North Coast Environment Council Inc.

March 2, 2018

Submission for the RFA review

By email: forestry.policy@epa.nsw.gov.au

Dear Mr Waller,

We and our colleagues in the North East Forest Alliance have been working on north coast forest issues for decades. Our organisation was formed in 1977 and the North East Forest Alliance in 1989. In many ways we have been fundamental to the progress of forest policy, engaging in legal action across a span of some 30 years to force governments to consider environmental issues in forestry decisions.

It is shocking to us, that more than 40 years later, the NSW Government is proposing more intensive logging than has ever been seen on the north coast. This comes with mechanisation. The feller with the chainsaw is no more. The mechanised harvester finds it easier to manoeuvre if it takes out everything. There has been a complete lack of transparency about the intensification agenda. But we know it involves introducing massive clearfells of 50-80ha. Much larger than those being carried out in Victoria and Eden.

Forestry Corporation began stealthily introducing intensive logging in 2007 when they reinterpreted and redefined selective logging to enable clearing. It has been rolled out across the landscape since then. Despite the EPA and the Minister for the Environment having responsibility for compliance they have refused to take action to deal with the devastation, instead hiding behind the line that silviculture is a 'non-licenced term' and that there are no constraints on the intensity of logging under the IFOA and thus the RFA. This is despite claims in various official documents that the EPA is responsible for compliance with the non-licence terms and that the Minister can take legal action to enforce them.

This is the backdrop to these so-called reviews, which are late. Too late. And inaccurate, shoddy, misleading to the point of being fraudulent.

The Commonwealth and State Governments have already decided to renew the RFAs indefinitely. They propose a 20 year extension to be 'rolled-over' every 5 years.

In any genuine process, the reviews would be conducted, submissions sought and the reviewer would be given the opportunity to consider the information without any conclusion being provided by those being reviewed! However in this case both Governments have made public statements to the effect that regardless of the outcome of the review the RFAs will be extended.

Whatever parameters they put in place for measuring the success of these new RFAs will be the same ineffective style of milestone that is in the current RFA. Ones that enable Governments to

deem/state compliance or implementation while providing no evidence for the assertion.

There is no better example than the response to Recommendation 3 of the first five-yearly independent review.

RECOMMENDATION 3

The Parties consider initiating a further review process as soon as possible to meet the agreed RFAs second review time requirements and;

1. **these reviews focus on progress with milestones due to commence in the second 5 years of the RFAs, actions underway from the first 5 years, and**
2. **indicators that are considered critical to the success of the RFAs is areas such as reserve management, species protection (including pest animal and weed management), management planning and wood supply estimates.**

It was clear that the reviewer saw a need to immediately get the review timeline back on trach and to focus on the areas of reserve management, species protection... and wood supply estimates. The Government response was to ignore that recommendation, instead committing to the next review in 2014. But, true to form, a further 3 years passed. So the second five-yearly review, an opportunity to really get to terms with the specifics of species protection and wood supply, was dropped and instead rolled in to the third five-yearly review, which is also late.

In effect, this recommendation was ignored. Had information been provided in a timely way as required under the Act and as per the RFAs, the problems that have emerged, that many described in submissions to the initial review, might have been acted upon. Overall, the whole process has failed to collect the most basic information on which to inform decision making and has been a tick the box exercise. However even the box ticking has been lied about. It is a very poor review that takes such assertions on face value, and yet we recognise insufficient time has been provided for the reviewer to check all the undocumented assertions.

We are of the view, that this failure of accountability, renders the actions taken under the RFA illegal. It also demonstrates the blatant disregard for the regulatory framework held by the government authorities. They only implement the sections of the licences and agreements that suit them. This is an abuse of process and denies us procedural fairness.

In NSW, third parties such as ourselves, have had our third party legal rights removed. We were told that the EPA would be the regulator. This too was a lie. The EPA now has a reputation closer to lapdog. And not just for forestry. We have seen across a whole range of its areas of responsibilities, from pollution and noise control, waste management etc, that the EPA has been captive of the industry it regulates. In part this has no doubt been due to a lack of Ministerial support and because its Board was rendered ineffective, when the Chair was given the position of CEO.

The Department website actually says “The NSW and Australian governments are required to review the RFAs every 5 years to assess progress regarding ecologically sustainable forest management.”

Like the rest of the review document, there is lots of fiction dressed up as fact. Given that the Governments were required to carry out reviews to assess progress regarding ecologically sustainable forest management, and they haven't, how can we have confidence in any of the material presented in the review document?

As far as this current consultation is concerned, most of the consultation period was over the xmas holidays which is notorious for government consultations when you hope people aren't paying attention.

Our review process

Recommendation 10 from the five-yearly review was "That the NSW Government should continue to give priority to audit and compliance activity by each agency involved in the RFAs and that auditing be closely scrutinised as part of the NSW Review.

According to the current Review, this has been 'fully implemented'. What a joke.

Over the last decade, several community groups, many including professional ecologists, have undertaken independent audits of forestry activities. Some of these audit reports can be found at http://www.nefa.org.au/audits. What they demonstrate is that logging is breaching the licence conditions all the time. There are thousands of breaches documented and this is the tip of the ice-berg, given that many relate to habitat tree damage which seems to be standard practice. The potential (likely) long-term impact of these breaches is that the forests become uninhabitable for the dozens of species that depend on tree-hollows for nesting and breeding. By removing these niche habitat components from the landscape, a pseudo-plantation forest is being created. The phrase 'pseudo-plantation' was how it was described by former CEO of the EPA Barry Buffier.

Breach reports have been submitted for dozens of public forests including: Barrington, Boambee, Brothers, Bulga, Cherry Tree, Clouds Creek, Double Duke, Ellis, Gibberagee, Gibraltar Range, Girard, Gladstone, Glenugie, Grange, Kerewong. Koreelah, Lansdowne, Lorne, Marengo, Moogem, Mt Mitchell, Myall River, Newry, Nymboida, Orara, Pine Creek, Richmond Range, Royal Camp, Styx, Sugarloaf, Tabbimobile, Tamban, Tucker's Knob, Wallingat, Wang Wauk, Wedding Bells, Wild Cattle Creek, Yabbra and for private forests in Bulga, Hewittville and Whian Whian.

The unanimous view of those who have given their time to participate in these audits is that their efforts have led to no on-ground results. The only outcome seems to be 'Official Cautions', this despite the fact that many offences have occurred multiple times in multiple locations. Many of these, and others from Southern NSW were documented in a report prepared by the Environmental Defenders Office – If A Tree Falls- Compliance Failures in the Public Forests of NSW.

It is not just our view, that Forestry Corporation is a serial offender. Justice R Pepper in her judgement on June 8, 2011 in Dept. of Environment, Climate Change and Water v Forestry Commission of NSW, stated : 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.

The answer to this problem was for the restructured responsible department, the EPA, to not engage in legal action. It has even stopped issuing Penalty Notices.

It is hard not to believe that the EPA adopted their position of not issuing Penalty Notices for political reasons. This position enabled Forestry Corporation CEO Mr. Roberts to state in response to questions at NSW Parliament Budget Estimates (6 September 2017) that they had a clean record, leading to this exchange:

> **Mr ROBERTS:** We did not have any penalty infringement notices served on us in the last financial year.
>
> **Ms DAWN WALKER:** None?

Mr ROBERTS: None.

The Hon. GREG PEARCE: Excellent management.

The Hon. RICK COLLESS: Good work.

The Hon. GREG PEARCE: Great Minister.

In December 2016 the EPA only issued an official caution for 7 breaches of the TSL and 40 alleged breaches of the Environment Protection Licence that had been identified by NEFA in Cherry Tree State Forest. One of the offences was for a failure to retain the required number of hollow bearing trees. The EPA assessed just one of 3 compartments and "concluded a net deficit of approximately 172 hollow-bearing trees". We were shocked that the EPA considered the unlawful removal of so many key resources, or any of the other offences, did not even warrant a single Penalty Notice.

More recently, in December 2017, the EPA communicated to the President of the North East Forest Alliance, Dailan Pugh OAM, that some time ago they decided to no longer issue Forestry Corporation with Penalty Notices for breaches of the Threatened Species Licence (TSL) as the $300 fines were too insignificant a penalty. (This was stated in a verbal briefing between EPA, Dailan Pugh and Nina Lucas of the Environmental Defenders Office.

In their December 2017 meeting with NEFA the EPA identified that they had recorded 122 habitat trees that had either their canopies or trunks damaged during logging and/or had logging debris left around them in contravention of the TSL. It is assumed that, as NEFA found, the trees that suffered significant damage at the time of the logging operation were hit by machinery or logs being moved by machines, or had trees felled on them knocking out crowns, breaking branches and damaging trunks. Similarly it is assumed the debris around trees was from tree heads and branches of felled trees.

Tree damage caused during logging can be readily proven by machinery tracks, stumps, positions of tree heads, forester's log books, timber records and the like. It has to be assumed that if anyone else entered a logging operation while logging is underway (even if not active at the time) and began driving around on a machine and cutting down trees that someone would notice or their movements would be picked up on security cameras. When logging is completed in each area snig tracks are drained and roll-over banks installed, making it obvious if anyone else attempts to enter the area with a machine. Given this, it has always been accepted in the past that the Forestry Corporation (or their contractors) are responsible for breaches that occur in logging operations. Most of NEFAs previous complaints that have been verified have been determined on this basis.

NEFA was thus shocked when the EPA told them that their finding of damaged habitat trees and debris around them was only circumstantial evidence and because Forestry Corporation didn't admit to a single one of the habitat tree breaches the EPA could not be sure that an unknown person hadn't committed the offences.

The EPA letter (Jackie Miles, 1-12-17) states:

> *Although it is likely the damage to the trees and the debris were as a result of harvesting operations, the EPA would be required to prove beyond reasonable doubt that each individual instance of damage or debris was as a result of an action by those undertaking the harvesting operation. The investigation was unable to obtain evidence that satisfied this requirement beyond a reasonable doubt nor could it obtain evidence that would rebut a defence that the damage was caused by some other means.*

This is a change in position by the EPA as it effectively means that for similar offences in the future, unless the Forestry Corporation admits to the offences then the EPA will take no regulatory

action. This was confirmed in discussions about NEFA audits for Sugarloaf State Forest, Gladstone State Forest and Gibberagee State Forest that NEFA is waiting for the EPA to respond to. It was clear that the EPA will again deny most of our complaints unless FC admits to them.

We have asked whether the Forestry Corporation has developed guidelines as a Model Litigant, which State Owned Corporations are encouraged to do, and found the answer to be no.

