural/regional and 9% of urban residents found this neither acceptable or unacceptable, and 8% and 11% respectively were unsure whether it was acceptable.*
- *45% felt the forest industry had negative impacts on attractiveness of the local landscape and only 22% that it had positive impacts; agriculture and tourism were viewed as having more positive impacts, and mining somewhat more negative impacts*
- *53% felt the industry impacted negatively on local traffic (and 16% positively); similar proportions reported negative impacts on traffic from tourism and mining activities, and 30% from agriculture*
- *58% felt the industry had negative impacts on local road quality while 16% felt it had positive impacts; mining was also viewed as having negative impacts, while agriculture and tourism were viewed as having slightly more positive impacts.*

Tourism is far more important to the north coast economy than logging, and is the fastest growing sector promising increasing economic and employment benefits. In 2019 over \$867 million of tourist expenditure can be taken as associated with forested national parks. It is in the community's economic interest to convert more of our public native forests to national parks as this will provide more fulfilling recreational opportunities and attract tourists to the region, as well as encouraging them to stay longer.

The potential regional benefits of converting State forests to National Parks has been demonstrated by the University of Newcastle's (2021) [economic impact analysis](#) that the creation of the Great Koala National Park in north east NSW which found over 15 years the net impact of creating the park as:

- *Increase in total output of \$1.18 billion over 15 years*
- *Additional FTEs of 9,810 in new jobs by the end of 15 years and loss of 675 FTEs in the state native forest logging sector over 10 years i.e. net additional 9,135 FTEs*
- *Additional total value-added of \$531million over 15 years. Of this, \$330million is paid in wages and salaries in net present value terms to workers living in the region.*

The carbon benefits of stopping logging are discussed in NEFA's submission to the second exhibition: 2.2 *The importance of retaining forests to reduce atmospheric CO₂*. If logging were stopped the significantly increased carbon sequestration from recovering forests would be of benefit to all Australians, including rural communities, both by contributing to NSW and Australia's obligations to reduce net carbon emissions and by helping mitigate some of the worst impacts of climate heating.

A recent cost-benefit assessment of the impacts of stopping logging of public lands in south-east NSW by Frontier Economics Pty Ltd and Prof. Andrew Macintosh '[Comparing the value of alternative uses of native forests in Southern NSW](#)' found "the incremental benefits of ceasing native forest harvesting are higher than the incremental costs by \$61.96 million", with significant carbon benefits:

Under the no logging scenario, net emissions (carbon dioxide equivalents (CO₂-e)) are projected to be 0.95 million tonnes CO₂-e less per year than they would be under the base case over the period 2022-2041, falling to 0.72 MtCO₂-e yr⁻¹ in the final 10 years of the appraisal period (to 2051).

There are significantly greater community benefits accrued from not logging public native forests for biomass. The public interest resides in using public native forests for recreation and tourism, water supply, and carbon sequestration, not biomass production. Allowing trees to remain standing to increase CO₂ sequestration of as they grow is essential to help stabilise the climate in our current climate emergency, rather than cutting them down and burning them to release millions of tonnes of CO₂ into the atmosphere to worsen the climate emergency. This proposal is not in the public interest.

Biomass volumes.

In previous submissions NEFA have assumed that the 850,000tpa woody biomass referred to is dry weight, therefore with 25% moisture content, that the proposal is to burn over a million tonnes per annum.

It is unclear exactly what the intended volumes are, for example the SEE (p 26) notes that “Approximately 112 tonnes of biomass would be burned per hour, assuming a nominal fuel moisture content of 25%” and that:

When in operation, the site generally operates 24 hours a day, 7 days per week. There are typically two shifts over this period, starting at 6 am and 6 pm.

This represents 981,120 tonnes of biomass per annum, which translates to 735,840 tpa totally dry.

DPI’s Dr Cowie’s [Expert report on Climate Change and Ecologically Sustainable Development matters](#) identifies that the annual volume used will be equivalent to 637,500 t dry matter.

These differences are not inconsequential and highlight the problems with the ad-hoc presentation of data in the various documents.

Based on vague rubbery figures Dr Cowie now claims that 446,250 t will come from plantation and logging residues and 95,625 t from sawmill wastes. To derive this Dr Cowie assumes that the uncontaminated wood wastes will have the same moisture content as logging and sawmill wastes, which is unlikely.

Table 1 The total quantities of biomass to be used

Biomass type	% contribution	t dry matter
plantation and native forest harvest residues	70	446,250
sawmill pre-consumer manufacturing waste	15	95,625
	15	95,625
total		637,500

The various reports, including Dr Cowie’s, fail to identify the volumes that will be sourced from landclearing. The failure to document or consider this is misleading. In a public information session tonight, the consultants preparing the EIS admitted that an unspecified volume of biomass will be coming from landclearing, this cannot be considered sustainable forest management.

The identification of fuel sources is vague and unprecise. There needs to be an accurate identification of the volumes of each of the proposed fuel sources, the anticipated moisture content of each source, and the volumes of fresh wood this will entail.

For this submission NEFA have adopted Dr Cowie’s reduced volumes despite our reservations that they grossly understate the intended volumes.

Greenhouse Gasses

While the supplementary air quality report does have a section on Greenhouse Gasses it still only considers CO₂ emissions associated with transport to Redbank,

and refuses to consider or admit the volumes of CO₂ that will be released by burning biomass on site. Neither does it consider the volumes that will be released from residues left on site (roots, stumps, branches, leaves), damaged trees, disturbed soils, logging machinery, transport to secondary processing sites, or at secondary processing sites.

The report on Climate Change similarly fails to identify the CO₂ that will be released by the activity.

The IPCC (2021) identifies that, based on cumulative emissions to 2020, the world can release an additional 500 billion tonnes CO₂ to have a 50% chance of limiting global warming to 1.5° C. The budget shrinks to 400 billion tonnes to increase the chance to 67%. The world emits around 43 billion tons of CO₂, though emissions are rising as the world rebounds from Covid. At this rate we have about 9-11 years left to use-up our budget. Australia's share has been estimated as 3,521 million tonnes of CO₂ from 2021 (Climate Targets Panel 2021). In the year ended June 2020, emissions were 513.4 million tonnes. Based on this Australia has less than 7 years left.

What this shows is that we need to urgently reduce our carbon emissions to have any chance of limiting global warming to 1.5° C, not increasing them as with this proposal.

DPI's Dr Cowie's affidavit states:

18. When biomass is combusted as an energy source and this reduces the requirement for coal-fired electricity, fossil fuel emissions are avoided.

37. Redbank power station is approved to operate using coal tailings. Therefore, the electricity generated from biomass can be considered to displace electricity from coal tailings. However, as the plant is currently not operating, it is also valid to consider that this proposal would displace NSW coal-fired electricity generation, so bituminous coal is also a relevant reference.

