AUDIT OF COMPLIANCE OF FORESTRY OPERATIONS IN THE UPPER NORTH EAST NSW FOREST AGREEMENT REGION

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MANAGEMENT (?) OF BELL MINER ASSOCIATED DIEBACK – YABBRA STATE FOREST

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Prepared by Dailan Pugh for the North East Forest Alliance, January 2011.

INTRODUCTION

Forests NSW manage publicly owned State Forests in New South Wales, Australia. The timber they remove from public lands is now certified under the Australian Forestry Standards as coming from legal operations in ecologically sustainably managed forests. In the Upper North East (UNE) Regional Forest Agreement area in New South Wales (NSW) this is demonstrably untrue. This audit of aspects of logging on public lands in the UNE highlights the gross inadequacy of the existing reserve system, intentionally unsustainable logging rates, extensive planning failures, token reporting of indicators, failure to implement prescriptions to protect environmental values and threatened species, and frequently illegal logging operations.

The evidence is that accreditation under the Australian Forestry Standards should never have been given and should be immediately revoked.

In the late 1990's the North East Forest Alliance (NEFA) was intimately involved in the Comprehensive Regional Assessment (CRA) of NSW's forests. We consider that good biological data on NSW's forests was obtained, collated and analysed in that process. The outcome of the CRA was the Regional Forest Agreement (RFA). At the beginning of this stage the Commonwealth walked out of the process and conservation groups (as represented by NEFA) were sidelined as the NSW Government did a deal with the timber industry and unions to guarantee set timber volumes at unsustainable levels. NEFA disassociates itself from the RFAs.

NSW Forest Agreements were made between the NSW Ministers for the Upper North East (UNE) and Lower North East (LNE) in March 1999 for a period of 20 years until March 2019. They are enacted through the Integrated Forestry Operations Approvals (IFOA) granted under the Forestry and National Park Estate Act 1998. A North East Regional Forest Agreement (RFA) between the Commonwealth and State governments was signed jointly for UNE and LNE in March 2000.

2009 was NEFA's 20th Anniversary and 2010 the RFA's 10th anniversary so it seemed appropriate to undertake a review to assess developments over the past 10 years and the NSW Government's implementation of the RFAs. In 2006 Forests NSW gained accreditation for its logging operations as satisfying the criteria for "Ecologically Sustainable Forest Management" under the "Australian Forestry Standards" (AFS).

Over the past year the North East Forest Alliance has undertaken a series of on-ground audits of forestry operations on public lands in the Upper North East NSW (UNE) Regional Forest Agreement (RFA) area. These audits have been brief and only cover a small part of the logging areas in a few locations, yet they have revealed systemic non-compliance with accepted standards and the legal requirements for forestry operations being undertaken on public lands.

In our brief audits of Yabbra, Doubleduke and Girard State Forests we have identified breaches of many of the legal requirements to protect rainforest, oldgrowth forest, endangered ecological communities, Powerful Owls, Koalas, Yellow-bellied Gliders, Black-striped Wallabies, old trees, streams, fish and more.

The on-ground audits only sampled part of a few of the logging operations undertaken in the UNE last year. That so many breaches, with many of them being major, were found in such a small sample is of particular concern as the evidence points to logging conditions being breached frequently and routinely throughout UNE public forests.

This report builds upon those audits, and others conducted within the Upper North East (UNE), to assess the identified breaches in relation to aspects of the Regional Forest Agreement (RFA) and accreditation under the Australian Forestry Standards (AFS). We document clear examples where there has been a failure to comply with the basic underpinnings of Ecologically Sustainable Forest Management: the creation of an adequate reserve system, protection of environmental values off reserve, and allocations of timber at sustainable levels.

Again only a selection of the criteria have been reviewed. We have found the implementation of the RFA process by the NSW Government to be in a shambles and Forests NSW's implementation of requirements at all planning levels to be inadequate to deliver ecologically sustainable forest management as currently mandated. Only some of the matters of concern to NEFA could be pursued in detail in the time available, so this review is confined to some of the key issues. Many of these have been pursued by the North East Forest Alliance for over two decades.

The audit reports underpinning, and comprising part of, this audit are:

Pugh, D. (2009) Preliminary Audit of Yabbra State Forest Compartments 162 and 163. North East Forest Alliance, December 2009.
http://nefa.org.au/wp-content/uploads/2011/02/Audit_Yabbra_Dec2009.pdf

Pugh, D. (2010a) Preliminary Audit of Yabbra State Forest, Compartments 162 and 163', Supplementary Report. North East Forest Alliance, 1February 2010.
http://nefa.org.au/wp-content/uploads/2011/02/Audit_Yabbra_Supp1_2010.pdf

Pugh, D. (2010b) Preliminary Audit of Doubleduke State Forest Compartments 144, 145 and 146. North East Forest Alliance, June 2010.
http://nefa.org.au/audit/Doubleduke/Prelim_Audit_Doubleduke_SF_1.pdf

Pugh, D. (2010c) Preliminary Audit of Doubleduke State Forest Compartments 144, 145 and 146, Supplementary Report. North East Forest Alliance, November 2010
http://nefa.org.au/wp-content/uploads/2011/02/Audit_Doubleduke_Supp1_Nov_2010.pdf

Pugh, D. (2010d) Preliminary Audit of Girard State Forest Compartments 44, 45, 46, 54, 55 and 56. North East Forest Alliance, August 2010.
http://nefa.org.au/audit/Girard/Preliminary_Audit_of_Girard_State_Forest_1.pdf

Sparkes, M (2010) Five Years of Proven Forestry Breaches. North East Forest Alliance, September 2010 .
http://nefa.org.au/wp-content/uploads/2011/02/Sparkes_Forestry_Breaches_2010.pdf

Summary

This audit of the Upper North East (UNE) NSW Regional Forest Agreement (RFA) is a review of aspects of forestry operations 10 years after the NSW and Commonwealth Governments signed the North East RFA. The audit is primarily based on field audits undertaken over the last year, consideration of the various State and Commonwealth documents relevant to the forest agreement (i.e. IFOA, UNE FA, and NE RFA) and the accreditation of forestry operations on public land under the Australian Forestry Standards (AFS).

We have found that ten years after the RFA was signed:

1. the national reserve criteria have not been fully implemented and are now ignored;
2. grossly unsustainable logging volumes committed in Wood Supply Agreements have been increased threefold and entrenched for a further 5 years;
3. timber yield modelling is in a shambles, with reported fatal flaws ignored, refusals to reality check modelled yields against actual yields, and frequent major downgrades in yield estimates;
4. Forests NSW's native forests operation are operating at a loss of $8-14.5 million per annum, with Forests NSW already having to buy back Wood Supply Agreements and compensate millers for non-existent timber the situation is rapidly deteriorating;
5. forest agreement timelines, reviews, commitments and monitoring requirements are frequently not being satisfied;
6. most annual monitoring criteria have been demonstrated to be ineffective and Governments are refusing to adequately report against the few that are not;
7. planning processes are frequently flawed, with significant environmental values often overlooked;
8. prescriptions intended to protect Threatened species, Threatened ecosystems and streams are being poorly implemented, with some simply ignored;
9. monitoring of prescriptions is ineffective, with most breaches ignored and performance deteriorating;
10. management practices such as post-harvest burning are being carelessly applied and are often destroying attributes required to be retained and protected under prescriptions;
11. dieback and invasion by weeds (particularly lantana) are degrading extensive areas, are being facilitated by logging and post-harvest burning, and yet are being ignored during planning for logging operations and in post-harvest rehabilitation plans; and
12. no attempt is being made to comply with DECCW recovery planning or threat abatement plans for Threatened species, threatening processes or pest species.

Of major concern is the failure of the NSW and Commonwealth Governments to consider highly critical timber yield reviews in 2004 and to require Forests NSW to report on actual versus predicted yields. NEFA remain incredulous that the NSW Government issued new Wood Supply Agreements in 2004 at significantly higher levels than shown in shoddy yield assessments admitted by Forests NSW to have limited credibility. It was also reckless for the Government to extend the WSA for five years beyond the forest agreements and remove the clause that allowed commitments to be reduced in line with yield reviews. Overall there was a 260% increase in committed volumes as small and low-quality sawlogs were added.

Ever since the new WSAs were signed Forests NSW have not been able to meet commitments, particularly in the Upper North East. Forests NSW have had to buy back WSAs and pay out mills for a 15% shortfall in supply of large quota sawlogs. Most worrying is that Forests NSW is reducing future supplies by over-logging small sawlogs (the large sawlogs of the future) and plantations. With yields declining and native forest logging operating at a loss of $8-14.5 million per annum the situation can be expected to worsen rapidly.

Timber commitments in north east NSW need to be urgently reduced and an independent public inquiry established to determine how serious the problem is and how the situation was allowed to deteriorate so badly.

It is apparent that Forests NSW's increasingly frequent breaches of legal requirements is in part due to increasing desperation to obtain timber to satisfy grossly over-committed sawlog resources.

At the Commonwealth level we have documented what we consider to be breaches of 11 conditions of the NSW and Commonwealth North East Regional Forest Agreement, (CoA&NSW 2000), as well as failures to comply with requirements of the National Forest Policy Statement (CoA 1992), and

Nationally Agreed Criteria for the Establishment of a Comprehensive, Adequate and Representative Reserve System for Forests in Australia (JANIS 1997).

At the NSW level we have identified breaches of the National Parks and Wildlife Act (1974), Rural Fires Regulation (2008), Plantations and Reafforestation Code (2001), common law and good governance. As well as multiple breaches of 8 conditions of the Forest Agreement for Upper North East Region, NSW (NSW 1999b), 9 conditions of the Integrated Forestry Operations Approval for Upper North East Region NSW (NSW1999a), 15 conditions of the Threatened Species Licence (TSL), 24 conditions of the Environment Protection Licence (EPL), and 11 conditions of the Fisheries Licence (FL). We have also identified failures to comply with various commitments in the Ecologically Sustainable Forest Management Plan for Upper North East (Forests NSW 2005), Forest Management Zoning in State Forests (State Forests 1999) and various Forests NSW Harvesting Plans.

We have also identified multiple non-conformities with 17 specific criteria of the Australian Forestry Standards (AFS). Some of these are major non-conformities on their own, and the systemic nature of others makes them major non-conformities on a collective basis. As the AFS require compliance with relevant laws, all of the breaches of relevant licences and legal agreements identified herein are also breaches of the AFS.

The implication from our evidence is that if a customer purchases AFS certified timber from Upper North East New South Wales it will be sourced from a forest logged on an unsustainable yield basis and could be from an illegally-logged Endangered Ecological Community, illegally-logged rainforest, illegally-logged oldgrowth forest, an inadequately reserved forest ecosystem, an illegally-logged feed tree necessary for the survival of a threatened fauna species, an illegally-logged hollow-bearing trees (hundreds or thousands of years old) required to be retained as a nest, roost or den site for a threatened species, an illegally-logged tree from an exclusion zone around a stream or wetland implemented to protect water quality, or from a sick forest affected by Bell Miner Associated Dieback.

JAS-ANZ is the government-appointed accreditation body for Australia and New Zealand who is ultimately responsible for appropriate application of standards in Australia. By allowing the accreditation of such blatantly unsustainable and illegal operations they are discrediting Australia's certification system and threaten to bring all accredited forestry products from Australia into disrepute. We call upon JAS-ANZ to immediately suspend accreditation under the Australian Forestry Standards of timber sourced from Upper North East NSW.

Based on the evidence presented herein, millers claiming that timber sourced from public forests in UNE is coming from forests managed on an ecologically sustainable basis and not from illegal logging appear to be contravening the Competition and Consumer Act 2010 (previously the Trade Practices Act 1974).

Documents referred to:

AFS	Australian Forestry Standards
EPL	Environment Protection Licence
FL	Fisheries Licence
IFOA	Integrated Forestry Operations Approval for Upper North East Region, NSW (1999)
JANIS 1997	Nationally Agreed Criteria for the Establishment of a Comprehensive, Adequate and Representative Reserve System for Forests in Australia.
NFPS 1992	National Forest Policy Statement
NE RFA	North East Regional Forest Agreement, CoA & NSW (2000)
TSL	Threatened Species Licence
UNE ESFM Plan.	Ecologically Sustainable Forest Management, Upper North East (2005)
UNE FA	Forest Agreement for Upper North East Region, NSW (1999)

Process
The Regional Forest Agreement process has become a sham with numerous commitments and timelines simply ignored. The annual implementation reports are often many years late and the 5-year reviews are 5 years late, and they often do not report on the required parameters. There are numerous examples of failures of the NSW Government and Forests NSW to deliver on commitments in a timely manner (i.e. Spencer 2009, also see sections 2.4, 4.3 and 7.2), for example the Commonwealth put great emphasis on the need for Forests NSW to complete and publish a Regional ESFM Plan for the UNE by June 2000, with failure to do so considered as grounds for annulling the agreement, yet the UNE plan was not completed until 2005.

> Breaches are documented of the **UNE FA** (s. 6.8, 6.9) and **NE RFA** (s. 40, 48, 51,108.6, 112, and Att1 7)

Representative Forest Ecosystems
We have found that the subsequent reservation of lands in UNE has not redressed the extremely poor reserve outcome achieved for north east NSW in 1998 and the Government's refusal to report on forest ecosystem target achievement has masked this situation. Even when off-reserve management is accounted for there is a shortfall of some 250,000-300,000 ha (33-39%) in areal targets for forest ecosystems, with more than 50% of ecosystems below national reserve targets. The vast majority of nationally rare, endangered and vulnerable ecosystems have not met reserve targets. "Annual" reporting has failed to update relevant information and Forests NSW ignores the reserve status of poorly reserved ecosystems when logging them.

> Breaches are documented of the **NFPS 1992, JANIS 1997**, **UNE FA** (s. 2.11.2 (App 9)), and **AFS** (s. 4.3.3 relating to Significant Biological Diversity Values).

Maintaining and Protecting Oldgrowth
Many oldgrowth targets were not met in the CAR reserve system. To some unspecified extent target achievement has been facilitated by off-reserve protection, mostly as High Conservation Value Old Growth Forests (HCVOG). Forests NSW now refuse to recognise the existence of mapped oldgrowth forest that is not HCVOG. While its existence is denied, we found that oldgrowth forest is still being logged, including in a Special Prescription Zone apparently created specifically to protect the oldgrowth forest present. In addition, Forests NSW's reporting on growth stages fails to recognise oldgrowth forest exists outside HCVOG. Forests NSW pretend that they can clearfell an oldgrowth stand and not affect its growth stage!

> Breaches are documented of the **IFOA** (s. 7, 9), **UNE FA** (s. 2.2.2, 2.11.2 (1.1.b)), **AFS** (s. 4.3.3), and "**Forest Management Zoning in State Forests**"

Adequate Fauna Populations
In the whole of north east NSW only 31% of the CRA reserve targets for viable populations of fauna species have been achieved to date. This outcome shows that our reserve system does not contain sufficient habitat for most vulnerable forest dependent species to survive in the long term and emphasises the need for expanded reserves. But most importantly, it highlights the need for adequate off-reserve management.

> Breaches are documented of the **JANIS 1997**, and **AFS** (s. 4.3.3. relating to Significant Biological Diversity Values).

Sustainable Timber Yields
Under the RFA public forests in north east NSW are admitted as being logged on an unsustainable basis under a *Sustainable Wood Supply Strategy* where the intent was to log unsustainably up until 2018 before reducing logging levels down to an estimated sustainable rate. A 2002 review found that the timber was not available and that commitments had to be reduced, particularly the long-

term yields. A further review in 2004 again showed the need for another significant reduction in yields. An appraisal of that review by Forests NSW in 2004 for the Auditor General found that the attempts to address the numerous flaws in modelling of timber volumes still had a long way to go and the current modelled outputs could not be relied upon. The 2004 yield review was subsequently ignored or misrepresented in many documents, and the appraisal was totally ignored, even by the Auditor General.