The EPA's reaction to the other issue of roading and logging the Endangered Ecological Community (EEC) Lowland Rainforest was similar. They said they could not determine beyond reasonable doubt that it is Lowland Rainforest, this is despite both the EPA and the Forestry Corporation undertaking a joint mapping project last year that identified 116ha of Lowland Rainforest within these compartments. NEFA's review of that mapping identified 33 incursions into mapped Lowland Rainforest affecting 4.5 ha. While NEFA accepts that the definition of some stands with eucalypt emergents may be debatable, it believes the presence of Lowland Rainforest is beyond doubt in most areas. Most of the rainforest has been mapped as such by the Forestry Corporation in the 1960s and as part of the CRA in 1998. The EPA told NEFA they had two experts visit the site, claiming in writing (Jackie Miles, 1-12-17) that "the experts provided varying views on the identification and determination of EEC which indicated the difficulties in proving these areas were in fact EEC". While NEFA accepts that there could be varying interpretations near the margins, it does not accept that suitably qualified experts would disagree about the core areas. It appears likely that the EPA have misrepresented the evidence to justify their refusal to prosecute the offence.

NEFA's review of the EPA's and Forestry Corporation's 2016 mapping of EECs identified 142ha of Grey Box-Grey Gum Wet Sclerophyll Forest within the Cherry Tree compartments, The review used Landsat imagery to identify that 50ha of Grey Box-Grey Gum Wet Sclerophyll Forest was heavily logged (>50% canopy removal and bared ground) with up to another 40ha subject to logging operations.

The EPA say they won't do anything about the 90ha of the EEC Grey Box - Grey Gum Wet Sclerophyll Forest that was logged because they have a Memorandum of Understanding with the Forestry Corporation not to use their mapping of it as a 'backward looking compliance tool', this is despite NEFA identifying numerous breaches within it before the EPA mapped it.

The EPA take a narrow-interpretation of the MOU between the agencies (3 May 2017), which states:

> *The EPA will not use the certified products to conduct a backwards-looking review of forestry operations that occurred prior to product certification by the Chief Environmental Regulator of the EPA. Notwithstanding this, the EPA will not be prevented from taking any form of regulatory action for instances where specified forestry operations in a TEC has occurred as defined by the NSW scientific committee determination and the offence provisions under s118A or 1180 of the NPWS Act 1974.*

With numerous breaches confirmed to have occurred within this EEC it is considered that the EPA failed their duty by not considering that the breaches occurred within an EEC when considering appropriate penalties. For the EPA not to make any mention of this EEC in both of their responses to NEFA displays a deliberate ignorance.

The EPA in their audit, identified 122 habitat trees that had either their canopies or trunks damaged during logging and/or had been surrounded by logging debris. And that while these are legal breaches of the TSL, and could have been the subject of a prosecution the EPA were not going to prosecute. Alternatively, each breach could warrant a $300 PIN, but they decided they were not

going to issue the PINs because Forestry Corporation weren't prepared to take responsibility for the damage and the EPA said they could not prove the damage was done by the Forestry Corporation.

This beggars belief. Forestry Corporation logs an area of forest, during which numerous trees valuable to the conservation of threatened species are damaged and the EPA says it can't fine them because someone else could have come in with a bulldozer during the night and damaged the trees!! Extrapolating the limited data we have suggests there are probably tens of thousands of habitat trees being damaged each year. No studies are done on their mortality or on how many survive until the next logging event.

Forestry Corporation knows that the EPA are not going to prosecute and are not even going to issue them with PINs, so they don't need to worry about breaching the Act. The public can't enforce the law.

The most frequent breaches that have been identified are:

- Failure to mark up exclusion zone boundaries
- Failure to complete koala surveying
- Failure to observe outcrop exclusion zones
- Failure to retain recruitment and habitat trees
- Logging within stream exclusion zones
- Piling of debris around habitat trees
- Breaches of reporting requirements under the FNPE Act

It would be worthwhile for the reviewer to look at how many breaches of these licence conditions were self-reported by FCNSW, how many were identified by EPA, and what the consequences have been (other than Official Cautions). This information is pertinent to whether ESFM is being carried out.

Only this week Feb 28, an EPA response to a breach report was received that said the following...
" **EPA investigation findings and regulatory response- issued FCNSW with an official caution** EPA found that FCNSW failed to include three (3) RSB [Rufous Scrub Bird] records and associated protection zones at 2 locations on the harvest plan map and from the harvest plan document. EPA issued FCNSW with an Official Caution for not complying with BCL condition 3a). This was a breach of section 2.14(4) of *Biodiversity Conservation Act 2016*"

The letter goes on to say "EPA will monitor post-harvest areas to determine whether FCNSW protected that area as intended."

So FCNSW once again – this is a serial offence that has been reported on at least 3 other occasions, where records of a threatened species: Atrichornis Rufescens -Rufous Scrub Bird- have not been marked on harvesting plans and thus no protection areas were delineated. Interestingly, the poor old Rufous Scrub Bird has been left off the list of Threatened Species in the RFA Review Table 67. So there is no information to tell readers that according to a Birds Australia Fact Sheet published in 2011, in 1990 it was considered an animal of Least Concern and is now it is considered a Bird in Danger, with an IUCN conservation status of Endangered, although in NSW it is listed as Vulnerable.

NSW Fisheries are also responsible for compliance for threatened fish. In early 2017 it became apparent to us that despite FCNSW being made aware that they needed to leave stream buffers on catchment headwater streams that were habitat for the Purple-spotted Gudgeon, they had failed to do so. Again, conservationists were forced to obtain the relevant documents via Freedom of Information (GIPA). Fisheries (part of Department of Primary Industry, sat, until recently under the

same Minister as FCNSW) unsurprisingly, had failed to follow up on the implementation of the required protection areas, and when informed that it wasn't happening began 'investigating'. As with most investigations of Forestry activities, it seems to have disappeared down a black hole.

For documentation and links to substantiate these claims visit:
http://www.nefa.org.au/media_releases
There you will find 50+ examples of logging breaches, poor regulation, threatened species decline etc.

These are just a couple of examples to illustrate the point, that the assurances being made in the review document and not based on fact.

Climate Change

The most glaring omission from the Review and the original RFA has always been climate change. While governments pay lip-service to the need to take action on climate change it is clear from the almost complete lack of action that they have paid little attention to the warnings that scientists have been issuing for more than 20 years.

At the time of the CRA we raised with various Government ministers, including John Faulkner, then Federal Environment Minister, the need to consider climate change as part of the CRA. Our voices were ignore. As a result there has been no assessment of the climate change impacts on forests, forest-dependent species, fire risk, carbon sequestration, carbon loss, hydrology etc.

And yet in the 20 years since the Comprehensive Regional Assessment there is abundant evidence that climate change is happening at speed clearly discernible in our lifetimes. If our governments understood and took seriously the threat of climate change, it would be a consideration in all decision-making, because it is clear it is likely to cause social, economic and environmental disruption on a scale not seen since the advent of industrial society.

Climate change received no attention in the RFA. But it is a factor that should have been considered in the period since. If the RFAs were responsive and able to deal with changing circumstances, then climate change would have been raised, and assessments done of potential, possible, likely and definite impacts.

We know that climate change is affecting weather patterns including rainfall and temperature. Wouldn't genuinely ESFM be attempting to assess and even predict what impact this might have on:

- The growth rate of different tree species?
- The abundance of insects as a food source or as a pest? (lest we forget the impact of the Pine-bark beetle in Northern America)
- Pollination processes?
- The habitat niches of specific species?
- Erosion potential? (We already see an increase in frequency of intense rainfall events)
- The adequacy of existing erosion assessments and erosion mitigation measures?
- Carbon sequestration potential of various tree species?
- Hydrological patterns?
- Bushfire risk?

That we are aware of there has been no work done to determine answers to these questions and yet they are fundamental to maintaining the health of forest ecosystems and forest-dependent species. A study of the industry publications and research papers at the back of the Review, reveals that there

has been a dearth of publication on any science since the RFA, with most of it dated prior to 2000, and since then, there is not one with climate change in the title.

The assessor's report from the five-yearly review noted “a key issue raised in the majority of submissions was climate change or more particularly, the fact that the Draft Report does not consider climate change. As indicated previously RFAs were negotiated in a “pre climate change” environment and consequently could not feature in the Draft Report. This is not to deny that climate change is a major issue. However any forest-related climate change matters must fall into the broader climate change policy consideration by both the NSW and Commonwealth governments. Impacts on the RFAs will need to be considered in that process.” This hasn't happened. And those same Governments have announced an intention to extend the RFAs with still no climate change consideration.

It is not possible to claim **Ecologically Sustainable Forest Management**, in the absence of climate change considerations. It is interesting to note that FCNSW no longer produce ESFM reports but Sustainability Reports. It is fitting that they have dropped 'ecologically', because they have always ignored the 'eco' in the system

In order to adequately assess the effectiveness of the RFAs; the degree of implementation of ESFM the degree to which the RFAs have resulted in an economically stable timber industry; and the social and economic performance of the RFAs, the the right questions need to be asked; adequate data presented and analysed and a decision on future forest management based on the outcome.

Some of those questions could be:

1. What are the population estimates of threatened forest species (e.g. large forest owls; spotted-tail quolls; greater and yellow-bellied gliders; koalas etc) in production forests now compared to immediately after the Comprehensive Regional Assessments?
2. How have the threat listings for forest species changed over the life of the RFAs?
3. Has the accreditation of logging via the Commonwealth *Environment Protection and Biodiversity Conservation Act* (EPBC Act) resulted in equivalent protection for threatened species?
4. What is the extent of bell-miner associated dieback in NSW’s forests and how can it be rectified?
5. What proportion of the CAR reserve network of Forest Ecosystems is still outstanding; what is the condition of these areas and how much funding is required to complete the network?
6. What has been the change in tree hollow density in production forests over the life of the RFAs?
7. What has been the change in forest age structure in production forests over the life of the RFA. [Note that this last question is a reporting requirement under the Montreal Protocol that FCNSW have failed to supply data for other than the original CRA figures]

Threatened Species

Ecologically Sustainable Forest Management, a key objective of the RFA, requires Forestry activities to maintain or increase the biological diversity of forests. The ESFM Principles also says the 'requirement of vulnerable species [be addresses], assist with the recovery of threatened species and maintain the full range of ecological communities at viable levels.

There is no way the reviewer can determine whether this has been done when there has been no assessment of the current state of forest-dependent threatened species and how they have been impacted by logging over the last 20 years. We have a snapshot of their presence and population modelling from the 1990s. Has that changed? Are species that were present in any given area prior

to logging still there 5 or 10 years later?

On numerous occasions over the last 15 years we have raised the need of both Forestry Corporation and the Environment Department, to undertake monitoring to determine whether the various logging prescriptions aimed at lessening the impact of logging on specific threatened species actually achieve their aim. We have suggested that by re-surveying areas that were previously surveyed and then logged, at intervals post-logging, would provide information as to whether species present prior to logging, persist in the landscape after logging and whether there is a noticeable difference in the number of individuals recorded.

Yet not one research project has been conducted or paper written about this. (see list of technical papers, research projects etc provided at the end of the Review bibliography.)