In this case the coal fired powerplant closed a long time ago. It is recognised that solar and wind are now more economical to produce electricity than using coal or wood. This new proposal to burn biomass for electricity should be compared to the alternatives of low polluting solar and wind with battery storage, rather than coal. When high-polluting biomass is combusted as a "renewable" energy source this displaces genuine renewable low-polluting solar and wind energy.

NEFA concurs with Dr Cowie's statement that as the *as the plant is currently not operating* it is valid to compare it to other energy sources, particularly solar and wind power. NEFA considers that the advantages of solar and wind far outweigh the proposal to burn biomass due to the low carbon emissions involved in the construction of such facilities, the removal of the need to transport feedstock, the lack of environmental impact in obtaining that feedstock by degrading forests, their economic advantages, and the fact that they are not pumping millions of tonnes of CO₂ into the atmosphere each year.

Forestry Residues:

NEFA's substantial submission on the previous exhibition deals with the definition and availability of forest residues in 1.1. Forestry Residues, the associated carbon emissions in 2.1. Carbon Dioxide and the ecological sustainability issues are partially considered in 3. Environmental Impacts. This submission focuses on additional responses specific to the

affidavit of the Senior Principal research scientist, Climate, NSW Department of Primary Industries (NSW DPI) Dr Annette Louise Cowie's [Expert report on Climate Change and Ecologically Sustainable Development matters](#).

The fate of residues left in the forest.

DPI's Dr Cowie's affidavit states:

6. • Pulp logs, heads and off-cuts from native forest harvest residues are retained in the forest, then partly consumed in a post-harvest burn;

25. Bioenergy obtained from residues that would otherwise be burned in the forest (plantation harvest residues) or decompose quickly (sawmill residues used for landscaping) does not affect biogenic carbon fluxes; the same quantity of biogenic CO₂ is emitted under the bioenergy case as in the without-bioenergy case. The beneficial use of this biomass for bioenergy provides an immediate climate benefit through the avoidance of fossil fuel emissions that lead to permanent atmospheric warming.

28. The extraction of harvest residues for bioenergy hastens the return of the carbon to the atmosphere, for that fraction of residues that would have decomposed in the forest. Residues that decompose in the forest provide no long-term climate benefit

29. For the fraction of residues that would have been burned in the forest (plantation residues and the portion consumed in a post-harvest burn in a native forest harvest), using for bioenergy reduces emissions, as field-burning is less efficient, producing more non-CO₂ GHGs than combustion in an engineered plant with emissions controls.

31. In summary, this proposal will not lead to additional harvest of trees in native forests. Rather it will utilise harvest residues, comprising tops, off-cuts and low-quality stems, and mill residues, with no higher value application. In the case of native forest harvest residues, in the absence of the project, this biomass would decompose on the forest floor, or be burned,

The fate of forest residues left in the forests is partially dealt with in section 2.1.3 *What is the carbon cost of obtaining biomass for burning?* of NEFA's previous submission. Basically Cowie seems to be maintaining that any residues left in the forests will be burnt and/or decompose rapidly. This is incorrect, to summarise NEFA's submission:

- Most of the wood removed as biomass will come from trees that would otherwise be left alive to continue to sequester carbon
- The biomass to be removed is pulplogs at least "10 cm small end diameter overbark, and a minimum of 2.5 m in length", which constitute large Coarse Woody Debris (CWD) with long lifetimes and high biodiversity values (DPI 2017)
- When a tree is logged around 60% of its biomass, and therefore carbon, will remain in the forest as residues.
- Around a third of the biomass from a logging operation may end up being burnt for electricity, meaning that total tree carbon emissions associated with obtaining that biomass may be 3 times greater.
- Keith *et. al.* (2014b) assume that half the logging debris will have a life of around 50 years.

- Mackensen et. al. (2011) found for CWD “In 57% of all cases, the calculated lifetime (t0.95) is longer than 40 years (Fig. 4). The median of this distribution is at 49 years and the mean is 92 years.
- A proportion of the logs if burnt or decomposed will be incorporated into soil carbon.

It is important to recognise that the intent is not to take waste in the form of tree heads, branches, and stumps as often claimed, but rather in the form of logs that are easily handled. Though a pulplog market does allow the felling of trees, and the removal of logs, that would otherwise be left. DPI’s (2017) North Coast Residues report states:

we only considered logs that met the specifications for pulpwood as available for extraction (typically 10 cm small end diameter overbark, and a minimum of 2.5 m in length – no species restrictions – and the crown was typically left in the forest). This was partly due to the fact that the local industry already has experience harvesting and transporting pulpwood from the forest. Extracting pulpwood only, means that a significant proportion of the residues generated (stump, bark, leaves, small branches, large and defective stem sections) are left in the forest, helping mitigate impacts on biodiversity (Chapter 6) and future nutrition needs of the forests (Chapter 5).

The DPI proposal is to only remove pulplogs over 10 cm small end diameter overbark, and a minimum of 2.5 m in length, not tops and off-cuts as claimed by Cowley. Many trees would not be cut down without a market for pulplogs, and if those pulplogs felled were left in the forest half can be expected to last for over 50 years, with a portion of their carbon being added to soils.

Does a biomass market increase tree removal?

DPI’s Dr Cowie’s affidavit states:

12. Forest-based bioenergy systems could cause a short-term increase in emissions if a new regime is introduced that increases extraction of biomass, reducing the forest carbon stock by a greater amount than the substitution benefit from displacing fossil fuels.

26. The lag described in contention 8 (f), between emissions and removals, is only relevant if there is harvest of additional trees for bioenergy, and is only apparent if the assessment is limited to the individual compartment harvested, ignoring the remainder of the managed forest estate. ... In the case of this proposal, the Applicant proposes to utilise biomass that meets the requirements of the Protection of the Environment Operations (General) Regulation 2021, which excludes additional harvest of trees in native forests for bioenergy, so the issue of a lag between emissions and removal through forest growth is not applicable.

36. Another critical issue In this proposal, the forest harvest regime is not affected – the forest will continue to be harvested for wood products, so there is no effect of bioenergy on land use or wood products produced. NSW legislation prohibits the felling of trees in native forests for bioenergy. As no additional trees will be harvested there is no effect on carbon stock in tree biomass. Thus, the appropriate reference land use for this proposal is continued harvest, and utilisation of wood products, with harvest residues retained in the forest, where a fraction is combusted in a post-harvest burn.

This is considered in NEFA’s submission to the second exhibition: 2.1.2 Does biomass removal increase logging intensity and tree removals? In 2018 the NSW Government did

introduce a new logging regime for public lands aimed at increasing logging intensity for biomass, zoning 140,000 of forests in north-east NSW for a clearfelling regime and virtually doubling the allowable logging intensity in other forests, while removing requirements to retain all trees smaller than 20cm diameter and most protections for mature trees. They are currently considering reducing the minimum basal area retention for private forests from 12-14m²/ha in forests <25m tall, and 16-18 m²/ha in forests over 25m tall, down to 10 m²/ha, likely primarily for increased pulplog removal. In summary NEFA considers:

The NSW Government is reducing tree retention requirements to allow for increased tree removal for biomass. Creating a market for pulplogs facilitates increased tree removal and logging intensities. Meaning that without a market for biomass significantly more trees will be left standing to sequester carbon.