Even though the seriously flawed yield assessments identified that commitments of large quota sawlogs should be limited to 187,000m^3 per annum for 5 years and then reduced to 170,000 m^3 per annum for years 6-20, in 2004 the NSW Government issued new tradeable and compensational WSAs for 215,422m^3 per annum for 20 years until 2023. At the same time small sawlogs and low-quality sawlogs were added to the agreements, thereby increasing the commitments to industry threefold. The extension of the new WSAs for five years past the expiry of the forest agreements and the removal of a clause that allowed committed volumes to be reduced in line with yield reviews was grossly irresponsible and has exposed NSW taxpayers to significant financial liabilities. As a result the estimated long-term sustainable yield has plummeted further, entrenching grossly unsustainable logging and robbing the next generation to prop up an unsustainable industry.

Despite the clear requirements to annually monitor actual versus predicted yields established by the RFA, and the repeated requests that they should do so, Forests NSW, with the support of the NSW Government, continues to avoid this requirement at any resolution. It is absolutely astounding that the NSW Government has managed to get away without comparing predicted and actual volumes since the unfavourable comparisons in 2002. Forests NSW can fiddle with their models all they like, but if there is no reality check they can not be considered as anything other than fantasy.

Ever since the new 2004 WSAs were signed Forests NSW have not been able to meet commitments, particularly in the Upper North East. Over the 5 years 2004-09 there was a shortfall between commitments given in WSA and actual yields of large high quality sawlogs of at least 144,000m3 (13%). This has forced Forests NSW to increase logging of small high quality sawlogs (the large sawlogs of the future) and get into the plantations too early, further compromising future yields. Forests NSW have already had to buy back timber committed in WSAs and compensate mills that they couldn't meet supply commitments to. The required 2006 yield review was not undertaken. Commitments to supplement supply by establishing new plantations and buying private property resources have not been fully realised. The partial release of new yield graphs on Christmas Eve 2010 showing reinflated yield estimates are a joke. There are many complicit agencies and Ministers who should also be held accountable for their lack of oversight of Forests NSW and the issuing of Wood Supply Agreements that can not be satisfied.

> Breaches are documented of **good governance,** the **NFPS 1992**, the basic underpinnings of ESFM, **UNE FA** (s. 2.11.2 (2.1d), 3.5), **UNE ESFM Plan,** and **NE RFA** (s. 48(g), 108.7, Att12 B15, C19)

The Licencing System

Forests NSW undertake logging operations under an Environmental Protection Licence (EPL), Threatened Species Licence (TSL) and Fisheries Licence (FL). In contravention of the IFOA Forests NSW have opted not to obtain EPLs for over 90% of their operations and, until our audits, the FL has rarely been applied or enforced. The TSL is only subject to occasional audits and, in our experience, significant breaches are missed even when pointed out to DECCW. Even when breaches are reported to the regulators they are not explicitly or comprehensively audited, the fines and penalties are grossly inadequate, and no rehabilitation or provision of compensatory habitat is required to compensate for illegally logged threatened species habitat.

> Breaches are documented of the **IFOA** (s. 60), and **AFS** (s. 4.4.4, 4.5.1, 4.5.2, 4.5.4).

Marking Up

Both the Threatened Species Licence and Fisheries Licence require a variety of habitat assessments and the identification of specific Threatened fauna habitat attributes and Threatened flora localities to be undertaken by appropriately trained people. We found that attributes required to be identified at the mark-up stage are rarely identified, that stream and Threatened species exclusion areas are often not marked, and that habitat trees required for retention rarely marked. We do not consider that adequately trained people are undertaking thorough searches for the "*threatened and protected species features"* required by the TSL at the mark-up stage with the result that feed trees, habitat trees and areas required to be retained for threatened species are often logged. Neither do we consider that other features requiring identification and protection are being adequately located and marked in the field, resulting in further losses of key fauna habitats.

> Breaches are documented of the **IFOA** (s. 6, 8), **UNE FA** (s. 2.4.4.5), **TSL** (s. 5.1, 5.2, 5.6, 5.9, 6.17), **FL**. (s. 7), and **AFS** (s. 4.1.3, 4.1.4, 4.3.1, 4.3.3).

Good Neighbourly Relations

Forests NSW undertook roading, logging and burning operations adjacent to a private property without attempting to contact the owner, even after they had trespassed onto and caused damage to rainforest on his property. In the process they constructed a log dump adjacent to a house, cleared across the boundary they had marked, and dropped and pushed trees over the marked boundary at 15 locations. They cleared 610m^2 of rainforest on the private property and damaged a further 480m^2. Without contacting the landowner they initiated a post-logging burn that got out of control and threatened his property. When they completed the operation they failed to inform the landowner of the trespasses and made no attempt at remediation. Then they tried to bully the landowner, lied to him about the nature of the incursions onto his property and failed to honour commitments.

> Breaches are documented of the **Harvesting Plan** (s. 6.3), **UNE ESFM Plan** (s. 9)**, AFS** (s. 4.1.4, 4.2.and 4.2.3), **Rural Fires Regulation 2008** (Part 5:33), **TSL** (s. 5.15), **FL** (s. 6.1), and **common law**.

Endangered Ecological Communities

In our audits we identified 4 areas of one Endangered Ecological Community (EEC) that had been logged and roaded. After we identified the first area Forests NSW failed to admit to the other three breaches in an effort to cover them up. At another site fire had escaped into an EEC and despite breaches of legal requirements and significant degradation no rehabilitation was undertaken by Forests NSW or required by DECCW. At approximately the same time logging of another EEC was separately reported.

> Breaches are documented of the **National Parks and Wildlife Act 1974** (s. 118A, 118D), and **AFS** (s. 4.1.3, 4.3.3).

Implementation of General Prescriptions

As well as a variety of failures identified elsewhere in this report, our audits identified examples of a variety of failures to implement general forestry prescriptions, such as:

- failure to identify and appropriately protect the conservation values of Forest Management Zone 3B, including the oldgrowth it had been created to protect;
- Illegal logging of 3ha of rainforest, including bulldozing and piling of over one hundred rainforest trees, with no subsequent rehabilitation proposed by Forests NSW or required by DECCW; and
- systemic failures to mark the required numbers of hollow-bearing and recruitment hollow-bearing trees, to select appropriate healthy trees for retention and protection, and to remove logging debris from around their bases to stop them being killed in post-logging burns (to the contrary debris frequently appeared to have been pushed around their bases). The required

numbers of trees are often not retained in what appears to be a war of attrition against the hollow-bearing trees essential as dens and nests for a plethora of animals.

Breaches are documented of the **IFOA** (s. 6, 8, 10), **UNE FA** (s. 2.3.1(3), 2.4.4.5), **NE RFA** (Att1 7, 13), **Plantations and Reafforestation Code** (s. 3:4), **TSL** (s. 5.4, 5.6, 6.9), and **AFS** (s. 4.1.3, 4.1.4, 4.3.1, 4.3.3).

Protecting Threatened Species

In relation to audits of the prescriptions specified in the licences we identified numerous failures, including failures to:

- recognise the existence of, and appropriately plan for, the Endangered fish Oxleayan Pygmy Perch;
- recognise the habitat of the Endangered Richmond Frog, undertake required surveys, exclude logging, roading and burning, assess and rehabilitate habitat;
- mark exclusion zones around the habitat of the Endangered Stuttering Frog and fully exclude it from logging;
- recognise the habitat of the Endangered Hastings River Mouse, and undertake required surveys;
- assess and rehabilitate the habitat of the Endangered Black-striped Wallaby after it was intensively logged and then accidentally burnt. Despite grazing being an identified threat Forests NSW continued to allow illegal grazing of its habitat after they said they would stop. They also failed to prepare the required grazing management plan by 2000;
- adequately assess habitat of the Vulnerable Koala, and conduct pre-logging scat searches;
- identify den and sap-feed trees of the Vulnerable Yellow-bellied Glider and systemic failures to apply the prescription for the retention of feed trees;
- appropriately locate and protect exclusion areas required to be implemented for the Vulnerable Spotted-tailed Quoll;
- apply prescriptions to exclude logging from the vicinity of burrows of the regionally significant Wombat; and,
- identify roost and nest trees for the Vulnerable Powerful Owl, exclude logging from retained habitat and retain the required habitat trees in good habitat.

Breaches are documented of the **IFOA** (s. 6, 8, 33), **UNE FA** (s. 2.4.4.5), **FL** (s. 7.2, 9.2, 9.5), **TSL** (s. 1.2, 5.2, 5.9, 5.16, 5.17, 6.3, 6.9, 6.15, 6.17, 6.18, 8.8.9), and **AFS** (s. 4.1.3, 4.1.4, 4.3.1, 4.3.3).

Bell Miner Associated Dieback

Bell Miner Associated Dieback (BMAD) is recognised as a significant problem and growing threat to thousands of hectares of forests in UNE, it has been listed as a “Key Threatening Process” (KTP) and identified as affecting timber and water yields, as well as many plants and animals. It is associated with the invasion of forest understoreys by the weed Lantana (another KTP) following logging. It occurs in one of our audited areas. Despite the presence of an Endangered Ecological Community and an endangered wallaby in the same area we found that Forests NSW made no attempt to delineate the area affected by dieback, logged most of the healthiest trees remaining, and has no intention to rehabilitate the severely degraded “forest” left behind. Both Forests NSW and DECCW appear disinterested in the problems caused by BMAD and Lantana invasion, and the need for active rehabilitation of affected stands.

Breaches are documented of the **Harvesting Plan** (s. 2.1 and 4.3), **IFOA** (s. 1.5.3, 2.7.1 (ESFM Group Technical Framework 3.2.1.2, 3.2.1.3), 4.26, 8), **UNE FA** (s. 2.11.2 (3.1.a)), **UNE ESFM Plan** (s. 5), and **AFS** (s. 4.1.4, 4.4.1, 4.4.2, 4.4.3, 4.4.4, 4.4.5, 4.5.1, 4.5.2, 4.5.4)

Maintaining Water Quality

We found that Forests NSW routinely breach prescriptions intended to protect water quality and fish habitat, most notably failing to adequately protect unmapped drainage lines, wetlands and drainage depressions, dropping trees into stream buffers, poorly constructing and failing to rehabilitate

stream crossings, failing to establish adequate drainage on tracks and roads, and otherwise being careless. We found that Forests NSW are ignoring the requirement to remap and appropriately rezone streams delineated as FMZ 8 areas when preparing harvesting plans and are often logging them. It is of particular concern that Forests NSW refuse to "turn on" Environmental Protection Licences (EPLs) in over 90% of logged compartments in order to avoid external regulation. Their agenda is to be allowed to log unmapped drainage lines.

> Breaches are documented of the **IFOA** (s. 6, 8, 9) **EPL** (App4 s. 6, 15, 17, 19B, 20, 20C, 20J, 20R, 20S, 20T, 21, 22, 23, 30, 45, 46, 50, 51, 52, 53, 54, 56, 70, and App5 s. 37), **FL** (s. 7, 7.1, 7.2, 7.4, 7.5, 7.8, 7.9, 8.4), **Harvesting Plan** (s. 7.1), **UNE FA** (s. 2.2.2), "**Forest Management Zoning in State Forests**", and **AFS** (s. 4.1.4, 4.6.2, 4.6.4).

Forest Biomass and Carbon Pool

Reporting on carbon storage in forests by forest type, age class, and successional stages is a key requirement of the Regional Forest Agreements and essential for Australia to satisfy its international obligations. Despite this explicit requirement the State and Commonwealth Governments refuse to consider carbon storage and sequestration in native forests and instead only consider carbon sequestration in plantations. This is a deliberate failing, as the Governments do not want to admit that logging reduces the carbon stored in native forests and account for this loss.

> Breaches are documented of the **IFOA** (s. 7), **UNE FA** (s. 2.11.2(5.1a, 5.1c)), and **AFS** (s. 4.7.1).

World Heritage

Contrary to the 'Scoping Agreement', identification of World Heritage values were not specifically considered in the CRA process and their consideration was limited to future actions in the RFA. The NSW Forest Agreement identified that extensions to the World Heritage CERRA property based on the existing rainforest theme would be completed by April 2001, and the documentation of the themes of eucalypts, passive marginal swells, and Aboriginal sites by April 2002. However work on the renomination did not start until 2003 and appears to have made little progress to even expand on the rainforest theme to date.

> Breaches are documented of the **UNE FA** (s. 27), and **RFA** (s. 27)

The Upper North East

North-eastern NSW, in conjunction with south-eastern Queensland, is known to be nationally and internationally significant for its diversity of plants and animals. This region is the evolutionary hub of the wet sub-tropics with a high number of endemic species. In this region Australia's predominantly northern forest flora and fauna reach their southern limits of distribution and the predominantly southern species reach their northern limits (this species overlap is, in part, referred to as the Macleay-McPherson Overlap). This overlap includes representatives of the Tumbunan, Bassian, Torresian, Irian and Eyrean biotas, and as noted by the NPWS (1994a) *"Nowhere else in Australia do so many zoogeographical influences combine".*

It also needs to be realised that within Australia, the tropical forests of north-east Queensland and the sub-tropical forests of north-eastern NSW/south-eastern Queensland are the principle centres of biodiversity for insects, frogs, birds, and mammals, and together with south-western Western Australia, plants (variously Chippendale 1981, CoA 1996, Covacevich and McDonald 1991, DASET 1992, Debus 1992, Dyne 1991, Martin 1984, NPWS 1994a, NPWS 1994b, Pianka and Schall 1984).

The north-eastern NSW/south-eastern Queensland region supports 35 endemic vertebrate species and is the distributional stronghold for 37 other vertebrates (NPWS 1994a). DASET (1992) note that

some 260 plant species, representing 131 genera and 63 families, and *"numerous invertebrate species",* including many primitive genera, are largely restricted to north-eastern NSW and far south-eastern Queensland.

As noted above, north east NSW is comprised of two Regional Forest Agreement regions, the Upper North East (UNE) and the Lower North East (LNE). Many of the principles underlying this audit apply to both regions, although the detailed auditing has been limited to the UNE.

The UNE encompasses part one of one of Australia's 15 biodiversity hotspots, the 'Border Ranges North and South (Queensland and New South Wales)'. Biodiversity hotspots are areas that support natural ecosystems that are largely intact and where native species and communities associated with these ecosystems are well represented. Areas with many endemic species where the levels of stress or future threat were considered to be high were identified by the Australian Government's Threatened Species Scientific Committee as hotspots. In relation to the Border Ranges North and South the Environment Australia website notes;

> *This sub-tropical and temperate hotspot is one of Australia's most diverse areas - and it is* the *most biologically diverse area in New South Wales and southern Queensland. It has a variety of significant habitats: subtropical rainforest, wet sclerophyll forest, mountain headlands, rocky outcrops and transition zones between forests.*
>
> *These habitats support a huge variety of bird and macropod species. Many are rare or threatened: the Richmond Bird-wing Butterfly, Fleay's Frog, Hastings River Mouse, Long-nosed Potoroo, Spotted-tailed Quoll, Eastern Bristle Bird, Rufous Scrub-bird and the critically endangered Coxen's Fig parrot. Notable birds such as Albert's Lyrebird and the Paradise Riflebird make their home here, and in the south-east Queensland rainforests live a rich variety of primitive plant species, many of them similar to fossils from Gondwana.*
>
> *This region's high population growth, with associated urban and tourist developments along the coast, is a major cause of habitat loss and fragmentation. Although most remaining natural areas are protected, they are under considerable threat from weeds, fire and recreational use.*

The UNE encompasses an area of 3.9 million hectares north from near Coffs Harbour to the Queensland border and west from the coast to west of Glen Innes on the New England Tablelands. It encompasses the major coastal catchments of the Clarence, Richmond and Tweed Rivers, along with the headwaters of the western flowing Gwydir and Macintyre Rivers. It comprises parts of the IBRA bioregions of NSW North Coast and New England Tablelands.