Recommendation 8 from the first assessor's report said...
In future reviews the Parties should provide more information about development of various threatened species recovery plans to allow an assessment of the adequacy of progress in the management of threatened species as it relates to Milestone 23.

Far from providing more information, the review provides less. Tables 66 and 67 in Appendix I have a short statement about whether there is a recovery plan or conservation advice in place. There is no information as to the adequacy of those plans. The Tables themselves are inaccurate with species missing such as Atrichornis Rufescens, and the range of many species not properly described. The Koala for example, is not listed as occurring in NE NSW. This lack of thoroughness typifies the way the RFA system deals with threatened species.

Several examples of many, underscore the inadequacy of threatened species management in RFA auspiced forestry activities.

Since the advent of the RFA the Koala has been federally listed as Vulnerable. In NSW scientists are of the view that the koala population is in decline. In northern NSW it is estimated to have halved over the last 20 years. This is not surprising, as a 2017 assessment by the North East Forest Alliance showed that the much of the most intensive logging, (maps had to be obtained via a Freedom of Information application) is occurring in forests that the DPI Koala Habitat Modelling project has identified as High Quality Habitat.

"The principal findings of the assessment are that:

- Within the 103 State Forest compartments currently being actively logged on public land in north east NSW there are 4,663 ha of modelled high quality Koala habitat and 357 Koala records.
- The identified protection for Koalas in current logging entails 2 Koala High Use Areas totalling 1.2ha from which logging is excluded and the identification of 15% of the high quality habitat as "Intermediate Use Habitat" where 5 feed trees of any size are required to be retained per hectare. This is mere tokenism.
- Thirteen of the 20 current logging areas with >17% high quality Koala habitat are being targeted for logging intensities (regeneration and heavy Single Tree Selection) involving up to 60-86% basal area removal in blatant contravention of the Integrated Forestry Operations Approval (IFOA's) limit of 40% basal area removal.
- During the period when it was practiced from 2000-2010 over 10,000ha of forests in the Lower North East region were allocated to Australian Group Selection patch clearfelling, incorporating 6,460ha of high quality Koala habitat, despite a prohibition on the use of AGS in "intermediate" Koala habitat.
- Since 2006 in the Lower North East region. the Forestry Corporation have subjected 74,906 ha to the

unlawful logging practices of 'medium', 'heavy' and 'regeneration' Single Tree Selection involving 41-100% basal area removal. This is comprised of 23,742 ha (32%) of high quality Koala habitat and 717 Koala records.

- Of the unlawfully logged area, 23,340 ha has been subjected to 'heavy' and 'regeneration' STS, comprised of 39% high quality Koala habitat, in what amounts to clearing and conversion to quasi plantations.
- Over the past 10 years the Forestry Corporation have progressively and unlawfuly converted half of the logging area of the proposed North Coast Intensive Zone in the Lower North East Region to "quasi plantations", with the proposed zoning to give retrospective approval.
- There have been no records of Koalas from 41% of the current logging areas encompassing high quality Koala habitat, and no records for at least the past 9 years in 12% of the areas. Records over the past 20 years indicate that Koalas are in decline across State Forests.

More than 23,000ha of High Quality Habitat has been destroyed! Hardly consistent with an adequate Koala Recovery Plan! The reviewer may want to consider whether management of this species has been in accord with the Principles of ESFM. There is only one answer.

A second example is the Onion Cedar, Owenia cepiodora. This Vulnerable species has a National Recovery plan and is meant to be Site-managed.

The Recovery Plan states *"The population of Onionwood in NSW is known to consist of about 40 mature individuals and at least 400 immature individuals, including seedlings."* It acknowledges that logging is responsible for nearly wiping out this species: *"The main identified threats to Onionwood include habitat clearing; weed infestation; and stochastic events. The current low population is attributable to heavy logging in the past (Floyd, 1989; Sheringham & Westaway, 1995)."*

And goes on to list a number of *"priority recovery and threat abatement actions [that] can be done to support the recovery of Onionwood.*

Habitat Loss, Disturbance and Modification

- *Monitor known populations to identify key threats.*
- *Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.*
- *Identify populations of high conservation priority.*
- *Manage threats to areas of vegetation that contain populations/occurrences/remnants of Onionwood.*
- *Ensure chemicals or other mechanisms used to eradicate weeds do not have a significant adverse impact on Onionwood.*
- *Control access routes to suitably constrain public access to known sites on public land.*
- *Suitably control and manage access on private land.*
- *Minimise adverse impacts from land use at known sites.*
- *Investigate formal conservation arrangements such as the use of covenants, conservation agreements or inclusion in reserve tenure.*

A NEFA audit at Cherry Tree State Forest states "The vulnerable Onion Cedar is the only

threatened plant recorded in this part of Cherry Tree SF, the rules require that *"an adequately trained person must conduct a thorough search"* for it ahead of roading and logging, and that any found are protected with a 20m exclusion zone. With its large pinnate leaves it is readily identifiable, particularly here, as many were young trees with leaves at eye-height, yet the Forestry Corporation constructed a road within what should have been buffers for over 26 vulnerable Onion Cedars, physically damaging at least 4 in the process, leaving debris around others, affecting the microclimate and leaving survivors vulnerable to weeds and burning. It is likely that many more were killed and bulldozed into the piles of debris. The Forestry Corporation obviously did not bother looking before they logged."

NEFA audits can be found at http://www.nefa.org.au/audits

The Onion Cedar destruction was not the only breach found during the audit of only a part of Cherry Tree State Forest. A summary of the audit provides a concise picture of FCNSWs reckless disregard for Threatened Species protections. "**NEFA has documented that the Forestry Corporation of NSW have breached the Environment Protection and Biodiversity Conservation Act by not abiding by a national recovery plan, the National Parks and Wildlife Act by roading and logging the Endangered Ecological Community Lowland Rainforest, as well as committing breaches of 4 conditions of the Integrated Forestry Operational Approval, 41 conditions of the Threatened Species Licence, 19 conditions of the Environment Protection Licence, 7 conditions of the Fisheries Licence and numerous conditions of their own Harvesting Plan."**

This is particularly relevant to Recommendation 10 from the Assessor's Report which said in the preamble to the recommendation "It needs to be acknowledged that the outcomes of the auditing/compliance process attracted considerable and largely adverse comment from public submitters. Much of the criticism relates to the lack of any prosecutions. Good compliance systems will always have the capacity to resort to action before the Courts. However they involve a whole suite of activity ranging from information and advice, to warnings, restoration and ultimately prosecution and made good provisions. The lack of prosecution does not necessarily mean the system is not working. It is certainly not possible for the Independent Assessment to comment on whether Court action should have proceeded in any particular case as this requires a case by case, legally forensic analysis of the facts. Nevertheless it would seem that this issue needs careful consideration as part of the NSW Review as it is a multi agency undertaking which presumably is central to that review.

With another decade of experience it is clear that there is no adequate system for monitoring, audit and compliance that is followed up with and kind of enforcement. Thousands of breaches might result in an Official Caution. Occasionally Penalty Notices are given, but as mentioned earlier in this submission, the EPA is now claiming they can't give Penalty Notices for logging damage in a closed forest area 'because someone else might have done it' and Forestry Corporation refuse to take responsibility.

Since the previous review and the advent of the RFAs the Greater Glider, *Petauroides Volans* considered common in 2000, was federally listed as a Vulnerable species in May 2016. The Commonwealth Conservation Advice makes it clear that the Greater Glider "shelters in tree hollows, with a particular selection for large hollows in large, old trees.." " The Greater Glider favours forests with a diversity of eucalypt species..." "In the Grafton/Casino FMA, the greater glider was absent from surveyed sites with fewer than six tree hollows per hectare.." 'The greater glider is considered to be particularly sensitive to forest clearance... and to intensive logging..."

The section of the Conservation Advice that lists Timber production as a Threat with a severe

Consequence Rating is illuminating. It says “Prime habitat coincides largely with areas suitable for logging; the species is highly dependent on forest connectivity and large mature trees. Glider populations could be maintained post-logging if 40% of the original tree basal area is left (Kavanagh 2000); … There is a progressive decline in numbers of hollow-bearing trees in production forests as logging rotations becomes shorted and as dead stages collapse (Ross 1999; Ball et al,. 1999; Lindenmayer et al., 2011).

Several things are striking about this. Firstly conservationists have raised the need for habitat tree mortality to be factored in to tree retention rates. The ludicrous rule, that only one tree is retained to replace a maximum of six habitat trees per hectare, if they still exist, have meant as the scientists state there is a progressive decline in hollow-bearing trees. ESFM if properly conducted would have acknowledged that habitat or hollow-bearing trees are a limited resource that cannot be replaced in our lifetime and should be left in place.

This fact was acknowledged in 2007 when the submission of Barrie Griffiths to the NSW Scientific Committee resulted in the listing of The Loss of Hollow-bearing Trees as a Key Threatening Process, because it (a) it adversely affects threatened species, populations or ecological communities, or (b) could cause species, populations or ecological communities that are not threatened to become threatened.

Secondly, the redefinition of selective logging that has been done by the Forestry Corporation, which sees 40% of a harvest area cleared, is an abuse of the basal area retention rules and will be having a devastating effect on any persisting Greater Glider populations. The explanation of how FCNSW have rorted the Single Tree Selection rules can be found in the NEFA report. Clearing Koalas Away.

So despite the Greater Glider moving from Common to Vulnerable; and the listing of the Loss of Tree-Hollows as a Key Threatening Process; during the life of this RFA, nothing has been done by either FCNSW or EPA to increase protection for the Greater Glider. In fact they didn't even bother to list it in Table 67 of the Review!

Then there is the Spotted-tailed Quoll Dasyurus maculatus. Now nationally listed and it even has a National Recovery Plan (May 2016) . Objective 4 is “Evaluate and manage the risk posed by silvicultural practices.” Action 4.1 is 'Develop guidelines on minimum habitat requirements that can be used to direct the formation of habitat retention prescriptions or other requirements in commercially harvested forests.

“Performance criterion: Habitat retention guidelines produced.

“Habitat retention guidelines for timber production forests where Spotted tailed Quolls are known to occur will be developed based on a review of current information on the biology and ecology of Spotted-tailed Quolls, e.g. habitat and area requirements, life history parameters such as seasonality of breeding, and weaning and dispersal of young, and preferred prey. These guidelines will assist forestry planners in revising and/or developing habitat retention prescriptions or other requirements.”

“The Implementation partners include the Office of Environment & Heritage NSW. The Priority for this action **: High.”**

Almost 3 years on and there are still no habitat retention guidelines. Like the Koala, the Spotted-tailed Quoll has not been listed in Table 67 as occurring in NE NSW. No doubt other species were also left out.

There really are too many examples. And we all ask ourselves -what is the point of documenting these things when the decisions have already been made.

Which leads to the transparency and accountability aspects of ESFM. But first the case of the disappearing Forest Ecosystems.