NEFA is concerned that if this proposal is approved that it will increase logging intensity, the removal of live trees, and the removal of large logs, thereby increasing the volume of CO₂ released in logging operations.

It is emphasised that there are no rules or regulations applying to public or private forestry that prohibits the felling of a tree solely for pulplogs or biomass, to the contrary this is actively encouraged where a market exists. All such trees are classed as forestry residues.

NEFA considers that there is no doubt that a market for biomass will increase the felling of live trees which will be classed as forestry residues, involve more extensive soil disturbance, and increase the removal of logs which would otherwise be left as wildlife habitat to slowly decay over decades. NEFA considers that the prime motivation in creating clearfelling zones, increasing allowable logging intensity (ie live tree removal), and removing protection for trees under 20 cm diameter in the 2018 Coastal IFOA was to make more resources available for biomass.

Is the carbon left to decompose in the forest or removed as biomass quickly reversed as the forest regrows?

DPI's Dr Cowie's affidavit states:

13. If a change in forest management to supply biomass for bioenergy causes a temporary increase in CO₂ emissions that is reversed as the forest grows, this CO₂ does not consume the carbon budget, and has a climate impact equivalent to short term climate forcers (Cherubini et al., 2014). On the other hand, if it leads to a reduction in forest carbon stock in the long term (a reduction in the equilibrium value) this is equivalent to CO₂ emissions from fossil sources, and does expend the carbon budget.

20. In sustainably managed forests, when biomass created as a by-product of tree-harvesting for sawlogs or pulp is used for bioenergy generation, the carbon emitted in this process is re-absorbed by growing trees, as part of the natural carbon cycle. Sustainable forest management ensures that annual biomass removals do not exceed annual forest growth. The forest carbon stock is therefore stable; the same quantity of CO₂ is released as is sequestered by the forest each year, so there is no net transfer of carbon from the forest to the atmosphere.

Another statement by Dr Cowie seems to contradict this, admitting to running down carbon stocks:

30. Forest biomass is renewable if it is harvested from forests that are managed such that there is no loss of productive capacity – i.e., so that growth rate and therefore capacity to sequester carbon are maintained over successive rotations. Sustainable forest management is key to maintaining healthy and productive forests. NSW has strong regulations governing forestry operations that require that sustainable forest management practices are applied, to ensure forest health is maintained, and adverse impacts of forestry operations are minimised (such as impacts on water quality, biodiversity, soil erosion). The NSW native forests that are managed for production of forest products have a lower forest carbon stock than their potential maximum carbon carrying capacity.

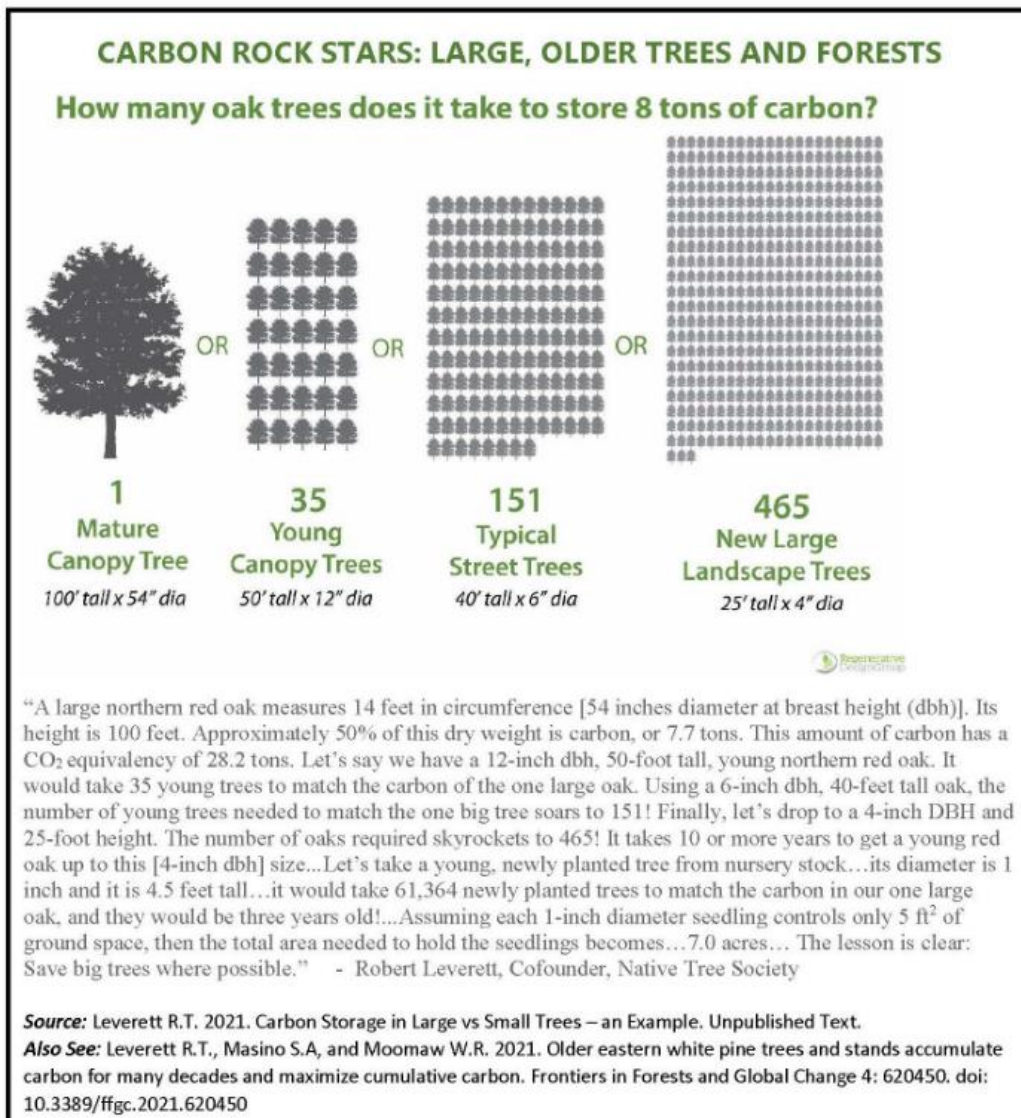
This is considered in NEFA's submission to the second exhibition: 2.1.3 *What is the carbon cost of obtaining biomass for burning?*. Past logging has more than halved the carbon stored in most productive forests, creating an opportunity for degraded forests to recover their lost carbon if left alone. Further logging will deplete stored carbon and reduce the rate of sequestration, as young trees do not sequester as much as mature trees. Logging has run down carbon stores in forest soils and live biomass, relogging will run down stocks further, while allowing standing trees to grow will sequester carbon at a faster rate than seedlings. In summary NEFA identifies that:

Loss of soil carbon can be massive during logging and carbon deficits may persist for decades, offsetting carbon uptake by regenerating or planted trees for a long time.