There was estimated to be some 3,412,760 hectares (ha) of forest in north-east NSW pre 1750, of which 2,165,800 ha (64%) remains. In 1998 there was estimated to be 654,600 ha of oldgrowth forest left, which represents 30% of the remaining forest. It is important to recognise that while some tall oldgrowth remains on productive lands, most of the remaining oldgrowth is on infertile, steep country and thus of low productivity and stature.

The balance of the region was originally comprised of heathlands, wetlands, grasslands and shrublands, of which, 11,900ha of banksia/heath, 24,200ha of swamps and 370ha of natural grasslands remain

Under the RFA "Dedicated Reserves" are taken to include National Parks, Nature Reserves and State Forest Flora Reserves, which equate to 567,320ha.

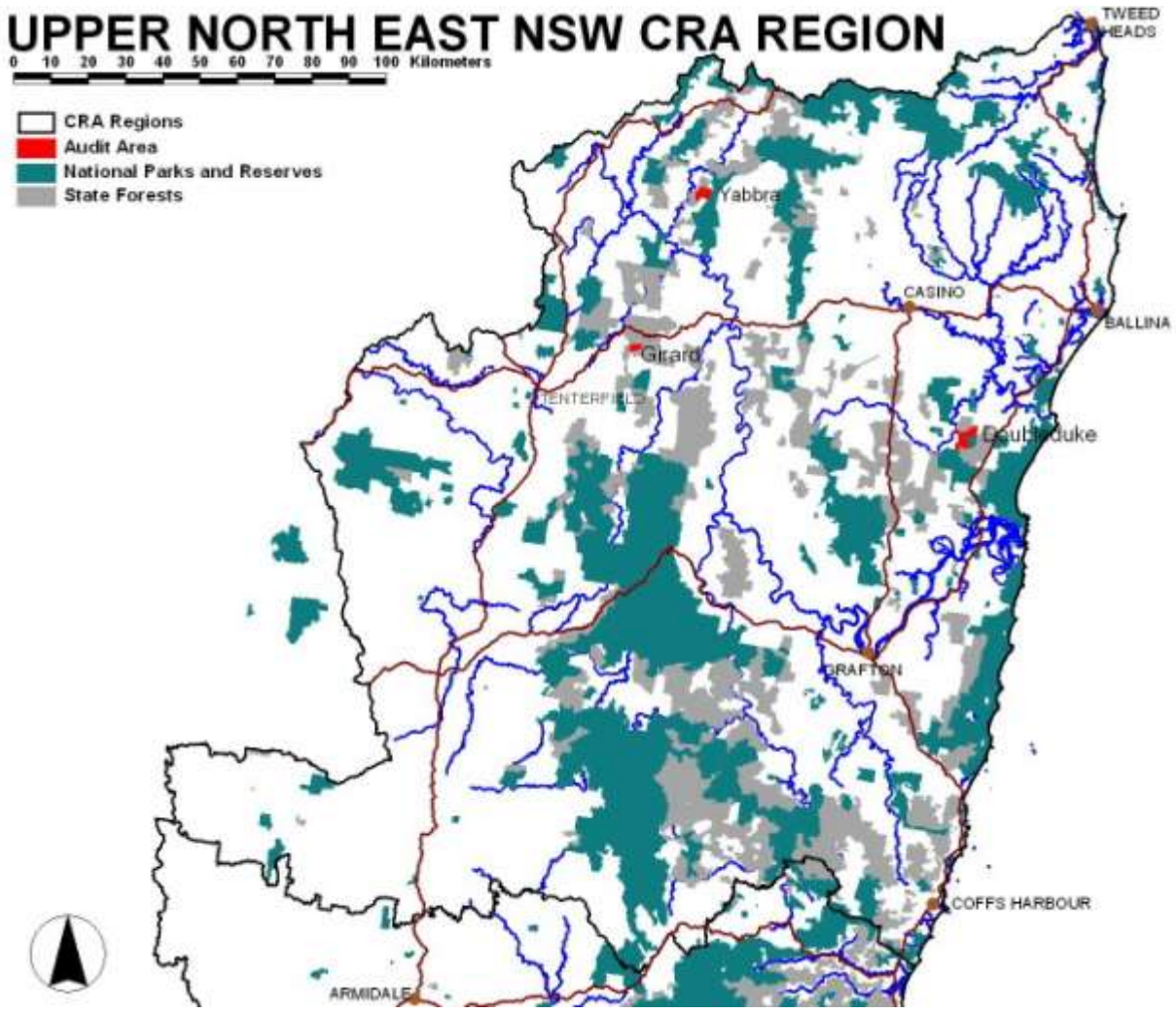
Informal Reserves are taken to include Crown Reserves, State Recreation Areas, State Conservation Areas, and most of Forest Management Zone 2 (FMZ2) areas on State Forests, which equate to 212,398 ha.

Forest cover by land tenure UNE as at 1/1/04 (derived from Forests NSW 2005)

		Area (ha)	% of remaining vegetation	% of region
National Parks		624,612	27.3	16.0
State Forests	**FMZ 1**	2,204	17.8	<0.1
	FMZ 2&3A	142,494		3.6
	FMZ 3B	2,057		<0.1
	plantations	36,797		0.9
	other	255,463		6.5
Other public		247,318	7.7	6.3
Private lands		2,596,120	47.1	66.4
Totals		**3,896,873**		

The other category considered by the NSW Government as contributing to the CAR reserve system is “values protected by prescription” which includes the FMZ 2 areas not counted as informal reserves, FMZ 3A and FMZ 3B areas. However, while this originally equated to 118,300ha, Forests NSW (2005) consider no areas to meet this category.

Forests NSW (2005) consider that harvesting exclusion areas and prescriptions (i.e. modified logging in FMZ 3B, FMZ 8, wildlife corridors, threatened species exclusion zones, etc) effectively exclude an additional 33,700 ha (13% of the loggable area) from logging. We are unsure how Forests NSW considers this corresponds with values protected by prescription.



1. THE AUSTRALIAN FORESTRY STANDARD

Within Australia and overseas consumers are increasingly demanding that the timber they buy comes from ecologically sustainably managed forests. Many regions, such as Europe, North America, Canada and Asia will not import timber unless it can be traced back to a forest certified as being managed in a sustainable manner.

To satisfy this demand the Australian Forestry Standard was drafted in 2000 under the direction of Australian Forestry Standard Steering Committee comprised of the Commonwealth and State and Territory Governments, National Association of Forest Industries, Plantation Timber Association of Australia, Australian Forest Growers and the Australian Council of Trade Unions. It needs to be recognised that the AFS is effectively the industry's own standard.

Australian Environmental Non-Government Organisations (NGOs) have objected to both the process of developing the standards and the outcomes. NGOs (The Wilderness Society, Australian Conservation Foundation, Greenpeace, Total Environment Centre, The Environment Centre of the Northern Territory, Friends Of the Earth Australia, Western Australian Forest Alliance, North East Forest Alliance, National Parks Association of NSW and Tasmanian Conservation Trust) wrote to Australian Forestry Standard Ltd in 2007:

> *All of the signatories reject the Australian Forestry Standard and associated documentation.*
> *...*
> *We all feel that it is important to once again put the record straight in respect of claims you are again making that your process includes representation from environmental NGO interests. Your process does not have environmental representation. ...*
> *...*
> *... Environmental NGOs belong to an entirely different category. They must as such participate in the consensus-building phase that AFS – a franchise of Standards Australia – is obligated to undertake in the development of standards. Environmental NGOs withdrew from the process because of AFS Ltd's failure to meaningfully include them in the standards setting. It failed to include them during the development of the AFS' terms of reference, and on the Steering Committee. The Technical Reference Committee process did not fulfil the requirements of consensus under ISO's Statutes, since there was sustained opposition from environmental NGOs to the structures and processes of the AFS, in addition to their specific sectoral concerns regarding the standard's shortcomings in terms of environmental sustainability.*
> *...*
> *Our colleague from the Australian Conservation Foundation restated the cross-sectoral consensus of ENGOs regarding the AFS in correspondence dated 21st of April 2006, and put a proposition that AFS Ltd should effectively go back to the beginning if it wanted a standard that was capable of being endorsed by ENGOs. The Wilderness Society has put the same position to PEFC in its yet unresolved grievance with that organisation.*

Australian Forestry Standard Limited was registered in 2003 and now owns the standard development functions and manages the elements of the Australian Forestry Standards. The company is an accredited Standards Development Organisation with its initial accreditation being awarded by the Standards Accreditation Board of Standard Australia on 27 January 2004 for three years.

Under the Australian Forestry Standards there is one Australian Standard for Sustainable Forest Management and one Australian Standard for Wood & Wood Products supply chain in Australia. This Chain of Custody (CoC) Standard is intended to assure customers that the certified wood and forest products they buy are sourced from a certified sustainably managed forest. CoC certification is a complementary activity to the AFS forest management certification.

The AFS are endorsed by the world's biggest assessor of sustainable forest management - the Programme for Endorsement of Forest Certification scheme (PEFC). PEFC has 35 member countries, over 209 million hectares of certified world forests and over 5000 CoC organisations, all with mutual recognition of the AFCS through its membership.

JAS-ANZ is the accreditation body ultimately responsible for appropriate application of standards in Australia, they do this by accrediting the accreditors (from their website):

> *JAS-ANZ is the government-appointed accreditation body for Australia and New Zealand responsible for providing accreditation of conformity assessment bodies (CABs) in the fields of certification and inspection. Accreditation by JAS-ANZ demonstrates the competence and independence of these CABs.*
>
> *…*
>
> *Accreditation is an endorsement of a conformity assessment body's (CAB's) competence, credibility, independence and integrity in carrying out its conformity assessment activities.*

In the Upper North East (UNE), NCS International Pty Ltd is the body given the delegated authority by JAS-ANZ to audit and certify whether Forests NSW operations comply with the Australian Forestry Standards.

In June 2006 Forests NSW gained certification for its environmental management system under ISO 14001:2004 for native and planted forests. In December 2006, Forests NSW gained forest certification under the Australian Standard for Sustainable Forest Management (Australian Forestry Standard - AFS) AS 4708 (Int) – 2003. The Department of Environment and Climate Change (DECC 2009) state:

> *This important scheme helps users and consumers of timber products to choose stock from sources that have been independently certified as being derived from legal and sustainably managed forests.*

Forests NSW were accredited (certificate 13761) for 2,555,681 hectares of native forests and plantations under AS4708:2007 by the certification body NCS International. NCS International were in turn accredited by JAS-ANZ.

On their website, Forests NSW state:

> *Forest management certification standards recognised by the PEFC, such as the AFS, are used in many leading countries as a critical indicator of the sustainability of a timber source in purchasing and procurement policies of many governments and companies. Such certification standards and procurement policies help to ensure that the origins of timber-based products are managed sustainably, that unregulated or illegal logging is prevented, and programs to tackle illegal logging are fostered …*

The Australian Forestry Standards state:

> *The AFS is not intended to replace or override the regulatory framework within which Australian forest managers operate. Compliance with current law is a minimum requirement ...*

The Australian Standard for Chain of custody for certified wood and forest products (AS 4707—2006), criterion 2.2.4.3 "Illegal operations or sources", states:

> *The organisation shall ensure that no wood or forest products known to be from illegal operations or sources, under relevant domestic and/or international law, enters any stages within the organisation's link along the certification chain.*

Appendix G of this standard elaborates on the avoidance of procurement of wood raw material from illegal or unauthorised harvesting.

NEFA has established that timber is being obtained from illegitimate sources in the UNE and that many legal requirements are not being complied with. Under the criteria the UNE should be recognised as a "high" risk region and treated accordingly.

The draft NSW & CoA (2009) 5 year RFA review states:

> *The AFS complements the pre-existing regulatory structure and EMS with an independent perspective. Regular external audits carried out by NCS International assess not only Forests NSW management systems and compliance with applicable licenses, but also their commitment to sustainable timber supply, efficient resource use, stakeholder involvement, staff training, carbon sequestration, and other ESFM aspects. Regular assessment and guidance by the AFS has helped Forests NSW continually improve its practices and allowed the organisation to be a responsible forest custodian.*

The AFS also claims that after initial certification, surveillance audits of the certified forests and forest management system will be conducted at a frequency no less than once every twelve months.

In response to our requests for copies of audit reports undertaken by NCS International of the Australian Forestry Standard [AS 4708 (Int) – 2003] and EMS standard ISO 14001, for north east NSW before and since accreditation in 2006, we were provided with the summaries of 4 NCS International audits - unfortunately there was insufficient detail to determine the thoroughness or otherwise of the audits, though they appear to be focussed on processes rather than outcomes:

- Surveillance audit of Forests NSW; July 2007. Identifies a site as "Northern Region", though does not specify where. One significant issue identified is *"The planning templates that are required to be used for operational activities such as harvesting, burning and roading are only being used for some plans*". It states *"Other minor non-conformities have been identified within the body of this report as well as observations which represent opportunities for improvement"*, though these are not otherwise identified.

- Surveillance audit of Forests NSW; October 2008. The audit sites in NE NSW were sites within the Pine Creek and Wedding Bells State Forests. The summary identifies that an action plan is required to address a range of identified "minor non-conformities" though these are not identified. Similarly "there are a number of elements that require attention", though these are not specified. It refers to an earlier February 2008 audit though this was not provided.

- Re-assessment audit report for Forests NSW, NCS International, 21-25 September 2009. NE NSW audit sites were UNE Coffs harbour regional office and field sites and Grafton regional office and field sites. The audit found that Forests NSW were meeting the criteria for "sustainable wood production", identified a variety of management shortfalls, and highlighted the principal issue as:

  > *By not clearly linking Forests NSW 'Significant Environmental Aspects' or 'Significant Forest Management Aspects' to other elements of the standards, the organisation runs the risk of not effectively managing the parts of its business that have the potential to cause significant environmental harm.*

- Surveillance Audit report for Forests NSW, NCS International, 22-26 March 2010. The only north east NSW audit site was Wauchope office and field sites. Minor non-conformances were identified for six areas, including "Environmental aspects and impacts". One of the major issues was:

  > *Forests NSW also began a major overhaul of its Aspects and Impacts Register …Outcomes from the review have not yet translated to more effective System Planning*

and Implementation to manage the organisation's Significant Environmental Aspects and their impacts.

We are unable to assess the effectiveness of the auditing process undertaken by NCS International because their methodology is not described and we are only allowed to see the often vague and simplistic brief summaries. We can only judge them by comparison with our findings, which suggests that they are either failing to detect fundamental flaws, or consider them as either irrelevant or "minor" for accreditation purposes.

1.1. A Major Non Conformance

It is self evident that timber volumes being removed from public native forests in north-east NSW are not sustainable (see section 2.4). The Sustainable Wood Supply Strategy (CoA&NSW 2000), as modified in 2004 (see Section 2.4.2), is to log at an acknowledged unsustainable rate until 2023 and then to dramatically reduce the volumes being removed. Yield downgrades and increased commitments have increased and entrenched unsustainable logging. Claims that timber from plantations will make up the shortfall are dubious and do not negate the fact that public native forests are being intentionally logged unsustainably.

We have also found that timber is regularly being obtained from illegal sources on public lands in the UNE (such as Endangered Ecological Communities, rainforest, stream exclusion areas, owl exclusion areas, Hastings River Mouse habitat etc.), and that trees required to be retained for threatened species (hollow-bearing trees, recruitment trees, Yellow-bellied Glider feed trees etc) are being illegally removed for timber. We have also found that oldgrowth forest continues to be logged.

We have even found that timber claimed to be sourced from a plantation was actually obtained from illegal rainforest logging.

Our audit has established that many legal requirements and many of the AFS criteria are not being complied with. We are perplexed as to how Forests NSW's operations in north-east NSW ever gained accreditation given that they are based on intentional and openly acknowledged unsustainable logging. We are also concerned that those charged with independently auditing Forests NSW's operations, DECCW, Fisheries NSW and NCS International, fail to identify the extremely poor performance found in our audits.