Disappearing Forest Ecosystems

The NSW Comprehensive Regional Assessment (CRA), technical working groups (TWG) were established containing the best available scientists and stakeholder representatives. Their role was to address the implementation of NFPS requirements including for Forest Ecosystems: their definition, delineation and interpretation of conservation requirements from the NFPS and JANIS.

Meeting reports recorded the deliberations of the TWGs and technical reports recorded the implementation of the TWG outcomes . The RFAs recorded the outcomes for the conservation status achieved for each Forest Ecosystem and for old-growth for each Forest Ecosystem. The RFAs also recorded priority Forest Ecosystems for further conservation initiatives on private forested lands.

The mapping process was done at the sufficiently fine scale to be able to identify the various types of understorey under dominant tree species. As can be seen by the following table excerpt from the RFA.

Table 1. Percentage reservation status of Forest and Non-Forest Ecosystems in the CAR Reserve System in the Upper North East region based on vegetation modelling to establish the pre-1750 extent of Forest Ecosystems in the region[a]

Forest Ecosystems[b]	Area		Percent Remaining	Status[c]	Percent of Forest Ecosystem (pre-1750) extent in the CAR Reserve System		
	Pre 1750 (ha)	Current (ha)			Dedicated Reserves	Informal Reserve[d]	Prescription[e]
27 Coastal Sands Blackbutt	4518	3101	68.6	-	63.0	0.0	0.1
32 Dry Foothills Blackbutt-Turpentine	9370	7364	78.6	-	8.1	1.8	3.1
34 Dry Grassy Blackbutt-Tallowwood	9880	6052	61.3	-	9.8	0.4	3.4
37 Dry Heathy Blackbutt-Bloodwood	75580	46630	61.7	-	8.4	6.6	2.6
40 Dry Heathy Sandstone Blackbutt	20939	19036	90.9	-	25.2	5.9	3.0
72 Low Relief Coastal Blackbutt*	1574	859	54.6	R	9.1	0.6	0.6
83 Mid Elevation Wet Blackbutt	1333	1180	88.5	-	45.2	8.5	5.9
95 Northern Moist Blackbutt	10897	9101	83.5	-	37.3	0.9	0.9
101 Northern Open Grassy Blackbutt	30488	21590	70.8	-	14.0	2.6	1.3
155 Wet Foothills Blackbutt-Turpentine	8219	7437	90.5	-	16.0	4.6	4.9

To all participants the use of Forest Ecosystems, through their adopted descriptors, generally allowed understanding of the form and composition of the dominant overstorey species and often understorey species of each ecosystem. They were described in a way that could be easily translated to the a patch of forest in the field. See below for example, details of ten Forest Ecosystems from the Upper North East region which contain Blackbutt as a dominant species as reported in the NE RFA in 2000.

The CRA processes went on to assemble and analyse some of the best forest botanical databases and Forest Ecosystem classifications ever put together in Australia (and the World) – in North East

NSW they included over 3000 vegetation survey plots and similar data levels for Southern NSW.

But for some inexplicable reason, in the second and third five-yearly report, Forest Ecosystems have disappeared to be replaced by Mitchell Landscapes. A fine highly descriptive mapping output, has been replaced by a much inferior product that was not designed for forest assessment, identification or reporting.

There are NO equivalent communities or ecoystems that can be readily determined from the Mitchell Landscapes.

Instead we are fed a lot of waffle about how they can provide an 'indication of progress' and be 'surrogates for regional ecosystems'. So the agencies have dumped a world-class product and replaced it with something totally unfit for purpose. We need to be able to compare like with like. By removing reporting against Forest Ecosystems, a massive obfuscation exercise is being conducted.

The National Forest Policy Statement NFPS states clearly that planning (and reviewing!) conservation measures at the forest ecosystem scales is an unambiguous tenet of that document. Its Specific Objectives and Policies section says “The protection of the full range of forest ecosystems and other environmental values is fundamental to ecologically sustainable forest management.”

There is much dismay among skilled botanists and ecologists that all the excellent work in developing the Forest Ecosystem classification and fine-scale mapping has been discarded.

The Mitchell landscape layer was developed 20 years ago only as a coarse-level interim environmental layer to report whole-of-state conservation progress for only some conservation programs in the absence of a finer grained whole-of-state layer (just as bioregions and their subregions can be used carefully at a national level).

Mitchell landscapes were determined over predominantly non-forested landscapes, using only abiotic data, with not one forest vegetation survey plot or piece of biological information used in their construction.

It was never envisaged it would be used for RFAs because there were much better products. By disappearing the Forest Ecosystems the Governments can suggest that the conservation picture is better than the reality.

Ecologically Sustainable Forest Management is meant to be implemented at “regional and smaller scales by ecologically appropriate planning and operational practices.” The 'full suite of forest values' is meant to be 'maintained or increased' for present and future generation.

Likewise Governments signed on to “Ensure the long-term maintenance of the full range of values of the NSW existing forest estate. The intention is to maintain or increase not only the full range of values, but also the magnitude or level at which those values are maintained or increased.” To do that, maintaining comparable datasets is absolutely key.

Forest Ecosystems get several more mentions in the ESFM Principles- BECAUSE THEY ARE THE LOGICAL SCALE FOR THOSE PRINCIPLES TO BE APPLIED!

For example: In the Aims for Values to be maintained or increased under ESFM Principle 1, with respect to biodiversity, it says

- *Biological diversity of forests at the ecosystem, species and genetic levels where biological diversity includes natural patterns of ecosystems, species and gene pools in time and space.*

- *Address the requirements of vulnerable species, assist with the recovery of threatened species, and maintain the full range of ecological communities at viable levels.*

With respect to the productive sustainability of forest ecosystems, it says

- *Maintain or increase the ability of forest ecosystems to produce biomass whether utilised by society or as part of nutrient and energy cycles.*

Then there is a whole section on Forest Ecosystems:

Forest ecosystem health and vitality

- *Reduce or avoid threats to forest ecosystems from introduced diseases, exotic plants and animals, unnatural regimes of fire or flooding, wind shear, land clearing and urbanisation.*

- *Promote good environmental practice in relation to pest management.*

- *Ensure the deleterious effects of activities/disturbances within forests, their scale and intensity, including their cumulative effects are minimised.*

- *Restore and maintain the suite of attributes (ecological condition, species composition and structure of native forests) where forest health and vitality have been degraded.*

But now, we're being told that we're not going to measure these values against Forest Ecosystems, Instead, we are being offered something based on 'geologic, geomorphic and pedologic factors'. A product that 'still retains limitations and remains an interim surrogate for regional ecosystmes until a more considered and detailed alternative is developed'!!!

So the Government has discarded the most 'considered, and detailed' work, the result of a remarkable collaborative scientific process using the best floristics experts in NSW in favour of a limited interim surrogate, based on 'geologic...factors'. It's an environmental crime and a breach of the RFA to not report at the ecosystem level. It's also economically irresponsible to have a highly useful product created at considerable expense and then throw it away for something second rate.

Why would they do that? We believe the simple answer is to hide the detail of the damage being done. Because reporting against Forest Ecosystems would be categorical in demonstrating that Ecologically Sustainable Forest Management is not being carried out on the public forest estate in NSW.

There was no process of informing or consultation with key environmental stakeholders before the EPA decided to supplant reporting on Forest Ecosystems to Mitchell landscapes.

The (mis)use of Mitchell Landscapes in this context, in our view, provides sufficient justification to reject the documents prepared by Government and demand that the required reporting against Forest Ecosystems is completed.

It is part of the dumbing down and amalgamation of information presented in the second and third five-yearly review document, in order to hide logging impacts.

Ecologically Sustainable Forest Management

Clause 7 (below) of the RFA is the overarching commitment to all that's contained in the NFPS, to a CAR Reserve system and to ESFM.

B*asis of Agreement – National Forest Policy Statement*

7 The Parties confirm their commitment to the goals, objectives and implementation of the National Forest Policy Statement (NFPS) by:

(a) Developing and implementing Ecologically Sustainable Forest Management (ESFM);

(b) Establishing a Comprehensive, Adequate and Representative (CAR) Reserve System;

(c) Facilitating the development of an internationally competitive wood production and wood products industry; and

(d) Promoting the conservation and management of the private forest estate

Clause 46 (below) links to RFA Attachment 14 which are the specific ESFM promises.

Clause 46

New South Wales confirms its commitment to the achievement of ESFM on Public and Private Land consistent with the principles of Ecologically Sustainable Forest Management at Attachment 14, and to the ongoing review and subsequent implementation of its legislation, policy, plans, Codes and Regional Prescriptions to ensure ESFM objectives can be achieved in a more efficient regulatory environment.

Hollow promises!

A key plank of the RFAs was to 'provide for the ecologically sustainable management and use of forests.' In this the RFAs have completely failed to deliver. Twenty years ago, many conservation organisations, including the North Coast Environment Council, were of the view that if genuine ESFM was carried out, there was a role for logging on the public native forest estate. Our representative worked diligently on the RACAC ESFM Committee, that had oversight of the relevant projects during the CRA. With the benefit of hindsight we were wrong.

The NSW Government and Forestry Corporation clearly had no intention of changing logging practices and introducing the required transparency, consultative and accountability measures.

ESFM Principle 1: Maintain or increase the full suite of forest values for present and future generations across the NSW native forest estate.

The principle of intergenerational equity (that in meeting the needs of the present generation, the ability of the future generations to meet their own needs is not compromised) is embodied in this principle.

Intergenerational equity requires that the condition of the forest does not deteriorate over time, that species don't disappear or decline in abundance. There is no evidence to show that species are being maintained and considerable evidence to suggest that they are not. The Koala being a case in point.

Encourage the increased production of plantation-grown timber and the social and economic benefits flowing from this increased production to supplement the wood supply from native forests.

The plantation encouragement program has been a disaster, mainly because of the rorting that occurred under the MIS. Instead of being grown for timber, the MIS plantations were grown for

pulp. They were planted miles from potential markets, and often with species that were inappropriate for the conditions. Many fell way short of the predicted growth rates. These trees are now being bulldozed and burnt on site or, where they are close to the Port of Brisbane, they are being bulldozed, trucked, and shipped out to the biomass markets of Asia where they will be burnt and make an additional contribution to atmospheric greenhouse gases.

ESFM also requires the protection of *"landscape values through the careful planning of operations and the reservation of appropriate patches and corridors of vegetation."* A project of the NPWS to identify key habitats and corridors for fauna, was dismissed as being not applicable to State Forests and should only be used on private land. It has not been used when considering the approval of Private Property logging approvals.

Forestry is meant to *"Ensure the rate of removal of any forest products is consistent with ecologically sustainable levels."*

The history of FCNSWand its wood supply contracts, is that they are constantly being revised down. This is because they over-estimate the available timber. Almost 20 years on and they still have no effective way of determining timber volumes. The FRAMES system is a white elephant. No doubt in any new RFA they will discard it along with Forest Ecosystems and any other inconvenient concepts.