By reducing the ages and sizes of trees, past logging has generally halved the carbon stored in forests. The lost carbon is recoverable over time if forests are left to mature. If they are now relogged this will further reduce the sizes of trees and the forest's carbon storage, and it will take many decades to regain what was lost.

Regrowth will always lag well behind the growth that would have occurred had it not been logged.

For relatively low productivity Spotted Gum forests south of Casino NEFA found that logged forests had lost 134 tC/ha (59%) of stored carbon compared to oldgrowth forests, and that if left unlogged the degraded forests could sequester 6.3 tonnes of CO₂ per hectare per annum (Pugh 2020). Logged forests had a tree basal area of around 20m² per ha, half that of unlogged forest, while the new logging rules introduced in 2018 have reduced the minimum retention required down to 10m² ha, allowing more than a halving of remaining stored carbon (Pugh 2020).



There is no doubt that larger trees sequester and store more carbon than small trees.

NEFA does not agree that the CO₂ emitted from cutting down trees, removing logs that would otherwise decompose slowly, soil disturbance, post logging burning, machinery, truck transport and burning of biomass will be quickly replaced by tree growth as claimed by Dr. Cowley, rather it will take many decades or, in some cases, centuries, for regrowth to reabsorb the emissions. Whereas if the trees were left standing they would absorb much more CO₂.

The various reports, including Dr Cowie, fail to identify the volumes that will be sourced from landclearing. The failure to document or consider this is misleading. In a public information session tonight, the consultants preparing the EIS admitted that an unspecified volume of biomass will be coming from landclearing, this cannot be considered sustainable forest management.

Given that an unidentified proportion of the resources will be coming from landclearing it needs to be recognised that there will be no regeneration what-so-ever. Surely the anticipated volumes and sources need to be identified and counted as emissions.

Does burning trees reduce carbon emissions?

DPI's Dr Cowie's affidavit states:

16. It is critical to focus on the global emissions trajectory required to achieve climate stabilisation, acknowledging possible trade-offs between short- and long-term emissions reduction objectives. A strong focus on short-term carbon balances could result in decisions that make long-term climate objectives more difficult to meet (Cowie et al., 2021). Switching from coal to sustainably-harvested woody biomass as an energy source reduces atmospheric CO₂ over time scales relevant to climate stabilisation.

18. When biomass is combusted as an energy source and this reduces the requirement for coal-fired electricity, fossil fuel emissions are avoided. If the CO₂ emissions associated with any reduction in terrestrial carbon stock and supply chain of the bioenergy system are less than the emissions displaced, there is a net reduction in greenhouse gas emissions. When biomass used for energy is obtained from sustainably managed sources, the CO₂ emitted is reabsorbed when the biomass is regrown. It is widely reported in scientific literature that forest bioenergy can deliver climate benefits if it displaces the use of fossil fuels and if the biomass is sourced sustainably (e.g., Marland and Schlamadinger, 1997; Kraxner et al., 2003; Lundmark et al., 2014; Smyth et al., 2014; Creutzig et al., 2015; Gustavsson et al., 2017;

22. Council's amended statement of facts and contentions (15 September 2021) lists among the issues raised in submissions received the claim that "Burning wood emits 50% greater greenhouse gases than coal." Similar claims have been made by others (Cowie et al., 2021). Such claims lack scientific credibility, and are based on inappropriate methods that overlook the fundamental differences between biomass and coal explained above (Cowie et al., 2021). At the point of combustion, wood and coal have similar CO₂ emission factors, as the ratio of heating values between the two fuels is similar to the ratio of carbon content.

It is hard to fathom what time frame Dr Cowie is referring to for "carbon stabilisation", basically the world has a goal of stabilising the climate at around 1.5oC warming, The IPCC (2021) identifies that, based on cumulative emissions to 2020, the world can release an additional 500 GtCO₂ to have a 50% chance of limiting global warming to 1.5° C. Australia's share has been estimated as 3,521 million tonnes of CO₂ from 2021 (Climate Targets Panel 2021). In the year ended June 2020, emissions were 513.4 million tonnes, indicating that at 2020 rates we would need to reach zero emissions in less than 7 years, and that's just for a 50:50 chance. Even the forests logged to supply the biomass at year 1 will likely still be losing carbon in 7 years time, with the regrowth not sequestering any appreciable volumes of carbon by then, and certainly only a fraction of what they were sequestering before they were logged. Meanwhile over that seven years Redbank will have emitted over 14 million tonnes of CO₂ to worsen climate change. This in no way can be considered "time scales relevant to climate stabilisation".

The carbon emissions from burning biomass as compared to coal is considered in NEFA's submission to the second exhibition: 2.1.1 *Is burning biomass less polluting than coal?* In summary NEFA identifies that:

It is evident that substituting wood biomass for coal will more than double site emissions of CO₂, with vast quantities emitted off-site.

The claim that biomass is carbon neutral is based upon an accountancy trick that allows the emissions generated by burning biomass to be fully discounted on the assumption that sometime in the future the land from which it was obtained will be allowed to regrow and recapture the lost carbon, though even if the forest is allowed to regrow it may take decades or centuries to recapture the released carbon. In our current climate emergency, when we urgently need to reduce CO2 emissions, biomass is part of the problem, not a solution.

Most significantly if the forest was left to grow older, rather than being logged, the trees and soils would go on sequestering ever increasing volumes of carbon over time. The net carbon benefits of using a non-polluting energy source such as solar, and leaving the forest to age, needs consideration as an alternative in an EIS.

A recent cost-benefit assessment of the impacts of stopping logging of public lands in south-east NSW by Frontier Economics Pty Ltd and Prof. Andrew Macintosh '[Comparing the value of alternative uses of native forests in Southern NSW](#)' found that stopping logging had significant carbon benefits as the recovering forest would sequester more carbon, noting:

Under the no logging scenario, net emissions (carbon dioxide equivalents (CO2-e)) are projected to be 0.95 million tonnes CO2-e less per year than they would be under the base case over the period 2022-2041, falling to 0.72 MtCO2-e yr-1 in the final 10 years of the appraisal period (to 2051).

NEFA considers that Dr. Cowley's claim that "At the point of combustion, wood and coal have similar CO2 emission factors" itself lacks scientific credibility, and that the evidence is that it does, though the quantum of increase from eucalypts requires a rigorous review. NEFA strongly rejects Dr Cowley's claim that "woody biomass as an energy source reduces atmospheric CO2 over time scales relevant to climate stabilisation", as the evidence is that at 2020 emission rates Australia will have consumed all of its carbon budget to limit global warming to 1.5° C within 7 years, by which time very little of the CO2 emitted by this project will have been reabsorbed by regrowth at the affected sites. NEFA further considers that to reduce atmospheric CO2 over time scales relevant to climate stabilisation will, in part, require the cessation of logging in public native forests.