The Australian Forestry Standards state:

> *The audit team should review all the audit evidence to determine whether forest management conforms to the requirements of the AFS. The audit team should ensure that any audit findings of non-conformity are well documented and supported by audit evidence.*
> *...*
> *If a major non-conformance is found, no certificate can be awarded until the requirement is met. If there is a substantial time-lag before the major non-conformance is addressed, a new audit may be required in order to achieve certification.*

The Australian Standard for Chain of custody for certified wood and forest products (AS 4707—2006) gives the following definition:

> *Major non-conformance (audit) - Where a significant element of the CoC system is not functional, or where data has been falsified, or there is ongoing resistance to correcting minor non-conformances.*

While we recognised that we are not accredited auditors, we consider that our audits have proven frequent and systemic failures to comply with the requirements of the Australian Forestry Standards

sufficient to warrant that the that accreditation of Forests NSWs operations in the Upper North East of NSW should be immediately suspended on the basis of multiple “major non-conformances”.

1.2. Trade Practices

The Competition and Consumer Act 2010 (which superseded the Trade Practices Act 1974 as of 1 January 2011) states that businesses must not mislead or deceive consumers, or make false or misleading representations. Penalties, injunctions and/or damages may be sought where businesses fail to meet these requirements. If a product is claiming certification when it has not met the required standards it is likely to be a breach of the Act.

Business conduct is likely to break the law if it creates a misleading overall impression among the audience about (for example) the price, value or quality of consumer goods or services. The Australian Competition and Consumer Commission (ACCC) or any other person can seek to remedy misleading or deceptive conduct by resorting to legal remedies including injunctions, declarations, damages, compensatory orders, orders for non-party consumers and non-punitive orders. No financial penalties apply to misleading or deceptive conduct. (CoA 2010).

It is illegal for a business to make a false or misleading representation when supplying, offering to supply, or promoting a product. In particular, a business must not falsely represent that goods are of a particular standard, quality, value, grade, composition, style or model or have had a particular history or previous use. Financial penalties apply for false representations, including fines of up to $1.1 million for businesses and $220 000 for individuals. (CoA 2010).

Australian Competition and Consumer Commission (ACCC 2008) note:

> *Environmental claims come in a wide range of forms, including statements about environmental sustainability, recycling, energy and water efficiency or impact on animals and the natural environment.*
>
> *...*
>
> *Some businesses make claims that their product or their business is sustainable. For a practice to be sustainable, it must be able to be sustained indefinitely.*
>
> *...*
>
> *Environmental claims should relate to real environmental benefits, but should not overstate those benefits.*
>
> *...*
>
> *It is illegal for a business to make an environmental claim that is misleading or deceptive, or is likely to mislead or deceive consumers.*
>
> *...*
>
> *Environmental claims that are vague, or that cannot be easily substantiated, are more likely to be misleading or deceptive.*
>
> *...*
>
> *It is illegal for a business to make a false representation about a product. In particular, a business must not falsely represent that goods are of a particular standard, quality, value, grade, composition, style or model or have had a particular history or previous use.*
>
> *...*
>
> *Also, a business must not represent that goods or services have sponsorship, approval, performance characteristics, accessories, uses or benefits they do not have.*

Boral is one of the major companies operating in north-east NSW. They place significant emphasis on the sustainability of the timber they sell. Boral’s website (http://www.boral.com.au) states:

> *All Boral Timber's products are Australian Forestry Scheme (AFS) Chain of Custody certified. This provides peace of mind that Boral Timber products are sourced from*

sustainably managed and legal forestry. The AFS certification is linked to the largest forest management certification scheme in the world (PEFC) and is the only scheme with an Australian Standard (AS 4708-2007).

...

Chain of Custody certification (AS 4707-2006) confirms that Boral Timber are sourced from certified and legal sources and the company can prove traceability of its wood materials from the forest through to the sale of its products to customers.

- ***Architects and specifiers** can confidently specify Boral Timber products on projects that require certified timber, knowing that the Australian Forestry Certification Scheme is the only forest certification scheme with an Australian Standard AS 4708-2007.*
- ***Builders** can recommend certified Boral Timber products knowing that they are sourced and manufactured from sustainably managed and legal resources. AFS certification covers 95% of Australian certified forestry providing confidence in an abundant supply of locally certified materials.*
- ***Consumers** can rest assured that the timber used for their hardwood flooring, decking, hardwood or softwood structural framing, plywood or furniture has been legally sourced from sustainably managed resources.*
- ***Future generations** can breathe easy knowing that the timber being harvested and regrown today provides a positive contribution to many environmental challenges in the future.*

To frequently asked questions Boral give the following responses:

Q. Are Boral Timber products sourced from certified and legal sources?
A. Yes, Boral Timber sources its raw hardwood materials from Forests NSW, which is AFS-certified, and private property providers that have provided proof of legally sourced timber.

Q. Can Boral Timber provide proof that its products are sourced from sustainably managed resources?
A. Yes, through the Chain of Custody certificate - Boral Timber Hardwoods (AFS/01-31-38), Boral Timber Softwood (AFS/01-31-74), Boral Plywood (AFS/01-31-21), Boral Sawmillers Exports (AFS/01-31-12).

Q. As Boral Timber sources its timber from sustainably managed forests in New South Wales, does this mean that if I buy certified Boral timber from other states e.g. in Western Australia, it will still be certified?
A. Yes, if labelled as a Boral Timber certified product.

Similarly Hurfords, another of the region's principle hardwood millers, state on their website (http://www.hardwood.com.au):

Hurford Hardwood source a proportion of timber from private native forest with the balance procured from State Forestry which is certified under the Australian Forestry Standards Chain of Custody. (AS4707 – 2006)

Hurford Hardwood insist that all timber produced from these forests is done so under the principles of Ecologically Sustainable Forest Management, a system developed to sustain the full range of commercial and conservation values of the natural forest diversity within ecological limits, for current and future generations

A third major miller in the region, Big River Timbers claims (http://www.bigrivertimbers.com.au):

Forest Certification
Big River holds long term wood supply agreements (LTWSA) with the State Government of NSW for the sourcing of our raw material log input. Forests NSW estates are accredited under the Australian Forestry Standard (AFS) which in turn is certified by the international

program for endorsement of forest certification (PEFC). PEFC is the largest assessor of forestry management in the world and Forests NSW is recognised as a leader in best practice sustainable management. The AFS is also the only forest accreditation system in Australia to gain accreditation under the International Standards Organisation (ISO). This system is audited by NCS International to AS4708 (int) – 2003. It is also accredited by JAS-ANZ. Full details of Forests NSW environmental policies and practices can be found on its website.

...

The balance of the LTWSA is re-growth hardwood, again fully accredited under the AFS and PEFC scheme and harvested on a long term rotational and sustainable basis. Big River sources no timber from old growth forests.

We believe that we have presented sufficient evidence that timber being obtained by these mills from public lands in UNE is being obtained from unsustainable logging operations and often from illegal sources. While the mills are correct in claiming the timber is certified, it should not be. We found that other claims of ecological sustainability and legal sources are not supported.

2. DOES PUBLIC FORESTRY IN NORTH EAST NEW SOUTH WALES HAVE AN ECOLOGICALLY SUSTAINABLE BASIS?

The concept of 'ecologically sustainable development' has been adopted by the world community as the solution to our rapidly deteriorating global environment. The generally accepted definition of 'sustainable development' is that provided by the World Commission on Environment and Development: development that *"meets the needs of the present without compromising the ability of future generations to meet their own needs"* (RAC 1992).

The National Strategy for Ecologically Sustainable Development (1992) includes

> *Objective 3.2*
> ***to maintain ecological processes within the forests, maintain biodiversity, and optimise benefits to the community from all uses, within ecological constraints***
> ***Governments will:***
> - *determine agreed criteria for a comprehensive and representative reservation system*
> - *protect old growth forest in a representative reserve system as the primary means of protection, supported by complementary management outside reserves*
> - *protect all forest wilderness areas in reserves*
> - *develop a dedicated and secure nature conservation reserve system, containing comprehensive, replicated, adequate and representative areas of all major native forest ecosystems and other listed values*
> - *address biological threats to forests; ...*

The National Forest Policy Statement (CoA 1992) was signed by the then Prime Minister and Premiers of all the mainland states in 1992. In signing the National Forest Policy Statement (NFPS) the States committed themselves to establishing a comprehensive, adequate and representative (CAR) reservation system by the end of 1995 for public lands (with the inclusion of necessary forest from private land by 1998) and developing codes of practice for logging based on consistent nationwide baseline environmental standards (CoA 1992).

It took NSW until 1998 to establish a reserve system for public lands in north east NSW that falls well short on the CAR criteria. The baseline environmental standards were abandoned by the forestry agencies before they were finished being developed. While NSW still does not have quantifiable performance standards it does have a suite of logging protocols for public lands.

The National Forest Policy Statement (CoA 1992) states:

> *The nature conservation objectives are being pursued in three ways. First, parts of the public native forest estate will continue to be set aside in dedicated nature conservation reserve systems to protect native forest communities, based on the principles of comprehensiveness, adequacy and representativeness. The reserve system will safeguard endangered and vulnerable species and communities. Other areas of forest will also be protected to safeguard special areas and to provide links where possible between reserves or other protected areas. Nature conservation reserves will be managed so as to protect their values. Second, there will be complementary management outside reserves, in public native forests that are available for wood production and other commercial uses and in forests on unallocated or leased Crown land. Third, the management of private forests in sympathy with nature conservation goals will be promoted.*
> *…*
> *Ecologically sustainable forest management will be given effect through the continued development of integrated planning processes, through codes of practice and environmental*

prescriptions, and through management plans that, among other things, incorporate sustainable-yield harvesting practices.

Forests NSW (2005) ESFM Plan notes:

The National Forest Policy Statement (NFPS) identifies protection of the full range of forest ecosystems and other environmental values as being fundamental to ecological sustainability. This entails the maintenance of ecological processes, biodiversity and the protection of water quality.

The principal biodiversity conservation outcome of the NFPS was the establishment of the principles of 'comprehensiveness', 'adequacy' and 'representativeness' as the basis for developing reserve criteria from which to review and establish reserve systems to protect the conservation values of forests. These three key words are defined in the NFPS as:

- *comprehensiveness - includes the full range of forest communities recognised by an agreed national scientific classification at appropriate hierarchical levels;*
- *adequacy - the maintenance of ecological viability and integrity of populations, species and communities;*
- *representativeness - those sampled areas of the forest that are selected for inclusion in reserves should reasonably reflect the biotic diversity of the communities* (CoA 1992).

The NFPS also precipitated the development of nationally agreed criteria for the establishment of conservation reserves. It was not until 1997 that agreement was achieved on national reserve criteria called the *Nationally Agreed Criteria for the Establishment of a Comprehensive, Adequate and Representative Reserve System for Forests in Australia* (JANIS 1997).

Comprehensive Regional Assessments (CRAs) were to be undertaken to identify Comprehensive, Adequate and Representative (CAR) reserve systems as a basis for developing Regional Forest Agreements (RFAs). The purposes of the RFAs are claimed to be:

(a) identify areas in the region or regions that the parties believe are required for the purposes of a Comprehensive, Adequate and Representative Reserve System, and provide for the conservation of those areas

(b) provide for the ecologically sustainable management and use of forested areas in the regions

(c) provide for the long-term stability of forests and forest industries, and

(d) have regard to studies and projects carried out in relation to all of the following matters that are relevant to the regions:

(i) environmental values, including old-growth, wilderness, endangered species, National Estate values and World Heritage values;

(ii) indigenous heritage values

(iii) economic values of forested areas and forest industries

(iv) social values (including community needs), and

(v) Principles of Ecologically Sustainable Forest Management.

In NSW the CRA process commenced in 1996 under the auspices of Resource and Conservation Assessment Council (RACAC). A Joint Steering Committee was formed by the State and Commonwealth to oversee the process. Two of the 5 regions assessed were the Upper North East (UNE) and Lower North East. (LNE)

When negotiations commenced for north-east NSW (UNE and LNE), the Commonwealth withdrew from the process. In their negotiations for north east NSW, the NSW State agencies identified an option, which maximised the achievement of the reserve targets, subject to an artificial 'political' cut-off point of no more than 70% of the State Forest estate, even though this meant that many reservation targets were not met. With this constraint applied, the outcome identified over 1 million hectares of public land in north-east NSW as required for addition to the reserve system to best

satisfy the national reserve criteria. Conservationists then applied the data without the political constraint, and identified 1.2 million hectares as required to reasonably establish a CAR reserve system for public lands in the region (Flint, Pugh and Beaver 2004).

The NSW Government Agencies were then instructed by the Government to limit the reserve system to allow the supply of 270,000 cubic metres of sawlogs per annum for 20 years, with reductions in supply volume allowable thereafter. The outcome of the State agency negotiation in early November 1998 was the finalisation of a 'State Agency position' on reserves that identified approximately 554,000 hectares of land for reservation. This included 390,447 hectares for immediate reservation as National Parks, Nature Reserves or Flora Reserves, 20,161 hectares for reservation in a new form of Crown reserve, a further 76,106 hectares of State Forests for later reservation following resolution of mineral and leasehold interests, and 67,000 hectares of vacant Crown land for later reservation following resolution of other interests and impediments. This outcome met the specified political constraint of maintaining current timber commitments for the next 20 years. (Flint, Pugh and Beaver 2004).

The NSW Government finally decided to broadly implement the negotiated 'State Agency position', although it was reduced by 76,106ha to exclude the State Forest areas that were previously earmarked for later reservation, and a further 15 logging compartments chosen specifically by the timber industry were also removed from the position. The 67,000 hectares of vacant Crown land remained earmarked for potential later reservation, though with somewhat less emphasis than in the original position. (Flint, Pugh and Beaver 2004).

On the 12 November 1998, NSW Premier Bob Carr announced the creation of 386,627 hectares of new NPWS reserves, 3,820 hectares of new SFNSW Flora Reserves and 20,100 hectares of new Crown reserves in north-east NSW. The decision also resulted in the protection of a subset of oldgrowth forests designated as 'high conservation value', all mapped rainforest, and steep and non-commercial areas in 370,000 hectares of protected Forest Management Zones in late 1999. The outcome also included a revised set of licence conditions for Threatened species, erosion control and stream protection for off-reserve management of State Forests. The revised conditions were negotiated between State Government agencies without proper independent scientific review or any assessment of their effectiveness.

At the same time, the Government signed wood supply agreements with the timber industry committing to supply 269,000 cubic metres of large quota sawlogs for 20 years. This represented 50% of 1995 levels, and the annual volumes were phased down to this level by the year 2000. The new 20-year contracts removed existing clauses for value adding, though included a clause that required a review of the available timber resource and sustainable yield to be undertaken by December 2006.

The decision also included major freeing of forestry operations from legislative controls by enactment of the Forestry and National Park Estate Act 1998. Existing legislation was amended so that Forests NSW's forestry operations were exempted from the *Environmental Planning and Assessment Act 1979*, thereby removing the requirement for Environmental Impact Statements and Species Impact Statements. The Act introduced ministerial discretion into the implementation of the *Threatened Species Conservation Act 1995* and the *Protection of the Environment Operations Act 1997*, prevented the application of stop work orders to forestry operations, removed third party appeal rights on forestry activities and exempted forestry from most other relevant environmental legislation including the *Wilderness Act 1987*. These changes represented a fundamental erosion of the most important legislative controls on forestry in NSW. They were implemented without any community consultation, were opposed by the conservation movement, and directly contradicted the ALPs own 1995 election policy.

NSW Forest Agreements were made between the NSW Ministers for the Upper North East (UNE) and Lower North East (LNE) in March 1999 for a period of 20 years until March 2019. They are

enacted through the Integrated Forestry Operations Approvals granted under the Forestry and National Park Estate Act 1998. Regional Forest Agreements between the Commonwealth and State governments were signed for UNE and LNE in March 2000.