Ecologically sustainable levels implies that there will be no overall decline in species, soils, forest health, wood volume, water volumes etc. None of these values are being effectively measured so there is no way of asserting that forest product removal is consistent with ESFM. It is our view, that it is not.

Ensure the deleterious effects of activities/disturbances which threaten forests, forest health or forest values are minimised.

There is another section in this submission which discusses BMAD, a result of canopy disturbance aka logging where FCNSW has been recalcitrant, clearly not wanting to acknowledge that is is undertaking an activity that is causing a serious forest health issue. If we had more time we could discuss steep land logging and the failure of the current system of FCNSW, to estimate the likely erosion hazard (according to expert advice provided by a geomorphologist to one of our member groups). And then there is the fragmentation and canopy reduction of forests leading to greater light and heat penetration, resulting in the desiccation of the understorey or any ground cover that remains after logging. This makes the forest more flammable. As outlined in the article by three scientists that can be found here.

The soil and water values that are to be maintained and protected have not been. Those being:

- *Maintain the chemical and biological functions of soils by protecting soils from unnatural nutrient losses, exposure, degradation and loss.*
- *Maintain the physical integrity of soils by protecting soils from erosion, mass movement, instability, compaction, pulverisation and loss.*
- *Protect water quality (physical, chemical, biological) by measures controlling disturbance resulting from forest activities.*
- *Identify and maintain at appropriate levels, water yield and flow duration in catchments.*

Anyone living on a stream or river flowing from an area that has been logged in the last 30 years can provide anecdotal evidence that stream flows are decreasing. This is to be expected as both an outcome of logging and a drying climate.

There are a range of other values that are meant to be maintained which we assert have not been but do not have time to detail in this submission. Yes the review asserts they have. That is the frustration of this process, that Government agencies lie and deceive and have all the time and resources to do so, while the public get a few weeks to comment.

Principle 2 Ensure public participation, access to information, accountability and transparency in the delivery of ESFM.

- *Ensure public participation in decision-making processes at local, regional and State and Federal levels.*
- *Ensure comprehensive, timely and reasonable public access to information.*
- *Ensure transparency, openness and accountability in decision making processes and performance.*

We have spent thousands of dollars in Freedom of Information requests due to the lack of transparency surrounding forestry and its regulation.

Principle 3 Ensure legislation, policies, institutional framework, codes, standards and practices related to forest management require and provide incentives for ecologically sustainable management of the native forest estate.

- *Establish a process for shared management and administration, recognising the customary and traditional rights of Indigenous people, and the interests of private land-holders and other stakeholders in an area's management.*

This hasn't happened. Worse, significant resources have been spent on encouraging private landholders to log their land and there is minimal regulation and oversight of private property logging. A recent example on the far north coast at Limpinwood where locals protested the shocking logging and the lack of care with respect to koala trees etc and submitted complaints to the EPA. The EPA once again issued formal warning letters... that will fix it!

The Private Native Forestry Code of Practice does not require pre-logging surveys, and there are few threatened species records on private land.

The RFA covers all Forestry operations within its area, both public and private, yet there has been no assessment of the impact of logging on private land on threatened species or other values that are meant to be maintained under ESFM. Neither has the Key Habitats and Corridors Report (linked elsewhere) been used to identify private land that plays an important role in habitat connectivity across the landscape, in order for those properties to be targeted for conservation incentives.

The Environmental Defenders Office said in their report on the failure of the RFAs (linked elsewhere): "*The current regulatory system of logging NSW public forests is entirely premised upon ESFM occurring outside of the forest reserve system on public land in accordance with IFOAs and particular licence prescriptions. In effect this premise provided the policy justification to 'turn off' many of the hallmarks of an adequate environmental regulatory system, namely applicable case by case environmental assessment and approval processes (both national and state) and third party enforcement mechanisms.*

"In light of the evidence of systemic breaches and the amount of time that the forestry regulatory system has been privileged outside of a typical environmental regulatory regime, and factoring that biodiversity continues to decline at rapid rates there is a strong case that the regulatory regime ought to be brought back into line with more typical regulatory regimes"

Also relevant to this Principle is the struggle of the Githabul, the Traditional Owners of the forest of the Border Ranges, including some that have been damaged by logging and the ensuing BMAD.. They have been trying to stop logging of the forests on their traditional lands.

Principle 4 Apply precautionary principles for prevention of environmental degradation
The incorporation of the precautionary principle into decision making has been endorsed by State and Commonwealth Governments (Commonwealth of Australia 1992 p. 49, IGAE 1992) and is defined as 'where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:

- *careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment; and*
- *an assessment of the risk-weighted consequences of various options.'*

This hasn't happened. This is surely where climate change comes in. There is no excuse for not having done the work. We've known about the threat for decades.

Principle 5 Apply best available knowledge and adaptive management processes
ESFM would utilise the concept of adaptive management and continuous improvement based on best science and expert advice and targeted research on critical gaps in knowledge, monitoring or evaluation.

This hasn't happened. As stated elsewhere, there has been a decided lack of monitoring of impacts of logging on all species, but specifically threatened species. There has been no targeted research on this topic either. Far from closing critical knowledge gaps, new ones are being opened by failing to report against existing datasets and thus no longer having a baseline.

Forest Health /Bell-miner Associated Dieback (BMAD)

This section was written by Jim Morrison current NCEC President and Conservation Representative and Chair of the Bell Miner Associated Working Group for fifteen years.

Background
Prior to the signing of the current NSW RFAs , NSW Forestry Commission refused to acknowledge the severity of Bell Miner Associated Dieback in the forests of the Upper North East and thus consider or address its impacts in the current RFAs. This was despite information from forest ecologists and lobbying by environment groups about the severity and rapid expansion of BMAD, particularly in the recently logged compartments on the Richmond and Border Ranges NE NSW.

After signing the RFA, Forestry Commission began to acknowledge there was a problem and participated in the BMAD Working Group. The BMADWG was a community driven initiative which was supported by conservation groups and other non government and state government stakeholders for more than fifteen years.

A Forest Health Committee was established under the last NSW RFA's but to our knowledge it has not been active for many years. The BMADWG provided a presentation on BMAD at a Forest Health Committee forum on the South Coast in the early 2000s, yet despite the severity of this forest health problem the so called 'Forest Health Committee' had no correspondence with the BMADWG since then.

The response to most correspondence to the State government regarding what was being done about BMAD was to refer to the work of the BMAD Working Group: a poorly funded group, mostly driven by concerned community volunteers.

The BMAD Working Group

Community concerns were raised about BMAD during consultation about the management of recently acquired reserves in the Kyogle area in early 2000s. In November 2001 the NSW NPWS convened a workshop of representatives from a range of interested Government agencies, Universities, NGOs, landholders, scientists, conservation groups and individuals to discuss and establish a way forward in identifying and managing the dieback issue that became known as Bell Miner Associated Dieback or BMAD.

The workshop resulted in the formation of the BMADWG which had an active membership of representatives drawn from:

- NSW DECCW (Dept. of Environment, Climate Change and Water);
- NPWS;
- Forests NSW;
- North Coast Environment Council;
- North East Forest Alliance;
- Richmond Landcare;
- Northern Rivers Catchment Management Authority;
- NSW Apiarist Association;
- Local Landholders;
- Aboriginal Community;
- Private Timber Industry

BMADWG Achievements

The BMADWG reached a number of significant milestones in relation to the successful development and implementation of a range of projects and their outcomes. Some of these include:

- A range of publications including:
  - Proceedings from the 2001 Workshops;
  - A BMAD Strategy;
  - Proceedings from the 2004 National BMAD Forum;
  - Designing Management Options;
  - Learning Through Adaptive Management;
  - Literature Review Outcomes Report;
  - Technical Note 1 – Bell Miners, Tech Note 2 Psyllid Biology;
  - A full edition of Australian Forestry Journal dedicated to BMAD;
  - Research papers produced by various authors on issues involving or related to BMAD and published in a range of scientific journals
- The listing of BMAD as a Key Threatening Process (KTP);
- A number of research based adaptive management trials aimed at identifying and assessing the effectiveness of a range of management strategies focused on remediating the effects of BMAD;
- The development and implementation of a multi-faceted communication and education strategy;
- A web site: http://www.bmad.com.au/index.html; and
- Instruction manuals in the use of splatter guns for the control of lantana.

State Government agencies have largely withdrawn support for the BMADWG since the State Coalition government came to power. In August 2014, the BMADWG Chair was informed by letter from Michael Wright, NSW OEH that, '*as you know ,the current phase of support for the BMADWG has come to an end*'. (This was the first I or any of the other BMADWG non-government stakeholders knew of this decision). Yet reference to the BMADWG as an active entity has been listed in correspondence from NSW EPA and other State government agencies since this time including in the current review.

In early 2017 the BMADWG Chair was informed by OEH staff in Coffs Harbour that they would no longer be maintaining the BMADWG Website which they had hosted. After complaints from the Chair and former BMADWG members, he was contacted and told OEH would maintain the site for a further year. That year is due to expire any time now.

While the NSW Forestry agency actively participated in the BMADWG they refused to firmly acknowledge or support the findings of their own respected Senior Forestry Research Scientist, Dr Christine Stone, whose research since 1995 has concluded that canopy disturbance was the primary causal factor in the development of BMAD.

Eg Stone, C., (1996), The role of psyllids (Hemiptera: Psyllidae) and bell miners (*Manorina melanophrys*) in canopy dieback in Sydney Blue Gum (*Eucalyptus saligna* Sm). *Australian Journal of Ecology* **21**.

Stone, C., (1999), Assessment and monitoring of decline and dieback of forest eucalypts in relation to ecological sustainable forest management: a review with case study. *Australian Forestry* **62 (1)**

Stone, C., (2005), BMAD at the tree crown scale: A multitrophic process. *Australian Forestry* **68 (4)**

Rather, the NSW Forestry agency preferred the views of Vic Jurskis, a Forester from Southern NSW who was emphatic that BMAD (and most other forms of tree decline) were directly attributable to fire suppression. This view has been continually used with little empirical evidence to divert attention from 'canopy disturbance', ie logging as the primary causal factor.

[Jurskis is also a climate change denier and believes that the current koala population is greater than at pre-European levels. He claims the millions of koala pelts exported was possible because the koala population had risen to plague proportions following the demise of regular forest burn-offs previously carried out by the traditional owners. We are unaware of whether he has done any work for the tobacco industry]

In 2008 the NSW Scientific Committee made a Final Determination to list 'Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners' as a Key Threatening Process in Schedule 3 of the Act.