Sustainable forest management

DPI's Dr Cowie's affidavit states:

30. ... Sustainable forest management is key to maintaining healthy and productive forests. NSW has strong regulations governing forestry operations that require that sustainable forest management practices are applied, to ensure forest health is maintained, and adverse impacts of forestry operations are minimised (such as impacts on water quality, biodiversity, soil erosion)...

In a public information session tonight, the consultants preparing the EIS admitted that an unspecified volume of biomass will be coming from landclearing, this can not be considered sustainable forest management.

This is considered in NEFA's submission to the second exhibition: *3 Environmental Impacts*. Some examples from NEFA's submission of the poor regulation and enforcement of forestry in NSW are:

Public Lands

The Forestry Corporation have a long history of criminality. For decades NEFA have exposed cases of illegal logging on State Forests, though they continue unabated. We have

only audited a miniscule portion of logging operations in any year and yet we invariably find numerous breaches of the logging laws, showing that at a landscape scale they are extensive and are having a major impact above and beyond what is allowed. This means that a significant portion of the trees they sell have been obtained illegally at significant environmental cost.

In her assessment of prior criminality by the Forestry Corporation Justice Pepper (Director-General, Department of Environment, Climate Change and Water v Forestry Commission of New South Wales [2011] NSWLEC 102) took into account their prior convictions "and enforcement action against the Forestry Commission", for which she only considered the Penalty Infringement Notices (PINs) issued. Pepper (2011) notes " *The Forestry Commission has not admitted guilt in relation to any of these PINs*", concluding:

However, in my view, the number of convictions suggests either a pattern of continuing disobedience in respect of environmental laws generally or, at the very least, a cavalier attitude to compliance with such laws.

... Given the number of offences the Forestry Commission has been convicted of and in light of the additional enforcement notices issued against it, I find that the Forestry Commission's conduct does manifest a reckless attitude towards compliance with its environmental obligations ...

The Remake of the Coastal Integrated Forestry Operations Approvals Final Report Threatened Species Expert Panel Review reports the EPA representative Brian Tolhurst (one of the 10 experts who answered questions) as stating:

Sustainable forest management requires maintenance of forest stand structure complexity and heterogeneity to allow for biodiversity conservation. This key point seems to have been given up on in this review process with harvesting practices proposed that will severely degrade these forests to an artificial and simplified arrangement with severely reduced and limited biodiversity values.

I think this remake is an interventionist approach to remedy a situation that has evolved through poor and desperate practices adopted to meet an unsustainable wood supply agreement at significant expense to the environment and the people of NSW. Continuing down this path will have long term deleterious environmental outcomes for the public forests of NSW in order to limp across the line and meet the final years of the wood supply agreements. This will be entirely at the expense of these forests. Recovery to some level of 'natural' ecological function will be decades and centuries, possibly without many species that will not survive this current and ongoing impact.

... The intensive harvesting has clearly moved the coastal state forests from being multiple use forests with significant biodiversity values to that of purely production forests more in line with plantations. I don't believe this is an appropriate outcome or use of these crown lands that was ever envisaged.

... Removal of standing trees below a basal area of around 18 - 20m²/ha will reduce the structure of these native forests to such a simple form that the ecological processes will be severely diminished or non-functioning. Even in the best case scenario it will take many decades or even centuries of recovery for any level of native forest ecological function to be restored after this intensity and scale of impact.

A typical healthily stocked Blackbutt forest could be expected to have a basal area of around 30 - 40 m²/ha. Currently under the IFOA a 40% removal would limit the minimum basal area retention of 18 m²/ha in the worst case scenario

The new CIFOA logging rules reduced buffers on headwater streams from 10m down to 5m contrary to the scientific advice that they should be at least 30m, removed existing increased riparian exclusions established around records of 17 threatened species, and removed protection for riparian areas that had existed for over 20 years against the explicit advice of the agency Threatened Species Expert Panel. There can be no doubt that a biomass market will increase the intensity and extent of logging in these sensitive riparian areas, and will have significant environmental impacts.

The Remake of the Coastal Integrated Forestry Operations Approvals Final Report Threatened Species Expert Panel Review reports all experts who commented as opposing the opening up of riparian areas protected for the past 20 years for logging. For example Brad Law, DPI Forestry, stated:

"In some areas where areas once mapped as riparian buffers are no longer identified then there would be a loss of habitat protected for the past 20 year period. Given the intensity of operations over the last 10 years, it would be important to try to ensure these areas remain protected"

The EPA representative Brian Tolhurst stated:

"No further loss or impact on the retained riparian areas that have been protected to date under the existing rule set should occur. The expert panel agreed that these areas were the few areas seen on the site visit that still retained habitat elements and the diversity, form and structure of a native forest.

...

I am not convinced that the proposed riparian buffers are adequate for ecological protection of these features. The widths seem to have been generated to deliver no net loss of available harvestable area rather than driven by an appropriate buffer for the size/importance of the feature".

In their submission to the new logging rules, the Office of Environment and Heritage (2018) complained that the new Koala feed tree retention rates are less than half the number and of a smaller size than proposed by the Expert Fauna Panel, concluding that the increased logging intensity proposed under the new rules is expected to impact Koalas through diminished feed and shelter tree resources:

Koalas are selective both in their choice of food tree species and in their choice of individual trees. The scientific basis for proposed tree retention rates in the Draft Coastal IFOA is not clear, and the rates are less than half those originally proposed by the Expert Fauna Panel.

While Koalas will use small trees, research has shown that they selectively prefer larger trees. In our experience, the proposed minimum tree retention size of 20cm dbh will be inadequate to support koala populations and should be increased to a minimum of 30cm dbh. Many Koala food trees are also desired timber species, so there is a high likelihood that larger trees will be favoured for harvesting, leaving small retained trees subject to the elevated mortality rates experienced in exposed, intensively-logged coupes.

Koalas require large areas of connected habitat for long-term viability. The increased logging intensity proposed under the draft Coastal IFOA is expected to impact Koalas through diminished feed and shelter tree resources. Animals will need to spend more time traversing the ground as they move between suitable trees that remain, which is likely to increase koala mortality.

In his review of current logging prescriptions for the EPA, Smith (2020) notes:

This review concluded that, particularly in the context of the 2019/20 wildfires, the standard conditions (CIFOA 2018) fail to guarantee ecologically sustainable forest management and are likely to cause an ongoing decline and significant impact on biodiversity, inconsistent with the requirements of the Environment Protection and Biodiversity Conservation Act 1999 and the NSW Forestry Act 2012.