Since then there have been some reserve additions due to ongoing processes. In the lead-up to the NSW State elections in March 2003, the ALP announced that it would protect a further 15 "icon" areas and stands of oldgrowth forest, resulting in 42,500 hectares of new reserves and the transfer of some 19,000 ha of oldgrowth forest to Special Management Zones protected from logging.

Table 1. Area of new formal reserves (National Parks, Nature Reserves and State Conservation Areas) each year since 1998, UNE and LNE

Year	Process	Area (hectares)*
1998	Comprehensive Regional Assessment	386,627
1999	Vacant Crown Land	40,667
2002	Forest Management Zones, Wilderness	81,667
2003	Forest Icon Areas	42,522
2006	Delayed transfers	118
2007	Lower Hunter Regional Reservations	14,144
TOTAL		**565,745**

* Areal figures produced by direct GIS reporting against NPWS estate layer.

In 2003, as a concession to the timber industry for the new reserves, the NSW Government effectively dropped the 2006 timber review and promised to renegotiate wood supply contracts for a further 20 years (at a reduced rate) until 2023, despite advice from the State's own forestry agency that the volumes were simply not obtainable (State Forests 2004)

In the subsequent sections the outcomes for representative forest ecosystems, viable fauna populations and sustainable timber yields, post 2004, are considered.

The Formal Reserve System is taken to include Department of Environment, Climate Change and Water (DECCW) administered National Parks, Nature Reserves and State Conservation Areas, as well as Forests NSW's administered Flora Reserves and Forest Management Zone 1.

State Forests are managed by Forests NSW primarily for timber production, though they are subdivided into Forest Management Zones (FMZs) to regulate certain activities. Forest products operations are prohibited in FMZs 1, 2 and 3A. FMZ 1 includes Flora Reserves and is considered part of the dedicated reserve system.

The national reserve criteria (JANIS 1997) state *"In situations where it is not possible or practicable to include conservation values into Dedicated Reserves, it is appropriate for areas to be reserved under other secure tenure or management arrangements"*. In NSW Informal reserves are taken to encompass Forest Management Zones 2 and 3A.

In addition to these classes, (JANIS 1997) allows *"Where the nature of a forest value that is needed to contribute to the CAR reserve system makes inclusion in either Dedicated or Informal Reserves impractical"* that values may be protected by prescription. This is taken to include Forest Management Zone 3 and logging exclusion areas (rare non-commercial forest types, old-growth forest, rainforest, and threatened species).

A large proportion of exclusion areas (i.e. HCVOG, rainforest and rare and non-commercial forest types) that were zoned FMZ 2 or 3A were also subsequently gazetted as Special Management

Zones (SMZ) under section 21A of the *Forestry Act 1916.* There are 148,977 hectares of SMZs in the UNE and 134,467 ha in the LNE.

The reservation process from the RFA is still not complete. DECCW (2010) note:

> *As of 2008, about 27,500 ha of Crown leases over state forest in the UNE/LNE regions remained for possible transfer to DECCW estate, as agreed by I&I NSW (Forests NSW and Mineral Resources), if the leases become voluntarily available for purchase.*

The 1999 NSW Forest Agreements and 2000 North East Regional Forest Agreement identify numerous milestones that have not yet been achieved. This is best illustrated by the flurry of activity in 2009 when the annual NSW Forest Agreements (IFOA) Implementation Reports for 2004/05, 2005/06, and 2006/07 were prepared in one go (the 2007/08, 2008/09, 2009/10 reports are still missing), the 5 year NSW Forest Agreement review was prepared five years late and subsequently expanded to also constitute the 10 year review without most information being updated, and the 5 year Regional Forest Agreement (RFA) review was undertaken four years late. These rushed generic reviews are generally superficial and simplistic tick-the-box exercises. Which play no meaningful role in ongoing implementation

In relation to the 5 year RFA review Spencer (2009) notes:

> *However, fundamentally, the first reviews should have been completed in the 2004-2006 period, i.e. five years from their initialisation. That fact these reviews have been delayed 3-4 years is of considerable concern, has reduced public confidence in the outcomes and seriously distorts the process for the future.*
>
> *...*
>
> *It also is the case that many of the specific milestones required by the RFAs simply were not delivered in the timeframe required by the RFAs. While most are now either completed or underway, unless there is a real improvement in delivery, public confidence in the RFAs is at risk.*

The RFA is now treated as irrelevant with little attempt to comply with agreed milestones and satisfy stated outcomes. The process has become a sham.

2.1. Representative Forest Ecosystems

The basic criterion underlying the creation of the national Comprehensive, Adequate and Representative (CAR) reserve system is for reservation of 15% of the pre-European extent of each forest ecosystem. This is increased to 60% of the remaining extent of vulnerable ecosystems and 100% of the remaining extent of rare and endangered forest ecosystems.

The Comprehensive Regional Assessment (CRA) *"predicted that approximately 3,412,750ha or 87% of the Upper North East Region was covered by eucalypt dominated vegetation at the time of European invasion of the Australian continent"*. 149 eucalypt-dominated ecosystems were identified in the UNE, along with a further 13 (often broadly classed) non-eucalypt ecosystems. Of the eucalypt ecosystems, 31 meet the JANIS criteria for rarity and 19 meet the JANIS criteria for vulnerability.

For forest ecosystems the national forest reserve criteria (JANIS 1997) establishes that:

> *(1) As a general criterion, 15% of the pre-1750 distribution of each forest ecosystem should be protected in the CAR reserve system with flexibility considerations applied according to regional circumstances, and recognising that as far as possible and practicable, the proportion of Dedicated Reserves should be maximised (see Section 4).*

(2) *Where forest ecosystems are recognised as vulnerable, then at least 60% of their remaining extent should be reserved. A vulnerable forest ecosystem is one which is:*
   i) approaching a reduction in areal extent of 70% within a bioregional context and which remains subject to threatening processes; or
   ii) not depleted but subject to continuing and significant threatening processes which may reduce its extent.

(3) *All remaining occurrences of rare and endangered forest ecosystems should be reserved or protected by other means as far as is practicable.*

(4) *Reserved areas should be replicated across the geographic range of the forest ecosystem to decrease the likelihood that chance events such as wildfire or disease will cause the forest ecosystem to decline.*

...

(7) *To ensure representativeness, the reserve system should, as far as possible, sample the full range of biological variation within each forest ecosystem, by sampling the range of environmental variation typical of its geographic range and sampling its range of successional stages.*

The Australian Forestry Standards consider that Significant Biological Diversity Values include:

• threatened (including vulnerable, rare and endangered) forest types or ecosystems and old-growth forest that is depleted within a forest type or ecosystem as identified, under the nationally agreed forest reserve criteria;

• forest types or ecosystems and old-growth forest that are under-represented in the regional conservation reserve system, as implemented through Regional Forest Agreements;

For the CRA, expert panels also considered the vulnerability of forest ecosystems to clearing, logging, grazing, weeds, burning and other threats, giving each ecosystem an overall reserve priority of 1 to 5.

As at 1998 the CRA identified the need to protect in conservation reserves some 759,800 hectares of the 162 forest ecosystems in order satisfy the basic requirements of a CAR reserve system for the UNE. At that time 455,540 hectares of 117 forest ecosystems required reservation to satisfy the unmet reserve targets.

The timber volume constraints applied in the RFA decision significantly limited subsequent achievements of targets, as stated in the Forest Agreement for the Upper North East Region, Attachment 2 (1999):

In the Upper North East Region there are 162 forest ecosystems and 144 old growth ecosystems. If the additions to the formal reserve system are adopted, as outlined in this Cabinet Minute, a total of 59 forest ecosystems and 26 old growth ecosystems will achieve conservation targets. This will leave 103 forest ecosystems below target, of which 74 are ranked highly vulnerable, and 118 old growth forest ecosystems below target, of which 76 are ranked highly vulnerable

Our analyses (based on figures given in NE Regional Forest Agreement 2000) show that the 1998 decision increased the number of ecosystems achieving targets to 52 (32%), though with the inclusion of Informal Reserves and values Protected by Prescription this increased to 73 (45%). Of the total areal target, 51% was achieved in Dedicated Reserves leaving a shortfall of 372,258ha. With the inclusion of Informal Reserves and values Protected by Prescription 61% of areal targets are achieved, leaving a shortfall of 299,222 ha.

It is astounding that with 300,000 (39%) of the forest ecosystem areal targets required to be satisfied to establish a CAR reserve system in UNE remaining unmet (along with numerous other

targets), both the NSW and Commonwealth Governments (Premier Bob Carr and Prime Minister John Howard) signed that reserve requirements had been met. The North East Regional Forest Agreement (RFA 66) states:

> *Parties agree that the CAR Reserve System as identified on Map 1(A) and Map 1(B) and presented in Attachment 1(A), Attachment 1(B) and Attachment 2, satisfies the JANIS Reserve Criteria.*

While it may have satisfied their respective political agendas, it clearly did not satisfy the criteria.

UNE FOREST ECOSYSTEM TARGET ACHIEVEMENT

		Ecosystem Target Achievement (no)					Areal target Achieved (%)	Areal extent of Unmet Targets (ha)
		<25%	25-49%	50-74%	75-99%	>100%		
1998	**Dedicated Reserves**	52	23	17	18	52	51%	372258
	Dedicated and Informal Reserves and Prescriptions	34	24	11	20	73	61%	299222
2004	**Dedicated Reserves**	38	22	16	19	67	58%	322675

Based on GIS reporting we updated the achievement of targets in Dedicated Reserves to take into account reserve additions up to 2004, the number of ecosystems achieving targets has only increased to 67 (41%), leaving 95 (59%) below target. 60 ecosystems (37%) have less than half their targeted areas reserved, with 21 ecosystems (13%) achieving less than 10% of their targeted areas. 70 of the 95 forest ecosystems under target have been identified as high priorities for inclusion in the reserve system (1 and 2) in the expert workshops. 35 have been classed as rare and endangered, and 20 as vulnerable, in accordance with the JANIS criteria. This represents 90% of all rare, endangered and vulnerable ecosystems in the UNE. There are still 322,675 hectares of 95 forest ecosystems requiring reservation in formal reserves to satisfy the national reserve targets.

Due to the complexities we were not able to assess Informal Reserve and Values Protected by Prescription as at 2004, though as many of the additional reservations came from these categories the overall target achievement will not be proportionally improved.

It is emphasised that the JANIS criteria only countenance the satisfaction of reserve targets in informal reserves where it is "*not possible or practicable to include conservation values into Dedicated Reserves"*. This is not the case in the UNE as timber commitments were used to justify the exclusion of forest ecosystems and oldgrowth from the formal reserve system.

Some 130,500 hectares of the ecosystems requiring reservation occur on public lands that remain available for the NSW government to include in Dedicated Reserves or to fully protect off reserve. It is indeed both possible and practicable for the NSW Government to increase the inclusion of required forest ecosystems in the CAR reserve system but at present there appears no will to achieve this.

The NSW and Commonwealth Governments appear intent on obscuring the extremely poor reservation outcomes in north-east NSW by failing to reveal the relevant figures. The NE Regional Forest Agreement fails to consider forest ecosystems in relation to JANIS reserve targets, referring instead to original extent. To consider reserve achievement taking into account informal reserves and prescriptions we had to enter the data from the RFA tables and re-analyse it. We were not able to update this because we only have a vague idea of what was included as the relevant documents are inconsistent. The achievement of reserve targets for forest ecosystems should be public information, not a State secret.

The UNE Forest Agreement 2.11.2 identifies the need to report annually on the reserve status of forest ecosystems as a *Criteria and Indicators for ESFM*. Appendix 9 states (forest type is as defined in the RFA data):

> ***Indicator 1.1.a Extent of area by forest type and tenure***
> ***Rationale***
> *To monitor the change in* ***forest type**** *cover for the entire forest estate within the region against targets set for retention of forest types. This indicator aims to identify which forest types are increasing or decreasing in area, as a basis for adaptive management.*
> ***…***
> ***Reporting***
> *Area (ha) for each forest type by tenure (where available). Add narrative to describe how much of the total forest area the data refers, and to identify tenures that are not mapped or poorly known.*

The "annual" Forest Agreement Implementation Reports generally have a vague discussion regarding additions of forest ecosystems to reserves, no details of improvements in reserve targets, no mention of reserve status in State Forests and no information on private lands. As undertaken, reporting on this criterion is meaningless.

We have found that Forests NSW's planning system and Harvesting Plans ignore the CRA forest ecosystem classification and, aside from providing protection to specified "Rare Non-commercial Forest Types" give no regard to the reservation status of commercial forest types or ecosystems (see Section 5.3. for an example of this disregard).

2.2. Maintaining and Monitoring Oldgrowth

Old-growth forests are dominated by trees that have reached or passed maturity (maximum height and crown width). In general, old-growth eucalypt forests are multi-age forests, with a range of young and old trees resulting from past disturbances (Mackowski 1987). Such forests are often described as ecologically mature.

The National Forest Policy Statement defined oldgrowth forest as:

> *forest that is ecologically mature and has been subjected to negligible unnatural disturbances such as logging, roading and clearing. The definition focuses on forest in which the upper stratum or overstorey is in the late mature to overmature growth phases.*

Some of the values of old-growth forest can be broadly delineated as:

1. reservoirs of biodiversity critical for the maintenance of genetic diversity, natural processes and evolutionary potential;
2. provision of a variety of nest, roost, den and shelter sites (hollows, large trees, large logs, permanent seepages, etc.), abundant food sources for specialist foragers (nectar, invertebrates, fruit, etc.), a high diversity of foraging niches (uneven canopy, canopy gaps, deep litter, logs, large tree trunks, etc) and other attributes upon which a large diversity of fauna depend and which are either unavailable or significantly less abundant in younger forests;
3. provision of a diversity of habitats and niches for a variety of flora (eg fungi, lichens, mistletoes, epiphytes) which are either unavailable or less available in a younger forest;
4. release to streams of more water, more regularly and of higher quality than that provided by regrowth forests;
5. maintenance of intact ecosystem processes (eg nutrient cycling, soil and hydrological processes, food chains, energy balances) that are disrupted and diminished by forestry practices;

6. retention of natural integrity, and thus increased resilience to threatening processes such as climate change and invasion by exotic species when compared to disturbed and degraded forests;
7. importance as sites for scientific research, particularly as benchmark sites for environmental monitoring;
8. retention of currently hard to detect archaeological material which is grossly disturbed by the earthworks associated with logging; and,
9. provision of a range of significant intangible values, especially values related to aesthetics and pristine attributes.

In 1989 the Chairman of the Australian Heritage Commission, Mr. Pat Galvin (1989), in a speech given to the Institute of Foresters of Australia 13th Biennial Conference stated:

> *"… I believe that there is now an irrefutable argument for forestry operations to cease in all remaining undisturbed native forests. All of us, whether from Government or the community at large and especially those charged with leading the forestry program, must agree that it is time to call a halt if we are to have the opportunity of leaving for future generations those forests which are of significant heritage value. … Better to err now on the side of the future than place ourselves again with the vandals of the past."*

The Resource Assessment Commission (1992a) emphasises that it is not feasible to log old-growth forests and still retain, or ever regain, their full complement of old growth attributes and values, stating:

> *Logging of old-growth forest ... potentially violates the precautionary principle of sustainable development in that an irreplaceable resource is being destroyed ... the values associated with the pristine attributes can not be replaced.*

Again in 1992 the National Forest Policy Statement recognised the importance of oldgrowth forests to the Australian community:

> *The Governments have agreed to a strategy designed to conserve and manage areas of old-growth forests and wilderness as part of the reserve system. The strategy acknowledges the significance of these areas to the Australian community because of their very high aesthetic, cultural and nature conservation values and their freedom from disturbance.*

The State and Commonwealth's JANIS (1997) reserve criteria allow that where less than 10% of the remaining extent of a forest type is oldgrowth it should all be protected, otherwise the intent is to protect a baseline of 60% of whatever oldgrowth is left. The criteria allow oldgrowth targets to be increased to the "*levels of protection necessary to achieve*":

- *the representation of old-growth forest across the geographic range of the forest ecosystem*
- *the protection of high quality habitat for species identified under the biodiversity criterion;*
- *appropriate reserve design;*
- *protection of the largest and least fragmented areas of old-growth;*
- *specific community needs for recreation and tourism*

In the community heritage workshops undertaken as part of the CRA process the community again identified oldgrowth forest for special consideration, placing such weight upon it in north-east NSW that the Commonwealth identified all oldgrowth forests as being worthy for listing on the Register of the National Estate for their social values alone (Contex P/L 1998b, 1998c).