The determination noted:

> *Mapping of affected areas has been most intensive in the Kyogle region where helicopter surveys indicated that almost 20% of 100,000 ha of susceptible forest types were affected by dieback attributable to this cause (State Forests of NSW, 2004). Of the affected area, approximately one third (6511 ha) has been assessed as 'severe', with 'many dead trees, severe thinning of crowns, low stocking rate of susceptible species and greatly increased mesophyllic ground story vegetation including weeds such as lantana' (State Forests of NSW, 2004). It has been estimated that 2.5 million ha of forest in New South Wales has the potential to be affected (Wardell-Johnson et al. 2006).*

And

Over-abundant psyllid populations and Bell Miner colonies tend to be initiated in sites with high soil moisture and suitable tree species where tree canopy cover has been reduced by 35 – 65 % and which contain a dense understorey, often of Lantana camara (C Stone in litt.). Such conditions arise as a consequence of landscape-level disturbance of forest ecosystems. 'Invasion, establishment and spread of Lantana (Lantana camara L. sens. lat)' is listed as a Key Threatening Process under the Threatened Species Conservation Act 1995.

Failure of the Review to address BMAD

The mention of BMAD under *Criteria 3 Maintenance of ecosystem health and vitality*, in the 2nd and third five yearly review (p164) is particularly misleading. The only reference to BMAD in the review document ignores mentioning the primary cause of BMAD, ie logging disturbance and still attempts to perpetuate the misleading claims regarding reduced fire frequency as a possible cause.

The Forestry Agency representatives on the BMADWG continually referred to BMAD outbreaks in the National Parks estate and on private land, so as not to be singled out as responsible as, 'it occurs across all tenures'. The reality is that severe BMAD outbreaks are common in the NPWS estate, predominantly in former State Forest compartments which were heavily logged in the 1990s then handed to NPWS (with little budget to manage) to become part of the reserve system. Many of these areas, particularly on the Richmond Range are now so severely impacted by BMAD that most of their 'reserve values' have been lost.

The recently released BMAD Causal Review (Silver and Carnegie 2017) contradicts the statement in the RFA review document that 'there is no scientific consensus on the root cause of BMAD'. The BMAD Causal Review supports what independent forest ecologists have long indicated: that 'canopy disturbance', ie logging, is the primary causal factor in the development of BMAD. The BMAD review was also critical of the views of Jurskis in regard to reduced fire frequency as a causal factor.

It is generally agreed that the scale and intensity of BMAD outbreaks have increased considerably over the life of the current RFA. There is no mention of this in the review documents despite its impact being greatest in our most productive coastal forests.

Very recent DPI mapping from the Upper and Lower North East of some two million hectares identified about fifty thousand hectares of forests impacted by BMAD. Independent regional forest ecologists believe that this is significantly less than the actual extent of BMAD across this area. (The 2004 State Forest mapping of 100,000 hectares across the Richmond and Border Ranges found around 20% of forest BMAD affected). Clearly the Forestry agency still does not want to acknowledge the true severity or extent of the problem, their inability to deal with it or its true impact on current and future timber availability.

BMAD and ESFM

There is little regeneration in BMAD affected forests, a spiralling decline in forest health, loss of all forest values including timber, biodiversity, carbon storage and catchment protection. How can this be considered to be achieving Ecologically Sustainable Forest Management? Any claims that this is the case are lies. BMAD has rightly been declared a Key Threatening Process by the NSW Scientific Committee and logging disturbance is a primary causal factor.

The BMAD adaptive management trials undertaken by FCNSW. at Mt Lindsay and Donaldson State Forests, funded in part by the NSW Environmental Trust (and supported by the BMADWG), have failed in their primary objective: ie to demonstrate any ability of FCNSW to improve forest

health following logging disturbance. It is apparent that the proliferation and persistence of exotic weeds suppresses natural eucalypt regeneration and appropriate fire management is problematic in wet sclerophyll environments with high fuel loads.

The difficulty in managing post logging disturbance in fertile, wet sclerophyll communities is acknowledged in the recent 2017 BMAD Literature review.

The FCNSW trials did provide some estimate of the cost to restore forests where logging has initiated the advanced development of BMAD to be around $2500 per hectare. The cost to restore the tens of thousands of hectares in the Upper North East Forest estate alone is enormous and will ultimately be far greater than the net value of timber taken from those forest compartments. Logging operations in forests at risk of developing BMAD are thus neither ecologically or economically sustainable.

Conclusion

Despite the extensive and unwarranted delay in carrying out the 10 and 15 year reviews, we would expect that the latest available data be considered. (eg the 2017 BMAD Systematic Literature Review and recent DPI mapping.)

The inability of FCNSW to effectively manage BMAD, even on a small scale at Donaldson and Mt Lindsay State Forests should be highlighted in the review and be an especially important consideration in regards to the future best use of our public forests.

World Heritage.

This section was prepared by the NSW Government's Official Observer to the the Expert Panel's Deliberation on World Heritage in NSW.

The listing of qualifying areas of the forests of north-east NSW was always an iconic conservation goal for north coast environmentalists and heavily influenced participation in the RFA process. The influence was such that the anticipation of extensive World Heritage listing softened resistance to compromises to the timber industry, including accepting the widespread failure to achieve agreed conservation criteria in the reserve system.

North Coast conservationists have a strong interest in World Heritage having within our area of interest a number of Gondwanan World Heritage areas, areas on the indicative list, areas which may qualify under the RFA expert panel's findings and areas which may also qualify on more contemporary interpretation of World Heritage criteria as applied in the Tasmanian wilderness forests listing in 2013.

The NCEC also believes the proposed Great Koala National Park would potentially qualify for World Heritage listing on the basis of threatened species as do the nine nature reserves set aside in China for panda conservation. Mid-north coast headwaters and tableland forests are also a stronghold for the endangered Rufous Scrub-bird and velvet worms and includes areas that would most likely protect the best of the best examples of habitat for those species.

The Gondwana Rainforests of Eastern Australia is a serial property comprising many of the major remaining areas of rainforest in southeast Queensland and northeast New South Wales which was added to the World Heritage list in 1986, well before the adoption of the National Forest Policy and commencement of the RFA process.

Clauses 27-32 NSW Regional Forest Agreement for North East NSW deals with the RFA commitments to World Heritage. It is recognised that these commitments are not tied to time lines, though the wording identifies some urgency *"to actively investigate, and jointly participate in the further World Heritage assessment of the relevant Australia-wide themes specified in Section 3.4.2 (Table 17) of the World Heritage Expert Panel report, including any potential contribution from the Upper North East and Lower North East regions".*

The report on the NSW Regional Forest Agreements, second and third five-yearly reviews claim is repeatedly made that:

"*This ongoing commitment was achieved during Period 1, Period 2 and Period 3".*

This claim is patently untrue.

They also **claim somewhat misleadingly**:

"*There have been no World Heritage nominations within the three NSW RFA regions over the three five-year periods."*

The only example given in the reviews of active investigation is a "joint undertaking" and reference to a 1999 Expert Workshop which predated the NSW Regional Forest Agreement for North East NSW.

Nineteen years after the Expert Workshop confirmed the "eucalypt theme" as a qualifying value for north east NSW the best the Governments can say is that:

"Any further development of World Heritage assessments of the eucalypt sub-theme will be subject to bilateral discussions between the relevant states and the Commonwealth and will take place independently of the RFA process".

There has been no investigation let alone an active investigation. Similarly there has been no attempt to investigate the identified associative values of Rufous Scrub-bird and velvet worms. It is apparent that there was no timely active investigation and **the Commonwealth's obligations to World Heritage remain unresolved.**

In 1996 the Commonwealth of Australia and the State of New South Wales signed a Scoping Agreement for New South Wales Regional Forest Agreements which committed:

(f) World Heritage values
This assessment will allow the Commonwealth to meet its obligations arising both from it being a State Party to the World Heritage Convention and from its own statutory requirements as set out in the World Heritage Properties Conservation Act 1983. The output from this assessment will be an assessment of World Heritage values of the forested areas of New South Wales.

The NSW CRA process made no attempt to specifically identify World Heritage values. As an alternative in 1998 the Commonwealth established a 'World Heritage Expert Panel' to identify outstanding universal values in forested areas as part of its Regional Forest Agreement process.

As well as rainforest, for north-east NSW the panel identified that *Eucalyptus* dominated vegetation is of World Heritage value as an outstanding example on a continental scale of forest and woodland vegetation dominated by a single genus, noting:

- *There are two major peaks of eucalypt species richness in the eucalypt forests of the Australian continent – one in the Blue Mountains and the other in north-east NSW extending into south-east Queensland.*
- *All major ecological types of eucalypt forest, except monsoon forest, are well represented in these two areas.*

- *Two of the eucalypt subgenera, Monocalyptus and Symphyomyrtus, and the genus Angophora are most diverse within these two areas.*
- *The emphasis should be on inclusion of large natural areas of eucalypt forests.*
- *CERRA was designed for rainforest representation and does not cover the variety of eucalypt species and forest types in the region.*
- *To adequately encompass the eucalypt theme, CERRA needs to be expanded to include adjoining areas of National Parks, State Forests and private property.*
- *Supporting values include representation of passive marginal swells and Aboriginal ceremonial sites.*

The panel identified that "*Australian rainforests are an outstanding example of ecosystems from which modern biota are derived. These rainforests are exceptionally rich in primitive and relict species, many of which are similar to fossils from Gondwana", though* **wrongly** *concluded that there are no rainforest areas of sufficient extent and integrity outside existing World Heritage Areas in New South Wales to justify their further investigation as possible best global expressions of the rainforest sub-theme.*"

The panel identified that "*Eucalyptus-dominated vegetation in Australia is an outstanding example on a continental scale of forest and woodland vegetation dominated by a single genus. This vegetation has evolved under stress, including conditions of high climatic variability, nutrient deficiency, and high fire frequency".* Noting: "*Fragmentation due to clearing in north-east New South Wales has resulted in a situation where representation of the outstanding catena of eucalypt forest diversity in the region can only be achieved in one extensive and largely-continuous area of natural forest. This area extends almost continuously from sub-alpine forest to the coast and contains populations of more than 80 eucalypt species and a wide range of ecological forest types. The Guy Fawkes Wilderness Area forms the most extensive component of this large natural area, which has been called "Moonee-Bindery".*

The Panel recommended that the Moonee-Bindery area be further investigated in relation to the sub-theme. It also noted that*, "in order to capture the outstanding catena of eucalypt forest diversity in the region, consideration would have to be given to including other smaller reserves, areas of State Forest, and some private land extending for the Warra State Forest in the west to the coastal Moonee Beach Nature Reserve in the east."*

Other significance values identified in an associative context under the "Sub-theme: Refugia, Relicts" were: *The relict Rufous Scrub-bird, Atrichornis rufescens, is significant as one of the most primitive living song birds. Onychophorans (Velvet Worms) are a primative phylum dating back 30 million years, with one of two known areas of exceptional diversity of Onychophorans identified the north-east region of New South Wales and contiguous border regions in Queensland."*

The UNE Forest Agreement (2.7) signed by the NSW Ministers on 5 March 1999 states:

- *The rainforest values contained in existing reserves, which have been recognised internationally by being listed as World Heritage Areas, must be protected. These areas are collectively known as Central Eastern Rainforest Reserves, Australia (CERRA).*
- *As a result of the UNE agreement, substantial new rainforest areas have been added to existing reserves. The Ministers agree to undertake studies in the new dedicated reserve* areas, and if they meet World Heritage criteria, to nominate additional areas for World Heritage Listing as extensions to CERRA, by 1 April 2001.*
- *The Ministers also recognise that the forests of the UNE Region may potentially contain other outstanding universal World Heritage values apart from rainforests. These other potential values may include Eucalypt dominated vegetation and religious beliefs embodied in the landscape (Aboriginal dreaming sites and bora grounds). The Ministers* agree to*

further studies being undertaken in the forests of the dedicated reserve areas of the UNE Region by 1 April 2002, to investigate and document other potential World Heritage values. If areas are demonstrated to be of outstanding universal significance on the basis of these values, the Ministers* agree to put them to the Government for consideration of their protection and nomination for World Heritage Listing.*

In March 2000 the NSW and Commonwealth governments signed Regional Forest Agreements for north-east NSW which committed them to: (clause 27)
Parties agree to actively investigate, and jointly participate in the further World Heritage assessment of the relevant Australia-wide themes specified in Section 3.4.2 (Table 17) of the World Heritage Expert Panel report, including any potential contribution from the Upper North East and Lower North East regions.