The key reasons for concluding that standard CIFOA conditions are inadequate and that timber harvesting and fire will have a significant impact on biodiversity are as follows:

- 1) There is no mandatory provision to identify, map and protect fire refuges in net harvest areas (areas of unburnt and lightly burnt forests or with a low probability of future fire) for sufficient length of time (20 - >120 years) necessary for biodiversity recovery after fire and logging.*
- 2) The harvesting intensity limits (including the basal area retention requirements for selective harvesting which are largely met by habitat tree protections alone) effectively allow intensive harvesting or clear felling on short rotations in the net harvest area which will permanently eliminate late stage forest dependent fauna from the net harvest area over time.*
- 3) There are no effective requirements for protection and recruitment of a minimum area and percentage of late stage (uneven-aged and old growth) forest and its dependent fauna within compartments or across landscapes to mitigate the losses from timber harvesting (such areas could be substantially coincident with fire refuges).*
- 4) The current size, area and pattern of retained unlogged Environmentally Sensitive Areas (ESAs) within compartments and across landscapes is not adequate to provide the suitable habitat, corridor links, or unlogged and/or unburnt forest patches of sufficient size (20 - >100 ha.) to sustain viable populations of vulnerable and threatened late stage dependent fauna like Greater Glider and Yellow-bellied Glider.*

Ecologically sustainable forest management requires that species are retained throughout their natural range, and not just in public national parks and nature reserves, in order to maintain genetic diversity and the capacity for continued evolution. Current evidence indicates that fire and logging is causing progressive declines in the population size and abundance of sensitive and threatened species like the Greater Glider and Yellow-bellied Glider leaving local populations in state forest isolated and vulnerable to genetic drift and extinction (Lumsden et al 2013, Lindenmayer and Sato 2018).

In his report for the EPA, Smith (2020) notes:

Current limits to selective logging allow forests to be intensively logged and effectively clear felled with retention of scattered habitat trees because basal area retention limits are too low (10-12 m²/ha.) and there is no requirement to focus retention on large and medium sized trees to maintain forest structure.

...

This report also recommends that the intensity of so called selective harvesting in all Dry Sclerophyll Forest types be reduced significantly by increasing minimum tree basal area limits and minimum medium and large tree stocking limits, to ensure that populations of threatened and sensitive fauna such as Koalas and Greater Gliders

are maintained at close to normal densities within the net harvest area consistent with principles and requirements for ecologically sustainable harvesting required under Regional Forest Agreements and the Forestry Act 2012

The Swift Parrot *Lathamus discolor* is listed as 'Endangered' under the EPBC Act. The 2011 National Recovery Plan for the Swift Parrot identifies the loss of mature trees and the abundance of nectar they provide as a major threat, noting:

Forestry activities, including firewood harvesting result in the loss and alteration of nesting and foraging habitat throughout the Swift Parrot's range ... The harvesting of mature box-ironbark woodlands of central Victoria and coastal forests of New South Wales for forestry reduces the suitability of these habitats for this species by removing mature trees which are preferred by Swift Parrots for foraging and that provide more reliable, as well as greater quantity and quality of food resources than younger trees (Wilson and Bennett 1999; Kennedy and Overs 2001; Kennedy and Tzaros 2005)

Private Lands

The bipartisan Parliamentary inquiry into Koala populations and habitat in New South Wales found "7.91 *Based on the evidence received, the committee believes that the regulatory framework for private native forestry does not protect koala habitat on private land. In fact, the 'number of quite stringent protections for koalas' that government witnesses asserted the PNF Code contains are weakened substantially, or indeed non-existent, when practically applied. The committee finds it unacceptable that land identified as core koala habitat can be cleared because of departmental delays*".

The Natural Resources Commission (2019) considered "Compliance frameworks are inadequate and high rates of unexplained clearing pose a major risk", and "Widespread use of Part 3 of the Code – which relates to thinning – poses a risk to biodiversity state-wide", noting:

However, the available data indicate that there is a major risk from unexplained clearing. Based on total area, the area of unexplained clearing identified in the first five months of the reform alone (7,100 hectares) exceeded the annual pre-reform average (6,350 hectares). Extrapolating this to an annual figure indicates that the trigger would be exceeded significantly. Further, when the proportion of unexplained to approved clearing is considered, nearly 60 percent of the total area cleared under the reforms is unexplained, which is of concern. The Commission notes that not all unexplained clearing is necessarily unlawful clearing but data were not available to indicate the proportion of unexplained clearing that is found to be unlawful.

Maintaining biodiversity values under the reforms relies on landholders complying with the Code and a key measure of the reforms' success is a reduction in the amount of unlawful clearing. The available data indicate that there is a major risk from unexplained clearing or that systems for monitoring unexplained clearing are inadequate.

The Auditor General (2019) found clearing is "not effectively regulated and managed", being fraught with problems of weak processes, poor assessments, inadequate protection, limited monitoring and poor enforcement. Leading her to conclude (in part):

The clearing of native vegetation on rural land is not effectively regulated and managed because the processes in place to support the regulatory framework are weak. There is no evidence-based assurance that clearing of native vegetation is being carried out in accordance with approvals. Responses to

incidents of unlawful clearing are slow, with few tangible outcomes. Enforcement action is rarely taken against landholders who unlawfully clear native vegetation.

The Auditor General (2019) commented:

There are significant delays in identifying unlawful clearing and few penalties imposed.

Unexplained land clearing can take over two years to identify and analyse, making it difficult to minimise environmental harm or gather evidence to prosecute unlawful clearing. Despite around 1,000 instances of unexplained clearing identified by OEH and over 500 reports to the environmental hotline each year, with around 300 investigations in progress at any one time, there are only two to three prosecutions, three to five remediation orders and around ten penalty notices issued each year for unlawful clearing. Further, OEH is yet to commence any prosecutions under the current legislation which commenced in August 2017.

For Threatened Ecological Communities (TECs) the Auditor General (2019) observed:

LLS has produced guidelines to assist regional service officers to determine the viability of TECs in the long term however they lack specific criteria and training to adequately guide such decisions.

Ballina Shire Council (2021) consider:

Extension of licences from 15 years to 30 years has considerable impact given existing shortfalls in adequately assessing impacts and managing and monitoring Private Native Forestry impacts.

...

The SoE report specifically highlighted that Ballina and several other Northern NSW councils should have no new PNF operations approved (Page 48). Within such sensitive environments, an approval without further analysis for 15 years, let alone 30 years is considered to be inappropriate especially in an environment where biodiversity values can change (e.g. long term approvals do not take into account impacts associated with new threats or emerging ecological issues such as population declines that may occur in future).

In their submission to PNF, Ballina Shire Council (2020) observe:

In respect to threatened entities, the code of practice is highly reliant on records submitted into NSW BioNet. This is not suitably reflective of the likely presence of threatened species in forested areas that are utilised for PNF or the impact of habitat loss on flora and fauna resulting from PNF operations.