The Australian Forestry Standards (AFS) include:

> *4.3 Criterion 3—Forest management shall protect and maintain the biological diversity of forests, including their seral stages, across the regional landscape*

4.3.1 The forest manager shall actively identify and assess the significance of biological diversity values and structural elements (such as standing and fallen dead wood and hollow bearing trees) to support the maintenance and protection of identified Significant Biological Diversity Values. The assessment of the significance of biological diversity values shall be based on existing relevant knowledge and forest planning instruments and shall be undertaken in a regional context.

The AFS identifies that Significant Biological Diversity Values include:

- *threatened (including vulnerable, rare and endangered) forest types or ecosystems and old-growth forest that is depleted within a forest type or ecosystem as identified, under the nationally agreed forest reserve criteria;*
- *forest types or ecosystems and old-growth forest that are under-represented in the regional conservation reserve system, as implemented through Regional Forest Agreements;*

As part of the Comprehensive Regional Assessment process, forest growth stages and disturbances across all tenures were mapped by Aerial Photographic Interpretation (API) of 1:25,000 photographs. An oldgrowth Expert Panel determined which combinations of growth stages and identified disturbances should be assigned as “candidate oldgrowth”.

As well as ecosystem targets, targets were established for oldgrowth within each ecosystem, with targets set for 60% of the remaining extent of oldgrowth for each eucalypt ecosystem, increasing to 100% of *rare or depleted old-growth forest*. In the UNE there was then 654,599 hectares of oldgrowth forest identified as remaining in 1998, which was 30% of remaining forests. It is important to recognise that while some oldgrowth remains on productive lands, most is on low nutrient, steep country and thus of low productivity.

In strict accordance with the national reserve criteria, targets were established for protection of 409,993 hectares of 144 oldgrowth forest ecosystems in the CRA. These targets equate to 63% of remaining oldgrowth forest (as at 1998), 19% of remaining forest, and 12% of the pre-1750 forest area.

An additional category of “High Quality Habitat Old Growth” (HQHOG) was created by intersecting modelled high quality habitat for 21 oldgrowth dependent species (selected by fauna experts) with “candidate oldgrowth”.

In the CRA agency negotiations “High Conservation Value Old Growth” (HCVOG) was identified by DECCW and Forests NSW to included the subset of oldgrowth that was identified as HQHOG or having a "summed irreplaceabilty" value greater than "5" in the UNE and greater than "3" in the LNE. Summed irreplaceability was the principal index of relative conservation importance derived in the CRA process. The thresholds for “summed irreplaceability” were determined by how much timber would be available for logging, not on conservation merits, as illustrated by the application of a higher threshold in the UNE. No consideration as given to how well oldgrowth ecosystem targets had been achieved.

As an outcome of the Regional Forest Agreements, mapped HCVOG was identified for protection on public land off-reserve. The RFA only provided protection for 237,400ha of mapped oldgrowth forest in Dedicated Reserves, which increased to 371,000 hectares when Informal Reserves and Protection by Prescription were accounted for. In relation to target achievement the Dedicated Reserves left a shortfall of 183,600 ha (45%), with the inclusion of Informal Reserves and Protection by Prescription the shortfall decreases to 72,243ha (18%).

UNE OLDGROWTHFOREST ECOSYSTEM TARGET ACHIEVEMENT

		Oldgrowth Ecosystem Target Achievement (no)					Areal target Achieved (%)	Areal extent of Unmet Targets (ha)
		<25%	25-49%	50-74%	75-99%	>100%		
1998	Dedicated Reserves	33	32	31	26	22	55%	183601
	Dedicated and Informal Reserves and Prescriptions	14	18	20	33	59	82%	72243
2004	Dedicated Reserves	21	26	27	33	37	69%	125493

Since then all oldgrowth forest mapped during the CRA, which was not deemed to be "HCVOG", has been reclassified by Forests NSW and is now called mature forest (State Forests 1999).

In 2002 NEFA identified an additional 19,000 ha of non-HCVOG oldgrowth forest in north-east NSW for protection. These stands were subsequently transferred to Forest Management Zones protected from logging as part of the “Icon Decision” in the lead-up to the NSW State elections in March 2003.

As at 2004, in the UNE 107 out of 144 oldgrowth forest ecosystem targets still have not been met in Dedicated Reserves. 125,493 hectares of oldgrowth forest is still required for addition to formal reserves to satisfy national oldgrowth targets. 48 oldgrowth ecosystems (34%) have less than half their target areas reserved, with 13 ecosystems (9%) achieving less than 10% of their target areas. While these targets improve when off-reserve management is accounted for, the relevant data is not available to us. NEFA successfully lobbied for 19,000 ha of unprotected oldgrowth forest on public land in north-east NSW to be included in Special Management Zones in 2003, so we expect off-reserve protection has been significantly improved. However we are still finding oldgrowth forest being logged.

NEFA’s position has always been that 100% of all remaining oldgrowth forest should be protected. We do not consider that the logging of oldgrowth forest can be considered sustainable under any definitions.

Under-represented and poorly reserved old growth forest are identified as ‘Significant Biological Diversity Values’ by the AFS. The evidence is that logging of oldgrowth forest goes on unreported and that annual reporting of growth stages does not take into account logging.

2.2.1. When Old Growth does not Exist

For management Forests NSW include “candidate oldgrowth” and “disturbed old growth forest” with “mature forest” and do not apparently consider or assess the key growth stage of oldgrowth, instead limiting their consideration to the subset of oldgrowth identified as “High Conservation Value Old Growth”. This does not satisfy the intent of the UNE Forest Agreement and the Australian Forestry Standards criteria.

The NSW Implementation reports specifically report on High Conservation Value Old Growth (HCVOG), Candidate Old Growth (COG), and Disturbed Old Growth (DOG) forest for National Parks. For consistency and completeness this reporting should be extended to apply to State Forests.

In our brief audits we have found two areas of forests mapped as oldgrowth forest in the Comprehensive Regional Assessment, one of which has been logged and another proposed for logging. One area has been logged in contravention of RFA requirements and both have been identified for logging in contravention of the AFS's requirements that *"The forest manager shall actively identify and assess the significance of biological diversity values and structural elements (such as standing and fallen dead wood and hollow bearing trees) to support the maintenance and protection of identified Significant Biological Diversity Values".*

At Girard State Forest (Pugh 2010d) a 9ha CRA-mapped stand of Northern Grassy Sydney Blue Gum candidate oldgrowth forest was apparently included in an FMZ 3B area to protect its oldgrowth values, originally as part of the 2005 Environmental Impact Statement process. While this ecosystem has met its oldgrowth target it has only met 87% of its CRA ecosystem reserve target, including in Informal Reserves and 'Protection by Prescription'. It is likely this stand was included as contributing to 'Protection by Prescription'. It was an impressive and highly significant stand, until recently being dominated by giant trees, some over 2 metres in diameter and over 50 metres tall.

Forests NSW deny it was oldgrowth and claim to have no records of its special values. It was counted in the owl landscape plan as an exclusion area contributing to their protection, yet not only was it logged, but the increased hollow-bearing tree retention requirements to accommodate owl prey species (specifically arboreal species) meant to be applied to the whole compartment were not applied to the oldgrowth stand. The failure to recognise the special values of this stand and appropriately protect them as required by the FM zoning is an indictment of Forests NSW's planning processes and a failure to appropriately consider AFS *Significant Biological Diversity Values* even when required to by the RFA.

For Compartment 144 in Doubleduke State Forest 37% was mapped as being candidate oldgrowth forest in 1998. Of this, 65ha was logged in 2002, 25ha is now proposed for logging and 200ha is shown in the harvesting plan for protection on the basis it is "High Conservation Value Old Growth" forest. Yet Forests NSW refuse to accept that the oldgrowth proposed for logging is mapped as oldgrowth forest and have not bothered to consider its relevant *Significant Biological Diversity Values.*

Because Forests NSW do not report on candidate oldgrowth forest, or even accept its existence, these cases, and all other non-"HCV" oldgrowth logging, will not register in their reporting.

2.2.2. Growth Stage Reporting

One of the CRA indicators used for reporting is "1.1.b: Area of forest type by growth stage distribution by tenure" This is meant to be reported on annually and in the 5 and 10 year reviews as a key indicator of Ecologically Sustainable Forest Management. The NE Forest Agreement (2.11.2) requires annual reporting of this attribute. Appendix 9 elaborates:

> **Rationale**
> *Ecological processes and the species associated with those processes, within any forest ecosystem or forest type, are associated with vegetative structures and developmental stages.*
> **…**
>
> ***Data requirements and Monitoring methodology***
> *Baseline data will be used from the RFA forest type data sets.*

Ongoing data from SFNSW tenure will be provided through operational updates to a forest management database. Ongoing data from NPWS will be provided by mapping disturbance (e.g., fire).

Regional Vegetation Management Plans and applications for clearing licences may provide relevant information for private and leasehold land.

Re-inventory using remotely sensed imagery may be possible across all tenures if appropriate resourcing is available.

Reporting

Report on the percent of forest estate with a mix of early, mid and late age classes. Record by the same forest types as used in Indicator 1.1.a. Report forest stands as:

- *Regeneration stands - defined as stands where the most abundant crown form is regeneration and or the year of origin indicates that the majority of trees within the stand are less than 20 years of age.*
- *Regrowth stands - defined as stands where the most abundant crown form is regrowth and or the year of origin indicates that the majority of trees within the stand are between 20 and 80 years of age.*
- *Mature stands - defined as stands where the most abundant crown form is regular and or the year of origin indicates that the majority of trees within the stand are greater than 80 years of age.*
- *Overmature stands - defined as stands where the most abundant crown form is irregular and this has been determined to be due to age.*

Changes in area over time related to forest management objectives.

In the CRA process the condition of forests was mapped from aerial photographs and assigned to the categories; Rainforest, Candidate Old Growth Forest, Disturbed Old Growth Forest, Mature Forest, Disturbed Mature Forest, Regrowth and Recently Logged. In the agency negotiations it was agreed to classify a subset of the Candidate Old Growth Forest as High Conservation Value Old Growth (HCVOG) based on limited criteria and a timber supply constraint.

Forests in their natural state are predominantly oldgrowth forest with intensive wildfires and most significantly logging altering their age structure to younger growth stages. In the CRA process recent logging (post-photo) was used to over-ride growth stages mapped from aerial photo interpretation, such that areas mapped as oldgrowth disturbed oldgrowth, mature etc were reclassified as recently disturbed (young regeneration) if they were shown to have been logged after the photos were taken.

The reporting on this indicator now assumes that the growth stages as applied in the CRA remain static. Since the RFA, according to Forests NSW's interpretation it is now possible to clearfell an oldgrowth forest without affecting its growth stage. The 2002/3 Forest Agreement implementation report states:

> *Growth stages within the NPWS estate and State forests have remained relatively stable. As with the previous indicator, changes have been the result of land additions and revocations.*
> *...*
> *The extent of growth stages within State forests has not changed significantly since 1999/2000.*

The Commonwealth realised this was an absurdity and included a reference to the fact that logging affects growth stages, though they did not fix the problem. As an example the NSW&CoA (2009) 5 year RFA review comments:

The spread of age classes across forest communities is a measure of ecosystem diversity, since the structure and species composition of forest change as the forest grows older. Sustainable forest management requires the maintenance of a full range of age classes across the Forests NSW forest estate. Old-growth forest is a priority.

Forests are not rapidly changing systems, so monitoring of forest growth stages will not show large variations from year to year. The value of this indicator will be determined over time as the volume of data increases and trends can be identified. At this stage, any changes recorded from year to year will be primarily due to changes in land tenure and timber harvesting activities.

There are two broad criteria that determine growth stage classes within forests – ecological maturity (i.e. dominant age class of trees and characteristics of understorey) and level of disturbance (i.e. logging and clearing) (NPWS 1999c). Areas of forest categorised as old-growth are areas of ecologically mature forest where the effects of disturbances are now negligible (JANIS 1997).
...
Approximately 50% of state forest tenure is excluded from timber harvesting. The remaining 50% is available for harvest and the growth stages will change to mature forest that has been recently disturbed, mature forest and young forest as operations proceed. ...

The extent of growth stages in state forests and DECC reserves remained relatively stable between 1999–2000 and 2001–02. Following the completion of the FMZ assessment in the UNE and LNE regions in late 2002, some larger changes in forest type extent and growth stage have subsequently been recorded in 2002–03 and 2003–04. The largest increases in growth stage extent were recorded on DECC reserves following the gazettal of a number of land transfers resulting from the National Park Estate (Reservations) Act 2002 and the National Park Estate (Reservations) Act 2003....

Growth stage distribution in the Forests NSW forest estate. Source NSW&CoA (2009). Mature forest includes mature, disturbed mature and candidate old growth; regrowth forest includes young forest; young regeneration includes recently disturbed forest; 'unassigned' represents no growth stage assigned.

Table 5.3: Growth stage distribution – Upper North East region

	2001–02	2002–03	2003–04	2004–05	2005–06
Forests NSW forest estate	Hectares	Hectares	Hectares	Hectares	Hectares
Rainforest	31,685	31,631	28,475	28,259	28,253
High-conservation-value old-growth	68,029	67,971	55,328	55,225	55,231
Mature forest	231,420	231,406	211,324	212,027	211,975
Regrowth forest	38,837	38,893	37,268	37,307	37,289
Young regeneration	53,670	53,667	51,742	51,758	51,798
Un-assigned	7338	7149	6302	412	6351
Totals	430,979	430,717	390,439	390,988	390,897

During the period covered by the above table, in the UNE 65,799ha was transferred to National Parks on 1/01/2003 as part of the resolution of FMZs and Wilderness and 14,573ha was transferred to National Parks on 1/07/2003 as part of the Forest Icon areas. These changes are presumably responsible for the changes belatedly identified by NSW&CoA (2009) for 2003/4, though they only appear to have been partially considered. Apart from the surprising increase in mature forest in 2004/5, and the mysterious disappearance of 6,000 ha of un-assigned forest for two years, logging

appears to have had no significant impact on growth stages. There appears to be no correspondence between the data provided by DECCW and Forests NSW.

Changes in extent of growth stages on State Forests and NPWS reserves. Adapted from NSW&CoA (2009) for State Forests and relevant FA implementation reports for National Parks and reserves. Note that Forests NSW do not report on candidate oldgrowth.

	2001/2 to 2002/3 (ha)		**2002/3 to 2003/4 (ha)**		**2003/4 to 2004/5 (ha)**		**2004/5 to 2005/6 (ha)**	
	SF	**NP**	**SF**	**NP**	**SF**	**NP**	**SF**	**NP**
Rainforest	-54ha	?	-3156		-216	+347	-6	
High-conservation value old-growth	-58ha	?	-12,643	+1701	-103		+6	0
Candidate oldgrowth		?		+2 093		+7.970		+839
Mature forest	-14ha	?	-20,082	?	+703	+1,641	-52	+989
Regrowth forest	+56	?	-1,625	?	+9	+213	-18	+341
Young Regeneration	-3	?	-1,925	?	+16	+16	+40	0
Un-assigned	-189	?	-847	?	-5,890?	+1,704	+5,939?	+231
Totals	**-262**	**?**	**-40278**	**?**	**+549**	**+11,891**	**+91**	**+2,464**

There should be discernable declines in mature forest and corresponding increases in young regeneration if logging is taken into account. It is apparent that reporting on changes in the extent of growth stages has become a meaningless exercise that demonstrates a total lack of commitment to achieving agreed outcomes and providing transparent, unambiguous accounting of the process.