It is important to recognise that under Clause 36:
"New South Wales confirms that its Upper North East Region Forest Agreement and Lower North East Forest Agreement (NSW, 5 March 1999) and any Integrated Forestry Operations Approvals for all or part of the Upper North East and Lower North East regions are parts of the New South Wales Forest Management System and are means by which New South Wales will implement obligations and undertakings arising from this Agreement".

So effectively the Forest Agreement commitment "*to nominate additional areas for World Heritage Listing as extensions to CERRA, by 1 April 2001"* **is carried through to the RFA**.

Rather than completing the renomination by 2001, DECCW (2010) note that they didn't start until 2003–04 and limited consideration to *"its current rainforest theme*". For a long-time NSW tried to limit its additions to under 10% so as to avoid having to prepare a renomination. In 2007 the name of the world heritage property was changed to Gondwana Rainforests of Australia.

Belatedly an assessment was undertaken by scientists from both the Office of Environment and Heritage and the Gondwana Rainforests Technical and Scientific Committee (TSAC), with review by the Gondwana Rainforests Community Advisory Committee, that assessed existing reserves for addition to the World Heritage property "*against objective criteria to establish those sites which would both best add to the outstanding universal values of the property and those which would facilitate further protection of these values"* (DECCW 2009).

DECCW (2009) note:
The values that may justify inscription are those Gondwana Rainforests values that met the UNESCO criteria for World Heritage listing in 1986 and 1994 as detailed below. These values are represented largely by its biota, in particular, biota that are relictual (dating from earlier stages of Earth's evolutionary history), are endemic to small areas (indicating ongoing evolutionary processes) and are rare or threatened. The areas proposed for addition included those with a high proportion of rainforest, those containing key biota linked to World Heritage values and those which contained rainforest types and values currently not well represented in Gondwana Rainforests

In 2010 NSW, Queensland and the Commonwealth submitted a Tentative List of national parks to the World Heritage Centre which were proposed for future nomination as additions to the Gondwana Rainforests of Australia World Heritage area. Most of the NSW qualifying area of 459,739 ha is comprised of areas added as part of the Forest Reform process.

Areas of NSW Reserves Submitted to IUCN as Tentative Additions to the Gondwana Rainforests of Australia.

QUALIFYING CATEGORY	**Area**

Areas previously recommended by the IUCN to be a part of Gondwana Rainforests	250,491 ha
Areas that formed a contiguous addition to an existing part of Gondwana Rainforests	105,247 ha
Areas that had a high total score against the criteria	104,001 ha
TOTAL area of identified NSW additions	**459,739 ha**

Unfortunately the Tentative List submitted to IUCN failed to consider additional areas that could qualify for listing as World Heritage based on the eucalypt theme, or the supporting values of passive marginal swells and Aboriginal ceremonial sites.

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Proposed additions to the Gondwana Rainforests World Heritage Area

The National Parks Association (Cerese 2012) undertook a preliminary assessment of the World Heritage values of the eucalypt forests in north east NSW, finding:
"The significant eucalypt attributes detailed in the report suggest that the northeast NSW region is likely to make a significant contribution to the recognition of the outstanding universal value of the eucalypts in Australia. The ecological diversity apparent in the large numbers of eucalypt dominated communities in the study area; the high level of species diversity and endemicity; the wide range in structural forms of eucalypt vegetation present in the region; and the domination of the terrestrial environment across a broad latitudinal range from the coast and across the higher altitudes of the escarpment ranges to the western slopes of the Great Dividing Range, all add considerably to the representation of the World Heritage Eucalypt theme.

"The unique biogeographic placement of the region within a zone of subtropical/temperate overlap, and the altitudinal range and geologic/edaphic variation across the Study Area, means that this region supports a diversity of eucalypt vegetation mosaics that is possibly unique continent wide. The exceptional wet sclerophyll forests of the region form an integral component of this unique ecological diversity. In addition, the biological diversity attributes detailed in the report, and the dependence of the flora and fauna of the region on the essential habitat requirements provided by the eucalypt biota, suggests that these forests contain the most important and significant natural habitats for in-situ conservation of biological diversity in the region"

Cerese (2012) evaluated the diversity and significance of eucalypt flora and biodiversity in north east NSW (north from Hunter River) finding:

1) **Eucalypt species:**
   - Overall species richness – 143
   - Number of endemic species - 43
   - Number of threatened species - 21
   - Number of ROTAP-listed species - 43
2) **Forest ecosystems and communities:**
   - Total number of eucalypt ecosystems - 159
   - Number of endangered ecological communities (with a eucalypt component) - 11
3) **Vertebrate fauna species:**
   - Total number of species - 695
   - Number of threatened species - 148
4) **Vascular flora species:**
   - Total number of species – 3412
   - Number of threatened species – 231
   - Number of ROTAP species - 390

Cerese (2012) recommends undertaking an assessment to identify the 'best of the best' of eucalypt vegetation across all tenures in north east NSW, stating:
"Given the significant areas of eucalypt forest located within existing Gondwana Rainforests World Heritage Area (and the proposed additions to this area) as well as the recent fossil evidence confirming the Gondwanan origins of the eucalypts, this report concludes that the most effective and appropriate way to recognise and protect the eucalypt values of the forests of northeast NSW is to include them within a new and revised 'Gondwana/Gondwana Forests World Heritage Area'. It is therefore recommended that all those areas of outstanding eucalypt forest in the subtropical biogeographic region that are identified by a further assessment process are then incorporated into a renomination or additional nomination for this property."

Completing the identification and protection of all forests satisfying World Heritage criteria in north-east NSW is long overdue. The NSW and Commonwealth Governments have not complied with the original intent to identify and protect World Heritage as an outcome of the RFA. Then they failed to complete the identification by 2001 as promised by the Forest Agreement, and carried through to the RFA. They did eventually put forward Tentative Additions of 459,739 ha to the Gondwana Rainforests of Australia based solely on the rainforest theme, though even these have not been progressed and no nomination prepared.

While the private conservation group the NPA undertook an assessment of the eucalypt values of north east NSW, neither the State or Commonwealth Governments have made any attempt to investigate the eucalypt them or the identified associative values of passive marginal swells, Aboriginal ceremonial sites, Rufous Scrub-bird and velvet worms identified by the Expert Panel back in 1999.

The Gondwana Rainforests of Australia is a serial property comprising some of the areas of rainforest in southeast Queensland and north-east New South Wales and was added to the World Heritage list in 1986. The Gondwana Rainforests were listed against three World Heritage criteria (criteria viii, ix and x.)

The understanding of our forests, in particular our eucalypt forests, has expanded rapidly since 1986 and indeed since the RFA Expert Panel deliberations in 1998. In particular the discovery of a eucalypt identical to 56 million year old fossils in South America has established our eucalypts as also Gondwanan.

"*This ongoing commitment was achieved during Period 1, Period 2 and Period 3*" is frankly outrageous and offensive give repeated attempts by community groups to have governments recognise and implement their obligations over decades. It is 20 years since it was meant to be completed and they have still made no attempt to assess the key themes of eucalypts, passive marginal swells, Aboriginal ceremonial sites, Rufous Scrib-birds or velvet worms. They belatedly made a tentative nomination in 2009 based just on the rainforest value, though have apparently made no attempt.

The Tasmanian Wilderness was inscribed on the World Heritage List in 2013 under four natural (vii, viii, ix and x) and three cultural (iii, v, vi) criteria. It is likely that a contemporary assessment of the forests of NE NSW would produce similar results as achieved for Tasmania.

For the agencies to now claim that "This ongoing commitment was achieved during Period 1, Period 2 and Period 3" is frankly outrageous and offensive given repeated attempts by community groups to have governments recognise and implement their obligations over decades. It is 20 years since it was meant to be completed and they have still made no attempt to assess the key themes of eucalypts, passive marginal swells, Aboriginal ceremonial sites, Rufous

Scrub-birds or velvet worms.

Wood Supply

The inability of FCNSW to deliver ESFM is directly related to Wood Supply commitments. The initial contract to BORAL was made prior to any wood modelling, and on the assumption that all of the oldgrowth forest then in State Forest would be available. As a result of the RFA process, long-term wood supply contracts were made with all sawmillers taking quota sawlogs from public land.

The contracts were supposedly based on outputs from a timber modelling program FRAMES. But as stakeholders who participated in discussions between government agencies and stakeholders at the conclusion of the data gathering part of the CRA, we observed how FRAMES parameters were changed to deliver the desired outcomes.

That is, when early runs of the FRAMES model showed insufficient timber supply to meet timber commitments, various changes were made to 'modifiers'. This then allowed the Government to claim that the model showed the timber was available.

It was only a few years later, that it became clear that contracts could not be met and BORAL commenced legal proceedings against FCNSW for failure to supply. BORAL has contracts that see it receive the overwhelmingly majority of north coast timber and preferential treatment for particular species. The Government bought back some of BORAL's quota although details of the actual settlement are commercial in confidence.

Claims made in the RFA that FCNSW would produce useful comparisons between actual and predicted volumes haven't been delivered. The Five-yearly assessor's report said:

“While FRAMES is being improved and will eventually provide detail at a sub regional scale, this is unlikely to be available in the near future. Nor is at likely to be at the scale which appears to have been contemplated when the RFAs were initiated. While this may be disappointing it appears to be the reality.”

And went on to say: “There was a strong belief amongst some public submitters that this information would be available. **The delay in the producing the first 5 yearly reviews and an apparent lack of any action to indicate that production of this information would not be possible impacts on the entire RFA process.”**

Since then, the State Government has payed out a further $8.5M to BORAL ($4M had been paid out previously) to buy back 50,000m3 of quota sawlog. But in a sleight of hand, they extended BORAL's contract for a further 5 years to 2028. So overall, BORAL gets more timber than the original contract specified, AND the money!