The application process should require site specific threatened species surveys pertinent to contemporary data, literature and methodology. Ecological assessment should be required to have regard for landscape and cumulative impacts associated with PNF.

...

Many of the ecological prescriptions listed in Appendix A rely on a specific record within the forest operation to trigger exclusions, buffers or directives for harvesting. However, as previously noted in the above comments, there is no requirement to undertake surveys. It is unlikely that habitat, sightings and indications of occurrences for many (if not all threatened species) are being observed to subsequently trigger

the appropriate prescriptions. For example, observation of koala scats is unlikely if no specific search is carried out.

In their submission to the Koala Inquiry, Bellingen Shire Council (2021) consider:

... the current Code of Practice for Private Native Forestry presents as inadequate as a protection for koala habitat. The prescriptions in the Code for threatened species are rarely, if ever triggered because there is no site survey requirement, and it relies on either the identification of core koala habitat in an adopted KPOM or a record in BioNet. Even if a prescription is triggered for koalas, the Code of Practice can also still actually allow for the logging of koala habitat trees that have up to 19 scats underneath them.

... it is considered important that the assessment of biodiversity values takes place by appropriately qualified persons, including systematic on-ground surveys to properly understand impacts. Any increased reliance upon desk-top style assessments, or self-assessment of impact by persons unqualified in ecology is of concern in that it risks missing important information and makes no further contribution to the knowledge base (eg: BioNet records) that is referred to when applying things such as desktop threatened species prescriptions.

Bellingen Shire Council (2021) consider “It is our view that the current regulatory framework for clearing and forestry is not sufficiently robust to protect core koala habitat (or other important habitat)”

Coffs Harbour City Council (2021) state:

It has been the experience of Coffs Harbour City Council that the Code fails to protect koala habitat as its interpretation is too limited, there is a failure to adhere to the prescriptions and there is limited resources for compliance. This is further demonstrated by the issue that prescriptions in the code for threatened species are rarely, if ever, triggered as there is no site survey requirement. The reliance on adopted KPOM ‘core habitat’ or a record in BioNet is not an effective mechanism to demonstrate threatened species presence/absence and is not accepted in applications for vegetation removal of a similar scale such as through development applications or planning proposals. Site surveys should be required prior to PNF approvals.

... The 2016 Regional State of the Environment Report for the North Coast Region of New South Wales also noted that ‘during consultation with councils in the reporting region in 2012, a number reported that they considered private native forestry to be the biggest threat to biodiversity’. With additional issues relating to PNF being raised in 2016 including, ‘Approvals being issued on land designated as koala habitat’ and ‘Failure to adhere to the PNF Code of Practice’. Council urges the inquiry to recommend that core habitat in existing and new KPOMs continue to be excluded from PNF and that additional resources are made available for compliance of PNF and unauthorised vegetation removal more generally.

Port Macquarie-Hastings Council (2021) similarly consider:

Site surveys should be required prior to PNF approvals. This survey methodology should be comprehensive and using the same methodology as would be required for Development Consent under the EP&A Act.

WWF (Pacheco *et. al.* 2021) note in relation to eastern Australia “Vegetation laws are governments’ preferred approach to reduce deforestation but have had a chequered history and are now universally weaker than they were in the mid-2000s”.

New Laws

The NSW Government is now in the process of implementing the failed provisions of the *Local Land Services Amendment Bill* by other means. Many Councils reacted strongly to the Government’s proposed gutting of logging and clearing constraints for private lands, with those they objected to still intended to proceed. Local Government NSW (2021) stating:

LGNSW's key concerns with the LLS Amendment Bill are as outlined previously in this submission and specifically that:

- *it will remove local councils' ability to assess private native forestry operations by removing the requirement for development consent and also removing the ability for councils to restrict forestry operations through other environmental planning instruments. Private native forestry operations can change traffic conditions and impact on local roads, generate noise and local amenity issues. Councils need to know where PNF sites are being approved in relation to other planning overlays, and where and when active operations will occur in order to ensure impacts on the community are minimised.*
- *allowable activities (such as clearing) will be permissible on allowable activity land, including land zoned for environmental protection, without approval, therefore removing councils' assessment and authorisation provisions.*
- *it will prevent the inclusion of core koala habitat as identified by an approved Koala Plan of Management (KPoM) from being designated as category 2 regulated land under the LLS Act (and therefore allow land clearing of core koala habitat in rural areas). If clearing of identified core koala habitat is to be allowed, this significantly devalues any council efforts to prepare or update KPoMs*

Wollondilly Shire Council (2021) submitted:

... the changes proposed by the Local Land Services Ament Bill (LLS Bill) are viewed as potentially resulting in the removal of important protections for koala habitat and facilitating extensive and inappropriate land clearing. The proposed changes are also viewed as having wider significant adverse implications for the protection of the biodiversity aesthetic and cultural values of Wollondilly.

... Council has strong concerns over the intent of the LLS Bill, which will incorporate the assessment of vegetation clearance on land that is zoned Environment Protection into the Land Management Code.

Bellingen Shire Council (2021) submitted:

The remaining parts of the Bill, which are geared towards “decoupling” all forestry and clearing provisions from the NSW land use planning framework is also of significant concern to Council. This would mean, for example, that forestry and clearing operations could now be permitted to occur in the E2 (Environmental Conservation) Zone. The NSW Government describes this zone as follows.

“This zone is generally intended to protect land that has high conservation values outside the national parks and nature reserve system.”

In Bellingen Shire this has been primarily applied to land that contains an identified “Endangered Ecological Community”, and “forestry” is currently a prohibited land use in view of these values. The proposed Bill would mean that any such prohibitions are no longer recognised, nor any requirements for development consent that may currently exist, or be proposed, in the Councils Local Environmental Plan.

These reforms are highly significant and would render Councils mute in terms of the ability to have any say in the way in which clearing or forestry land uses are permitted to occur in rural and environmental zones within their own local government areas. They act to render the planning intent of a local government area redundant (as expressed through the adoption of environmental zones within a publicly exhibited and legally adopted LEP), without any form of consultation with the community that it effects.

Port Macquarie-Hastings Council (2021) submitted:

Dual consent for Private Native Forestry (PNF) should be a matter for each Council to consider via Local Environmental Plans. Of particular concern is the impact on land zoned Zone E2 Environmental Conservation and Zone E3 Environmental Management where allowing PNF to occur is contrary to the zone objectives. Forestry is currently prohibited on E-Zoned lands under Port Macquarie-Hastings Council LEP 2011.

...

The option for Councils to continue to require consent for vegetation removal in environmental zones via the State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017 should be retained.

Lismore City Council (2021) submitted:

Overall the Bill reduces protection for Koala habitat (as well as other important native vegetation), by enabling clearing to occur without impact assessment or approval. This is at a time when koala populations are known to be at serious risk. The 2019 Upper House Inquiry gathered considerable scientific evidence and community representation, leading it to conclude that existing protections are not adequate and that the koala is seriously threatened. This situation has been further exacerbated by the impact of the widespread and severe bushfires of 2019/20. Survival and recovery of the species from its current extinction trajectory requires stronger, not weaker, protections.