The reporting of changes in growth stages is a meaningful measure of the status of forest structure but only if it takes into account the affects of fires and logging on those growth stages, is consistently and reliably reported and identifies oldgrowth forests. Reporting on this criterion for each forest type would significantly increase its usefulness, and this appears to be the intent. Unfortunately there is no reporting of growth stages for each forest type, which should at least be presented and discussed, with any significant changes highlighted.

2.3. Adequate Fauna Populations

For plant and animal species, the national reserve criteria (JANIS 1997) establishes that:

The reserve system should seek to maximise the area of high quality habitat for all known elements of biodiversity wherever practicable, but with particular reference to:

- *the special needs of rare, vulnerable or endangered species;*
- *special groups of organisms, for example species with complex habitat requirements, or migratory or mobile species;*
- *areas of high species diversity, natural refugia for flora and fauna, and centres of endemism; and*
- *those species whose distributions and habitat requirements are not well correlated with any particular forest ecosystem.*

Reserves should be large enough to sustain the viability, quality and integrity of populations.

The AFS requires *"The forest manager shall implement practices to support the protection and maintenance of Significant Biological Diversity Values likely to be affected by forest operations"*. The AFS considers that Significant Biological Diversity Values include; known and likely occurrences of threatened (including vulnerable, rare, or endangered) species and communities and relevant habitat;

For the Comprehensive Regional Assessments expert panels identified a priority list of forest-dependent fauna species for north-east NSW on the basis that they were "*likely to go extinct, decline further or start to decline in the absence of management action*" and with reference to all species listed in relevant State and Commonwealth legislation or previously identified as regionally significant (EA 1999). A total of 174 priority forest-dependent fauna species were identified, and models were developed for those for which sufficient data were available. This resulted in models for 146 priority species. The 28 priority fauna species that could not be modelled were mostly highly endangered or rare, cryptic species.

For setting fauna targets the CRA process was theoretically to identify minimum viable population sizes for discrete populations of each species, and apply these as reservation targets (expressed in hectares) using modelled habitat qualities and taking account of likely dispersal barriers (EA 1999). For logistical reasons a formula using a minimum set of life history parameters that define the relative area a species requires, was used to identify Species Equity Targets (EA 1999). Rather than identifying a viable population size, this was intended to identify the area of habitat required to give each population of each priority species an equitable chance of survival (EA 1999).

Expert panels were used to oversee the choice of the most appropriate species models and the target setting process. The division of modelled habitat into distinct populations separated by dispersal barriers resulted in the identification of targets for 710 fauna populations. The expert panels also derived a reservation priority (vulnerability) ranking reflecting the relative priority (1 to 5) of a species to be included in a formal reserve system, taking account of;

- the vulnerability of the species to off-reserve disturbances.
- the ability of the Conservation Protocols to ameliorate these disturbances.
- the intrinsic risk to the species' survival (*i.e.* how rare or uncommon the species was considered to be).

Flint, Pugh and Beaver (2004) analysed the adequacy of the reserve system for fauna in 2004, finding;

> *A binary target assessment of all 710 fauna populations under consideration (excluding targets for bat roosts) reveals that only 217 (31% of all populations) have met conservation targets. Seventy-two of the 139 species (or 52% of species) with targets set have failed to meet target for any of their populations. Only 17 species have met target for all their populations, while the remaining 50 species have met target for at least one but not all populations.*
>
> *A proportional target analysis indicates that only 45% of fauna populations have sufficient habitat reserved to achieve 50% or more target fulfilment, and 20% of fauna populations are yet to achieve even 10% of the habitat required to meet targets. The mean target achievement for all populations across all tenures is 49%, and the target area index is 33%. The mean target achievement for public lands is 76% and the target area index is 70%.*
> *...*
> *Of the 38 fauna species ranked by the expert panel as having the highest vulnerability to threatening processes (vulnerability 1), 30 do not attain targets for any populations, and none attain targets for all populations. Only 8 species attain targets for one or more populations. Therefore, species with the highest vulnerability to threatening processes remain very poorly reserved.*

Examples of the achievement of reservation targets for particular species (Flint, Pugh and Beaver 2004) in north-east NSW (UNE and LNE) were:

- **Hastings River Mouse**, a nationally Endangered species; target was 33,969 breeding females distributed across 8 populations (of up to 4,251 females each). The outcome was the reservation of a total of 2,863 breeding females, with 8% of the mean target achieved (1-29%).
- **Spotted-tailed Quoll**, a nationally Vulnerable species; target was 4536 breeding females distributed across 4 populations (of up to 1,800 females each). The outcome was the reservation of a total of 1,201 breeding females, with 25% of the mean target achieved (10-55%)
- **Barking Owl**, a State Vulnerable species; target was 1,610 breeding females distributed across 2 populations (of up to 805 females each). The outcome was the reservation of a total of 466 breeding females, with 61% of the mean target achieved (44-79%)
- **Powerful Owl**, a State Vulnerable species; target was 756 breeding females distributed across 2 populations (of 378 females each). The outcome was the reservation of a total of 234 breeding females, with 14% of the mean target achieved (11-18%)
- **Yellow-bellied Glider**, a State Vulnerable species; target was 9,240 breeding females distributed across 8 populations (of 1,155 females each). The outcome was the reservation of a total of 1,636 breeding females, with 18% of the mean target achieved (6-33%)

These outcomes highlight the failure of the RFA to satisfy national reserve criteria and deliver on the promise of an adequate reserve system sufficient to maintain the ecological viability and integrity of fauna populations. The extremely poor reservation status of many threatened fauna species in north-east NSW emphasises the need for substantial additions to the reserve system to improve fauna conservation, as well as the strict application of strengthened logging protocols that take into account the poor reservation outcomes. Evidence from NEFA's audits is that off-reserve management prescriptions for fauna are frequently not being applied, are inadequately implemented or are negated by other forestry practices.

2.4. Sustainable Timber Yields

> *"People do expect that their Australian Forest Services and their Australian Forest Industries, together, will conserve, in never ending benefit to them, both the Australian timberlands and their commerce.*
>
> *If there be disagreement between the strategy of the one and the tactics of the other, the battle is at hazard. The community for which the war was lost may be entitled to put a disagreeable end to its disagreeing generals, at the disagreeing ends of the cross-arms of the nearest lamp post."*
>
> Mr. E.H.F. Swain, Forestry Commissioner, N.S.W. 1937.

The National Forest Policy Statement (CoA 1992) states:

> ***Ecologically sustainable forest management and codes of practice***
> *Ecologically sustainable forest management will be given effect through the continued development of integrated planning processes, through codes of practice and environmental prescriptions, and through management plans that, among other things, incorporate sustainable-yield harvesting practices.*
> *...*
> ***4.2 Wood production and industry development***
> *Sustainable economic use of native forests and plantations is one of the principal objectives of this Statement.*
> *...*

The Commonwealth-State regional agreement resulting from the assessment will also cover guidelines for all aspects of ecologically sustainable management of the forests ... In this respect, the guidelines will cover, for example, management for sustainable yield, the application and reporting of codes of practice, and the protection of rare and endangered species and national estate values.

The NE Forest Agreement (2.11.2) requires annual reporting of:

2.1.d Annual removal of wood products compared to sustainable volume.

The Regional Forest Agreements (Commonwealth of Australia and the State of New South Wales 2000) state:

***"Sustainable Yield"** means the long term estimated wood yield from forests that can be maintained from a given region in perpetuity under a given management strategy and suite of sustainable use objectives*

The Australian Forestry Standards claims to be "a world leader in the certification of sustainable forest management". The AFS define Sustainable yield as *"The yield that a forest can produce continuously at a given intensity of management"*, noting:

With appropriate harvesting, silvicultural management and conservation strategies, the composition of forests has the ability to be maintained. Impacts of harvesting on forest structure, biomass distribution and habitat, however, are more profound and require specific measures for sustainable management and sufficient time for recovery. Over-cutting of commercial timber species in a number of native forest types around Australia has resulted in a gradual decline in their productivity and condition, together with consequent modification of habitat. These impacts created significant public concern and resulted in a review of forest management (Commonwealth of Australia 1992). Research and development into the sustainable management of commercial forest types, in particular determination of sustainable yields and harvesting regimes, over the last 20 years, and more recently under Regional Forest Agreements, has resulted in substantial improvements in the prospects for the sustainable harvesting and management of these forest types.

It is intriguing that while the relevant RFA and AFS documents refer to sustainable yield, and create the impression that this is being applied as a component of ecologically sustainable forest management, as intended by the NFPS, they do not actually specifically require forests to be managed on a sustainable yield basis. Despite this, it is considered that a member of the public would assume that "sustainable forest management" would encompass "sustainable yield". To most people logging on an unsustainable yield basis would be contrary to sustainable forest management.

This section only considers sustainable yield in the context of timber supply from public forests and focuses on of quota sawlog volumes. Quota sawlogs are generally taken to be large high quality sawlogs with minimal defect and a centre diameter of 40 cm, and until relatively recently were annual commitments. Since the NSW Government first introduced Wood Supply Agreements in 1988 these annual commitments have slowly been converted to term agreements for periods of from 10 to 20 years. While these long-term tradeable rights are worth a lot, they are given at no cost to the loggers.

It is apparent from estimates in Management Plans that Forests NSW has historically considered 'sustained yield' to mean the volume of timber that can be obtained from an area in perpetuity. Though in the 1990s Forests NSW tried to justify their unsustainable logging of some areas by adopting two definitions of sustained yield, one for "even-flow" sustained yield and the other is termed "variable flow" (or long term) sustained yield. The later definition was used to allow unsustainable logging to continue until the available resource is exhausted, this is called "sustainable" on the basis that some time in the future regrowth will again provide the yields currently being obtained.

Forests NSW (State Forests 1993) state:

> *On some management areas with a long management history, medium-term sustained yields are expected to increase towards long-term sustainable yields in the near future, but it could be well in excess of 100 years before some management areas achieve a stand structure able to supply yields at long-term sustainable levels. Yields for the State as a whole should be approaching long-term sustainable levels when the youngest regrowth stands (regenerating about 2030) are maturing in about 2110-2130."*

After the creation of the new (1998) national parks, and with the protection of the Government's HCV oldgrowth forest, rainforest, streams and allowance for threatened species protocols, Forests NSW's 1998 Forest Resource and Management System (FRAMES) identified the 100 year sustainable yields of *High Quality Large Sawlogs* as 80,319 m^3 gross of high quality large sawlogs per annum for the Upper North East CRA region (UNE) and 136,902 m^3 per annum in the Lower North East (LNE).

The NSW Government subsequently decided to increase 20 year volumes and guarantee them in Wood Supply Agreements, at the expense of long-term yields, thereby committing NSW to unsustainable logging. Faced with damning yield reviews in 2004 the NSW Government decided to ignore them, expand Wood Supply Agreements by 260% to include small and low quality sawlogs, remove review clauses, and extend them for a further 5 years. Thus the NSW Government further entrenched unsustainable logging. Though Forests NSW can not satisfy the commitments and has already had to buy back quota and compensate mills for their failure to supply. The situation is rapidly deteriorating.

2.4.1. Sustainable Wood Supply Strategy

In 2009 the NSW Auditor-General, Peter Achterstraat, prepared the report "Sustaining Native Forest Operations: Forests NSW". He reached the obvious conclusion that *"current yield from native forests in the north coast is not sustainable in the long term"* stating:

> *To meet wood supply commitments, the native forest managed by Forests NSW on the north coast is being cut faster than it is growing back. This is especially the case for the blackbutt species. This does not mean that the forest will not regrow but there will be a reduction in yield in the future.*

In clear recognition of the failure to apply sustainable yield in north-east NSW, the Regional Forest Agreements (Commonwealth of Australia and the State of New South Wales 2000) now claim to be implementing a strategy without the pretence that regrowth could possibly fulfil future needs:

> ***"Sustainable Wood Supply Strategy"*** *means the intent to manage yields of High Quality Large Sawlogs and Large Veneer Logs from the forest at a specific and constant level for twenty years under a given management strategy and suite of sustainable use objectives. It recognises that a transition to long term Sustainable Yield will be phased in to accommodate social and economic considerations;*

This time the strategy was to go on logging at unsustainable rates, and to supplement this by purchasing private properties with existing resources and for establishment of new plantations to attempt to increase future timber availability. However the strategy has not fulfilled its aims and the resource assessments it is based on have been found to be inflated and fundamentally flawed.

The Commonwealth of Australia and the State of New South Wales' (2000) Regional Forest Agreement for North East New South Wales (Upper North East and Lower North East Regions). States:

Under the Sustainable Wood Supply Strategy, NSW agrees to supply 129,000m^3 per annum for 20 years in the Upper North East Region and 140,000 m^3 per annum in the Lower North East Region of High Quality Large Sawlogs and Large Veneer Logs. Annually, approximately 20,000 m^{3}of High Quality Large Sawlogs and Large Veneer Logs allocated in the Upper North East Region will be sourced from the Lower North East Region over the period of the Agreement.

...

... It is estimated that the 100 year supply levels after 2018 will average approximately 70,000 m^3 per annum in the Upper North East Region and 113,500 m^3 per annum in the Lower North East Region of High Quality Large Sawlogs and Large Veneer Logs from existing native forests and Plantations on State forests and other land owned by SFNSW, assuming harvesting under existing terms and conditions.

...

Both Governments aim to provide additional sawlog and other wood products that will become available through purchase by SFNSW of private native forest property and through Plantations established on purchased land or as joint ventures. These measures are currently predicted to bring the average annual available High Quality Large Sawlog and Large Veneer Log yield from State forests beyond the 20 years of this Agreement to within approximately 15 per cent of the 20 year contracted levels for Upper North East Region and Lower North East Region.

The Sustainable Wood Supply Strategy is to log unsustainably for 20 years and then dramatically reduce yields to a level considered sustainable thereafter. Though yield estimates have since been revised downwards, with long-term yields being dramatically reduced. There are commitments in the agreements intended to improve future resource availability, such as to purchase Private Land and/or timber rights and establish new hardwood plantations by 2004. However these supplementary supplies have not been fully realised and the evidence is that small sawlogs and plantation sawlogs are being logged too early to meet resource shortfalls (see section 2.4.5).

2.4.2. Yield Reviews and Commitments Post RFA

As a contribution to the NSW Government's decision making before issuing new Wood Supply Agreements, Pugh and Flint (1999, Appendix 1D) undertook a detailed review of the data available on timber volumes from public lands in north-east NSW and found an unacceptably high error margin and substantial over-estimations of the quota sawlog resource when compared to other resource estimates, with estimates particularly insensitive to recent logging, stating:

Numerous other data sets, along with historical trends, all show this same picture of a massive over-estimation of resources by FRAMES. There can be no doubt that this is the case, in many areas FRAMES predicts there to be far more resource than could possibly exist.

Pugh and Flint (1999) warned:

Over-commitment of resources has significant environmental and social impacts when, to maintain committed timber volumes, State Forests; log in environmentally significant areas, refuse to adopt enhanced environmental prescriptions on the grounds of loss of resources, seek reductions in prescriptions to obtain more timber, withdraw resources from smaller mills and fail to reduce quotas to sustainable levels in line with new estimates.