FCNSW claim that they've got the model right now, and it's giving an accurate picture of overall timber-supply. But there is no evidence this is correct and plenty to the contrary.

FRAMES

The writer of this section was a member of the FRAMES committee of RACAC during the Comprehensive Regional Assessment and as such, is familiar with the development of the FRAMES system. He has been engaged by several State government departments to review and critique timber volume estimates and methods and has hands-on experience of operating the system.

The Regional Forest Agreements were essentially long-term wood supply guarantees to industry, as

such, some demonstration of due diligence was needed in the estimation of overall available yield. Therefore the FRAMES system was designed to deliver strategic level estimates, as this was the primary requirement, and was the best that could be delivered in the limited time available.

In the event, the predicted wood supply could not be delivered, and many millions of dollars has been paid to industry in compensation for shortfalls. This alone should sound a note of caution in re-committing to deliver similar volumes. The experience of several decades has revealed numerous shortcomings of the original approaches taken to estimating the sustainable yield of the forests, to which many modifications have been made. Reviews have continued, and major revisions are foreshadowed, but mostly not yet in place. The consequences of these changes are, as yet, unknowable.

The FRAMES system was designed and built by SFNSW during the CRA process when it became apparent that no consistent system of tracking forest inventory or predicting yields was in place.

Although commercial software was available at the time, SF insisted on developing a system in-house, using their familiar Excel spreadsheet as the heart of it. This may have been appropriate for prototyping, and even for the initial purpose of justifying the binding timber contracts soon to be entered into, but is in no way suitable for the multiple aspirations now expressed. It is long past time that FCNSW puts FRAMES on the top shelf, commissions a truly independent review of the numerous, advanced software systems that are commercially available and in wide use to manage the forest estate, at a scale actually useful to the planner, the customer, and moreover, the public to whom the corporation owes the highest duty of care, to ensure that the forests are managed sustainably in perpetuity.

Predictions: Only regional, or usable locally?

The numerous reviews and reports stress the 'Strategic' function of FRAMES, but are less clear that it is no use at all at the local level. FRAMES is not 'spatially aware' in that it generates the maximum volume of timber that might be harvested across the region, but the actual harvesting schedule that it generates is impractical, in that it would take a few hectares from one type of forest from here, and a few from there, it does not generate a practical plan. Numerous mathematical 'write-downs' are then applied to reduce this theoretical harvest volume to predicted log volumes. The forest manager must still arrange the annual plans of operations, with only 'limited interaction' with FRAMES, for which we should read 'none', using traditional tools and local knowledge of the forests. The 'Report on its Development and Implementation to 30 June 2016' is clear in section '5. Tactical Planning' that the implementation of these necessary functions is still well in the future.

Do the predictions match reality, at any useful scale?

The requirement of the NSW Auditor-General in 2009 to provide a means to reconcile the predictions with the products actually obtained from the forests at a broad regional scale provided a stern wake-up call, and comparisons at a very broad scale have been reported. The results of the recent 'Actual vs Predicted Harvest Reconciliation' were uneven, with wide variance. Summing and averaging these was used to diminish the problem, but the reality is that timber must be delivered at the local scale. It does not 'average' across the highways as easily as the numbers can be made to. If inter-regional haulage is required to even out the deliveries, it is paid out of the FCNSW dividends to its shareholders, the people of NSW. To provide these at a scale useful to the forest operations planners remains well out of reach.

Can it tell the effect of logging on the future of the forests?

FRAMES is essentially a forward-prediction system, responsive only slowly, if at all, to the specific areas harvested and the yield from those areas. It lacks any direct means of tracking the effect of these harvests on the long-term health of the forests, rather it simply follows the growth of the models, themselves known to be flawed and approximate. At present, the only feedback mechanism is via the occasional stand measurements taken for the Strategic Inventory, which has been notoriously under-resourced and behind schedule. In effect, the predictions are based on little more than a single 'snapshot' of the forests. Although the need for a responsive mechanism has been recognised in the reviews, a method for doing this is still not in place, nor even clearly conceived. It is doubtful that this Excel-based spreadsheet can be made responsive to these, and the many other identified needs.

Changes to the way the forest is measured

The 'Strategic Inventory System' of measured plots, by which the actual trees growing in the forest are tracked, has been allowed to fall well behind the agreed schedule, itself the bare minimum, with the effect that there is inadequate feedback on the state of the forests. The strategic inventory is the sole means by which the effect of harvesting, wildfire, disease, climate change, feeds back into the calculations. If the method is behind schedule, or radically altered, so will be the predictions, and a discontinuity in the ability to track the effect of longer-term trends is introduced.

The inventory is an expensive but necessary task, so alternative techniques, including supplementation by the LiDAR are being actively considered. The current plans to use the LiDAR-derived forest height information may well improve the classification of the forests, but it will certainly direct the early attention of the loggers to the highest volume stands. The newly introduced method to use only the height of the canopy is unlikely to tell the full story of the maturity and health of the forest. It may result in improvements in accuracy, but equally may have unintended consequences for the predicted future yield once the high volume stands have been taken.

For example, the incidence of Bell Miner Affected Dieback (BMAD) is a cause of substantial tree mortality and has been the subject of a long standing (but now unsupported) committee investigating the causes and possible remedies. The LiDAR data can be used to classify by canopy and understorey density. It is likely that BMAD would be detected by such mapping, but FCNSW has chosen not to include this in the new approach.

How is the forest growing?

Brack (2016) has observed that there are concerns that some forests may be growing slower, and producing lower quality products than predicted. He suggest that these may be due to a 'Millenium Drought', or that the yield models may be extrapolated beyond their useable range. Neither of these conjectures are testable by FRAMES, such is the lack of prompt feedback mechanisms from real-world conditions.

The establishment and re-measurement of the 'Permanent Growth Plots' which inform the growth models at the heart of FRAMES are woefully under-resourced and has fallen well behind schedule. Without an active and timely re-measurement regime, the system has no way to model the effects of climate change, drought or other large scale environmental change.

Introduction of new and untested methods logging specifications

On the North Coast, the 'Australian Group Selection' method of logging has been abandoned, and a novel 'Single Tree Selection - Regeneration' is being practised. A 'best guess' as to the effect on the

forests has been inserted into FRAMES, along with the usual optimistic assumptions about recruitment success, etc. This is all speculative and untested. Meanwhile, the effect of the failed AGS has yet to become apparent in the sluggish predictions available from FRAMES.

The 'recruitment' and 'mortality' models, which seek to mimic the forest dynamics are recognised to be predicting numbers, rate of growth and quality incorrectly and resulting in unrealistic predictions. The methods which convert the predicted volumes of timber into actual 'recoverable' products are recognised to be problematic, in that they give large errors and variable results. FCNSW has already discarded two earlier systems as inadequate in favour of another system.

The operation of the numerous corrections, write-downs, leakage and calibration factors that are applied within the system are not published, nor even well documented outside of the FCNSW. The 2016 Report on its Development and Implementation provides a helpful narrative, but does not give detail enough to actually understand the operations. The FRAMES system has been characterised by a lack of openness. This has impeded the ability of the community to contribute to its development.

Some of these shortcomings are acknowledged in the NSW RFA Implementation Report 2004-2014, *Appendix G* but a critical reading of the 2016 Report on its Development and Implementation and the FRAMES Review by Dr Cris Brack 2016, especially the conclusions at section 8, will find support for most of the observations above.

The effect of the many corrections and improvements, large and small, may tell a very different story about the effect of forest practices on the future sustainable yield. The outcome of these improvements is presently unknowable. The FRAMES system remains, as it was designed to be, a strategic tool, suited to provide a very general estimate of the harvestable timber products available at the broad regional scale, and with limited and long-delayed feedback on the consequences of that harvest. It is past time that it is replaced with a professional-designed, properly audited system.

Twenty years after the initial RFA, the Forestry Corporation still does not have a tool to adequately track the effect of timber harvesting on the forest, and on the future yields at a useful scale. It would be irresponsible to renew timber contracts in such a knowledge vacuum, where there is little transparency and logging impacts have not been assessed.

Greenhouse Gas Maths

One question we've all been asking is how FCNSW came up with the figure in Table 33, that harvest and haulage emissions had generated 0.0 emissions?

It would seem to contradict the information provided at the The Forestry Corporation of NSW Sustainability Data Report 2016-17 which tells a very different story.

The 'Fuel, Energy & Fleet' tab takes you to https://app.powerbi.com/view?r=eyJrIjoiNDczNGEzMjctNDg4OS00NGFjLWE0NzctMjFmYjdlODhlMzRhIiwidCI6IjdlODcyMjA5LWY3MGItNDU3OC1hNzk5LTA4YTdjZjAzODI3NSIsImMiOjEwfQ%3D%3D

where the diesel fuel usage averages at about 1.8M Litres. The multiplier for conversion of diesel fuel to carbon dioxide emissions is 2.7 which suggests that for diesel fuel alone 4.9MTonne of CO_2 would have been emitted.

Just how did they get that 0.0 figure? Or is it a case of Alice in Wonderland? Or perhaps the dog ate their homework and they just made it up, like much else in this 'review'. No more time to waste on it!

Commonwealth Responsibilities

Two of the recommendations of the review of the Commonwealth EPBC Act carried out by Dr Allan Hawke, should be considered by this review:

- *that RFAs be subject to rigorous independent performance auditing (including assessment against outcomes to protect biodiversity and continuously improve ESFM), reporting, and sanctions for serious non-compliance;*
  .
- *that the EPBC Act be amended to enable the full protections of that Act to apply where RFA reviews are not completed on time, where reviews indicate serious non-performance, or provide inadequate information to judge if there is serious non-performance issues*

These are specific recommendations made after a reasonably comprehensive inquiry. We contend that RFAs have not been subject to rigorous independent performance auditing and reporting and that there have not been sanctions for serious non-compliance.

There is no way that it can be suggested that the RFA reviews have been completed on time. This aspect in itself, was sufficient in Professor Hawke's view for NSW to be brought in under the EPBC Act. It is clear the State Government is not fulfilling its responsibilities to environment protection or biodiversity conservation.

Support for other submissions

We support the points made in the submissions from the North East Forest Alliance, Bellingen Environment Centre, Nambucca Valley Conservation Association and the NSW National Parks Association.

Glossary

CRA Comprehensive Regional Assessment

CAR Comprehensive Adequate and Representative

CERRA Central Eastern Rainforest Reserves, Australia

ESFM Ecologically Sustainable Forest Management

RFA Regional Forest Agreement

BMAD Bell-miner Associated Die-back

BMADWG Bell-miner Associated Die-back Working Group

RACAC Resource and Conservation Assessment Council

FRAMES Forest Resource and Management Evaluation System

SFNSW State Forests of NSW

NFPS National Forest Policy Statement

NPWS National Parks and Wildlife Service