...

The proposed Bill is inconsistent with the recommendations of the 2019 Upper House Inquiry, and undermines the ability of Councils to protect koalas and their habitat. It expands the circumstances in which clearing can occur without assessment or approval, thereby enabling further removal and fragmentation of habitat. It also considerably increases the potential for pre-emptive clearing for future development under the guise of agricultural activities. There are currently inadequate resources available for investigation and prosecution of these types of breaches.

Dr. Cowie claims “NSW has strong regulations governing forestry operations that require that sustainable forest management practices are applied, to ensure forest health is maintained, and adverse impacts of forestry operations are minimised”. NEFA considers that there is abundant evidence that the rules and regulations governing land clearing and forestry are inadequate (and are getting worse), are poorly implemented and are inadequately enforced. This is not ecologically

sustainable management, rather it is sustained land degradation. While conveniently ignored by Dr. Cowie, unspecified volumes of biomass will be coming from landclearing, this can not be considered sustainable forest management.

Transport Assessment

The Transport Assessment only considers truck impacts on nearby intersections and makes no attempt to consider impacts generated to or from secondary processing sites, or to and from forests to secondary processing sites.

The Transport Assessment identifies:

- *Deliveries of biomass shall be undertaken by b-doubles with a conservative capacity of 40T.*
- *40T per load based on 850,000T per year equates to 21,250 loads required per year,*
- *Deliveries to arrive 6 days per week and equates to approximately 70 loads per day (70 trucks deliveries per day would result in 140 truck movements per day, as 1 truck would create 1 inbound movement & 1 outbound movement, equalling 2 movements.*
- *B-doubles shall be utilised in the removal in residual ash from the Site, therefore 40T per trip would equate to 4 additional trucks per day (8 truck movements per day).*
- *The Proposal will generate up to 148 heavy vehicle trips per day (140 delivery trips and 8 ash waste trips), as well as reinstating staff vehicle movements in line with the existing Site approval.*

This indicates 41,500 truck movements from transporting biomass to Redbank from sites up to 300-400 kilometres away. No attempt has been made to identify transport routes or assess the impacts on them. Similarly, there has been no attempt to identify routes for 2,500 ash trips per year, or where the ash will be disposed.

There has been no attempt to identify the number or locations of secondary processing facilities, or the nature of activities that will be undertaken there.

By way of example if 446,250 dry t of resource (as now claimed by Dr Cowley) is to be obtained directly as forestry “residues”, and if this is 40% heavier as green timber (624,750 green t), and if 10% waste (reject timber and fines) is generated at the processing facility (an extra 62,475 green t), then this represents 687,220 green tonnes of forest residues to be removed from the forest and transported to secondary processing facilities.

If it is assumed that this will be transported mostly by logging trucks with around a 20 ton load limit, then this will involve an additional 68,723 truck movements to and from the forest and 6,248 truck movements to and from unknown disposal sites for reject timber. This represents a lot of traffic over often narrow rural roads, across deteriorating rural bridges and through rural towns.

It can be expected that each biomass logging operation will involve the removal of 60-80% more timber, and thus truck movements, than would otherwise be removed and transported without a biomass market.

The Transport Assessment is considered deficient in that it has not considered transport to and from secondary processing facilities, sawmills or waste sites, and the impacts that 41,500 truck movements will have on transportation routes. Most significantly there has been no attempt to consider the potential of over 75,000 truck

movements to and from the forest and waste disposal sites to secondary processing facilities and the potential impacts on often narrow rural roads, deteriorating rural bridges and rural towns. A biomass market could increase volumes removed from a forestry operation, and thus traffic, by 60-80%.

Additional References

Climate Targets Panel (2021) Shifting the burden: Australia's Emissions Reduction Tasks over Coming Decades. A report of the Climate Targets Panel, March 2021.

Fargione, J.E., Bassett, S., Boucher, T., Bridgham, S.D., Conant, R.T., Cook-Patton, S.C., Ellis, P.W., Falcucci, A., Fourqurean, J.W., Gopalakrishna, T. and Gu, H., 2018. Natural climate solutions for the United States. *Science advances*, 4(11), p.eaat1869.

Griscom, B.W., Adams, J., Ellis, P.W., Houghton, R.A., Lomax, G., Miteva, D.A., Schlesinger, W.H., Shoch, D., Siikamäki, J.V., Smith, P. and Woodbury, P., 2017. Natural climate solutions. *Proceedings of the National Academy of Sciences*, 114(44), pp.11645-11650.

Harmon, M E Ferrell, W. K; and Franklin, J. F (1990) Effects on Carbon Storage of Conversion of Old-Growth Forests to Young Forests. *Science*; Feb 9, 247, 4943 pp699-702.

Houghton, R.A. and Nassikas, A.A., 2018. Negative emissions from stopping deforestation and forest degradation, globally. *Global change biology*, 24(1), pp.350-359. Hubbard, R. K.; Newton, G. L.; and Hill, G. M., (2004) "Water Quality and the Grazing Animal". *Publications from USDA-ARS / UNL Faculty*. Paper 274. <http://digitalcommons.unl.edu/usdaarsfacpub/274>

IPCC, 2021: Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu and B. Zhou (eds.)]. Cambridge University Press. In Press.

Keith, H., Lindenmayer, D., Mackey, B., Blair, D., Carter, L., McBurney, L., Okada, S. and Konishi-Nagano, T., 2014. Managing temperate forests for carbon storage: impacts of logging versus forest protection on carbon stocks. *Ecosphere*, 5(6), pp.1-34.

Keith H, Lindenmayer D, Macintosh A, Mackey B (2015) Under What Circumstances Do Wood Products from Native Forests Benefit Climate Change Mitigation? PLoS ONE 10(10): e0139640. doi:10.1371/journal.pone.0139640

Mackey, B., Keith, H., Berry, S.L. and Lindenmayer, D.B. (2008) Green carbon: the role of natural forests in carbon storage. Part 1, A green carbon account of Australia's south-eastern Eucalypt forest, and policy implications. ANU E Press

Moomaw, W.R., Masino, S.A. and Faison, E.K., 2019. Intact Forests in the United States: Proforestation Mitigates Climate Change and Serves the Greatest Good. *Frontiers in Forests and Global Change*, 2, p.27.

New South Wales Auditor General (2019) Managing Native Vegetation. Performance Audit.

Noormets, A., Epron, D., Domec, J.C., McNulty, S.G., Fox, T., Sun, G. and King, J.S., 2015. Effects of forest management on productivity and carbon sequestration: A review and hypothesis. *Forest Ecology and Management*, 355, pp.124-140.

Pugh, D (2020) [Proposed Sandy Creek Koala Park](#). North East Forest Alliance.