Pugh and Flint (1999) identified a variety of reasons why previous resource estimates have become unstuck, many of which are becoming increasingly apparent with Forests NSW's latest efforts:

- *inadequate numbers of sample plots to extrapolate from, also often of too small a size to adequately reflect the variable structure of the forests;*

- *inappropriate extrapolation and modelling methodologies;*
- *inadequate ground-truthing;*
- *treating the stand structure as "normal" and failing to take into account the degraded nature of many stands;*
- *over-estimation of the loggable area in compartments;*
- *logging of the highest volume compartments first while avoiding compartments with significantly less resource than estimated, resulting in mostly relatively low volume compartments remaining until later in the cutting cycle;*
- *application of inflated growth rates;*
- *increasing allocations of veneer logs, larger poles, girders and (in some cases) sleeper logs which effectively compete for quota logs, without compensating by reducing quota sawlog commitments;*
- *inappropriate parcel sales (quota material being sold in addition to quota commitments);*
- *failure on behalf of millers to harvest poorer quality quota sawlogs or less desirable species (i.e. taking the cream);*
- *leakage of quota when taken for other products,*
- *restrictions on logging resulting from protection of riparian areas and threatened species prescriptions; and*
- *woodchip specifications demanding potential quota material.*

The primary aim of Pugh and Flint (1999) was that a *"thorough and independent review of forest resources be urgently undertaken"*.

The Auditor General (2009) identified that:

> *Forests NSW completed two studies comparing harvest results with yield estimates for the north coast between 1999 and 2001. The longest study, covering a two and a half year period, showed that actual yield was 87 per cent of predicted.*

In contravention of the Regional Forest Agreement, Forests NSW's response was to stop collecting data on actual versus predicted yields.

Since then there have been 4 reported reviews of wood resources:

1. Vanclay, J (2002) "Review of Projected Timber Yields for the NSW North Coast". Southern Cross University.
2. Forests NSW, July 2004 , "State of the Resource, A Review of Wood Resources on the North Coast of NSW".
3. Forests NSW's, September 2004 "A Review of Wood Resources on the North Coast of New South Wales
4. Forests NSW (Partington and Stevenson), - 'Forests NSW: Review of North Coast Standing Volumes for the 2004 Valuation,' undated, late 2004, Report for the NSW Auditor General

Three of these are available on line, though there is no documentation to put them in context, the only reference found to the July 2004 report was in Partington and Stevenson (2004), and the Partington and Stevenson report itself does not have a date or identify where it was published. It is disappointing that the NSW Government attempts to ignore the 2004 reviews and instead primarily relies upon the outdated 2002 review.

In 2002 Jerry Vanclay (Southern Cross University) undertook a desktop review "Review of Projected Timber Yields for the NSW North Coast" of FRAMES "*based on an examination of documentation and on interviews with State Forests staff and other stakeholders involved in preparing the estimates ... no field visits were made and no new field data were obtained*". Vanclay (2002) presented results from Forestry NSW's 2002 North Coast Timber Supply Monitoring Estimate which he endorsed, stating that for both the UNE and LNE *"With these assumptions, it is evident that the harvest able to be sustained during the next 20 years is 220,000 m3/year at most ... In the longer term (21-100 years), production from native forests is expected to range between 175 and 110,000*

m3/year, and will need to be supplemented from hardwood plantations.". He recommended monitoring of a large range of key variables to improve the best current estimate.

2002 North Coast Timber Supply Monitoring Estimates of large high quality sawlogs compared to FRAMES 1998) (From Vanclay 2002)

Item & Source	RFA-FRAMES	NCTS Monitoring
Short-term yield (20 yrs)	269,000 m^3/yr	220,000 m^3/yr
Average Long-term yield (21-100 yrs)	183,500 m^3/yr	175-110,000 m^3/yr

This reduction in predicted short-tern unsustainable log volumes by 18% and long-term sustainable volumes by 5–40% is significant. The North Coast Timber Supply study was not made publicly available and is one of a number of Appendices removed from Vanclay's report.

Vanclay's (2002) desktop audit was claimed by the NSW Government as satisfying the RFA timber review requirements (even though it clearly did not).

In 2003 the NSW Government created 42,522ha of new national park and reserves (the Icon decision) from Forests NSW's estate on the north coast, as well as gazetting some 19,000ha of oldgrowth forest as Special Management Zones (SMZ).

Based on Vanclay's assessment, in 2004 the NSW Government issued new Wood Supply Agreements to north coast sawmillers for quota, small and low quality sawlogs and extended them for 5 years (until 2003) past the expiry of the NSW Forest Agreements. Most significantly the NSW Government removed the clause that allowed for a non-compensable reduction in commitment following a review of available timber resources. The 2003/4 RFA review (NSW Government 2007) does not highlight these new agreements, with only a vague comment hidden away in an Appendix:

> *Timber supply on the North Coast was subject to a comprehensive review in 2003 following changes to State forest estate announced by the NSW Government. Subsequent changes to the wood supply agreements have extended the commitment period from 2018 to 2023. These contracts recognise the changing nature of future timber resources, particularly the increased supply from hardwood plantations and the capacity of industry to process and add value to smaller, lower quality logs. The changes will also ensure optimum use of the available wood resource. The logging industry benefits, along with many north coast communities*

Forests NSW's (2005) ESFM Plan provides the details of Wood Supply Agreements for north east NSW.

Table 9. 2004 Wood Supply Agreement Strategy. From Forests NSW ESFM Plan (2005)

Product	WSA Volume	WSA Type
High-quality large Products	215,422	A
	7,655	B
High-quality small Products	57,759	A
	31,100	B
Low Quality Sawlogs	14,897	A&B
	190,000	C
Total Volume	516,833	

Forests NSW (2005) explain:

> *The Type A agreements are for a fixed volume for a twenty-year period.*
>
> *The Type B agreements provide 75% of the volume fixed for the first 10 years, with future volumes subject to resource assessment review in years 10 and 15 of the agreement. The remaining 25% is a share of production capped at 25% of the total agreement, also subject to review in years 10 and 15.*

> *The Type C agreements are based on a share of production and if there is insufficient production in any year, the available volume will be distributed equitably amongst customers as a share of the total production in that year. The figure under WSA for Type C is a target volume rather than a fixed commitment.*

For quota sawlogs this sets a volume of 215,422m^3 per annum for 20 years, five years past the end of the UNE Forest Agreement, and results in firm commitments for a total supply of 4,365,852m^3, and tentative commitments for a further 95,687m^3. At the time the new WSA were made there were remaining commitments of 269,000m^3 of quota sawlogs for 15 years, which is a total of 4,035,000m^3. These new WSAs thus resulted in an increase in committed volumes of large quota sawlogs of 330,062-426,549m^3 - not a bad windfall.

The Government was even more generous, giving millers commitments of up to 1,777,180m3 of high quality small sawlogs and 4,097,940 m3 of low quality sawlogs, increasing the total volume of sawlogs committed in WSAs by up to 260%. While such commitments of tradeable timber rights are worth a fortune to the millers, they were given freely.

The Auditor General (2009) comments:

> *In this new agreement, the Government waived its rights to reduce commitments without compensating industry for any loss. This removed Forests NSW's ability to better manage supply risks by adjusting commitments. In addition, timber volumes were more or less maintained despite the loss of forest estate to national park and reserves.*

In 2004 Forests NSW released the simplistic report "A Review of Wood Resources on the North Coast of New South Wales", which it is assumed would have been available to the Government when they issued the WSAs. Unfortunately only bits of data are poorly presented in a confusing and contradictory manner that appears designed to make it hard to interpret.

Interestingly, compared to the 2002 NCTS this new study was based on a reduction in gross area of 100,600 ha (11%) but, due to different assumptions, an increase in net harvest area of 700ha.

The outcome of the revised modelling for large quota sawlogs applying a set *"high level of cut in the next 20 years"* was "*220,000m^3 per annum of HQL for the first five years, decreasing to 200,000m^3 per annum for years six to twenty"*. The graph indicates that this drops to a "sustainable" yield of something like 63,500m^3 per annum after year twenty, though no details of this dramatic reduction in long-term sustainable yield are provided or discussed.

Though the new assessment cautions that:

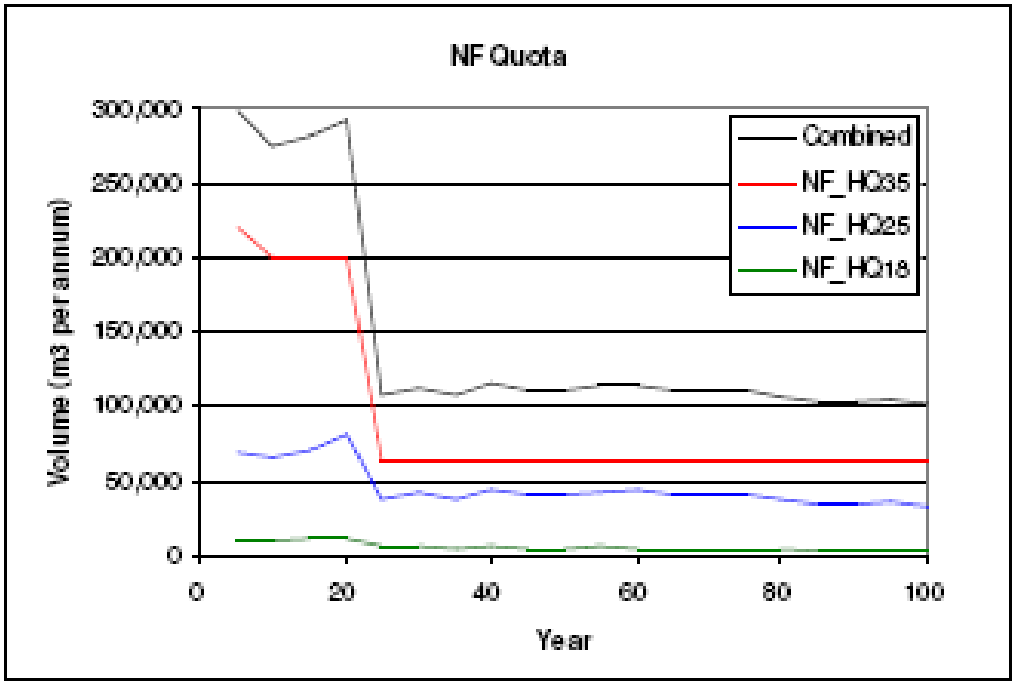
> *Interpretation of these results and their translation into management actions requires some care. In particular, the modelled outcome is generally 10-15% above the likely outcome due to factors that cannot be incorporated for practical reasons or cannot be adequately represented mathematically.*

This caveat was subsequently ignored by both the NSW and Commonwealth Governments. If allowance is made for a 15% over-estimation, as a precautionary approach demands, then the 5 year cut is reduced to 187,000m^3 per annum and the 6-20 year cut is reduced to 170,000 m^3 per annum. There is an identified major reduction in large high quality (LHQ) sawlogs from Native Forests after year 20, though the corresponding information from plantations is not provided, which intentionally prevents any identification of the 100 year sustainable yield of LHQ sawlogs.

Given that these revised estimates are based on a similar nett harvest area to the NCTS, they represent yet another significant reduction in estimates of yields per hectare. Basically, when compared to Vanclay's (2002) assessment that 220,000 m^3/yr could be sustained for 20 years and 175,000-110,000 m^3/yr for the next 80 years, the new modelling shows significantly reduced timber volumes, and brings a higher proportion of that available forward for logging within 20 years at the

cost of increased reductions in yields thereafter. This effectively increases the rate of unsustainable logging.

Modelled Native Forest Quota Sawlog availability (From Forests NSW 2004). Note that HQ35 (red) corresponds to high quality large sawlogs. Also that "*the modelled outcome is generally 10-15% above the likely outcome".*



Partington and Stevenson (Forests NSW 2004b) undertook a review for the NSW Auditor General - 'Forests NSW: Review of North Coast Standing Volumes for the 2004 Valuation' which reached significantly different conclusions than Vanclay, stating *"it has been clear for some considerable time that the timber volumes predicted by the FRAMES process are proving difficult to achieve. This naturally creates a question-mark over valuations derived from the FRAMES data."*

Partington and Stevenson (Forests NSW 2004b) found that the FRAMES data was in disarray for many reasons, including that 500 of the 2000 inventory plots had been logged, noting:

> *Unfortunately, following the FRAMES process the intensity of effort that went into inventory management diminished. The responsibility for inventory management was allocated to the regions until this was changed in 2003. During this time, about 500 of the original 2000 or so north coast inventory plots were lost to harvesting. Many of these plots were not replaced. We are not critical of this; it may have been an entirely appropriate choice by regional management to invest their resources in other areas that they saw as more important. However, the consequences in Forests NSW own words, was that, "The inventory data can no longer be considered a reliable description of the resource due to the level of harvesting over the last five years and the lack of a replacement programme for harvested plots."*[1]
>
> *There were also a number of other issues requiring attention including the need for a new system of management for the area records, the limited data on which estimates of the net harvest area modifier were based, variation in strike rates across the region, a need for new growth and product proportionment models, and various other issues that needed to be addressed. In short a complete overhaul of the native forest and hardwood plantation inventory was required.*

… There will be a need for assessment and review and recalibration of some of the modelling. It is also apparent that the rebuilding of the inventory system is a work-in-progress. We think directions that are being taken are generally appropriate and the effort is admirable, but there is still some way to go.

It is also apparent that a number of interim measures have been employed in bridging the gap between the old system and the full implementation of the new system. This has been necessary in order to derive a set of numbers for the current valuation. For, example a single height diameter model was applied, irrespective of species, in order to estimate the height of trees from their diameter. Neither, with the functionality of the current system, was it possible to grow the forest forward from the date of original measurement of inventory plots. …

There are also some technical sampling issues. …

Partington and Stevenson (Forests NSW 2004b) identify that:

... for some time there has been concern about actual volumes being less than those predicted by the FRAMES process. And recently a report by State Forests highlighted deficiencies in just about every aspect of the process of estimating merchantable volume ...

The document that Partington and Stevenson (Forests NSW 2004b) refer to is "State of the Resource, A Review of Wood Resources on the North Coast of NSW"(State Forests NSW, July 2004). This document is not available on the web and has not apparently been referenced in the various RFA reports or yield reviews, though they consider that it *"clearly described*" the deficiencies with the *"process of estimating merchantable volume"*;

The deficiencies described include the following: merchantable classification of species that are never harvested; inaccurate estimates from some of the tree volume, taper, and height equations; problems of consistency, reliability and ease of use in relation to tree proportionment, issues in relation to defect modifiers and the division of losses due to inherent defect and those due to sub-optimal log making practices; the limitations of the GIS system in adequately handling the complexity of net harvest area analysis and the difficulty of verifying the results of such analysis; technical problems with the net harvest area modifiers, their lack of currency and the small sample sizes on which the defect modifiers are based; a single strike rate is used but studies suggest different strike rates apply in different areas; growth models and the records on which they are based need to be overhauled; and most importantly the inventory data was no longer considered a reliable description of the resource due to the effect of harvesting and a lack of replacements for the harvested inventory plots.

Partington and Stevenson (Forests NSW 2004b) consider that:

It is clear that these problems needed to be addressed. It is also clear that these problems are not trivial and will require significant work to resolve.

What is most worrying is that these are criticisms of the data on which the new WSAs were based. This highlights how irresponsible it was to issue the new WSA for volumes that were known to be unsustainable and how reckless it was to remove the timber yield review clauses from the WSAs.

It is interesting that the North East RFA "Attachment 12, Long-term Timber Supply Strategy and Sustainable Yield Systems and Processes, Part E FRAMES, Sustainable Yield Systems and Processes", requires that Forests NSW:

Undertake additional inventory plot measurement consistent with FRAMES principles to improve the accuracy of volume estimates at the Regional Level, funded at $500,000 per year for the first five years of this Agreement.

The draft NSW CoA (2009) 5 year RFA review identifies that from 1997 to 2003 there were 127 new plots established. It is hard to fathom how this marries with Forests NSW's logging of over 25% of their existing plots over this period. And it is surprising that this is not mentioned in the RFA reviews.

Partington and Stevenson (Forests NSW 2004) state:

> *In the case of the native forest we would consider that an estimate within twenty percent of the true value would be a good job. In this context we note Forests NSW intends to provide sawlog volumes with a precision of about plus or minus fifty percent at the level of the tactical planning unit.*

Partington and Stevenson (Forests NSW 2004) identified that Forests NSW were in the process of rebuilding the inventory system *"but there is still some way to go",* noting:

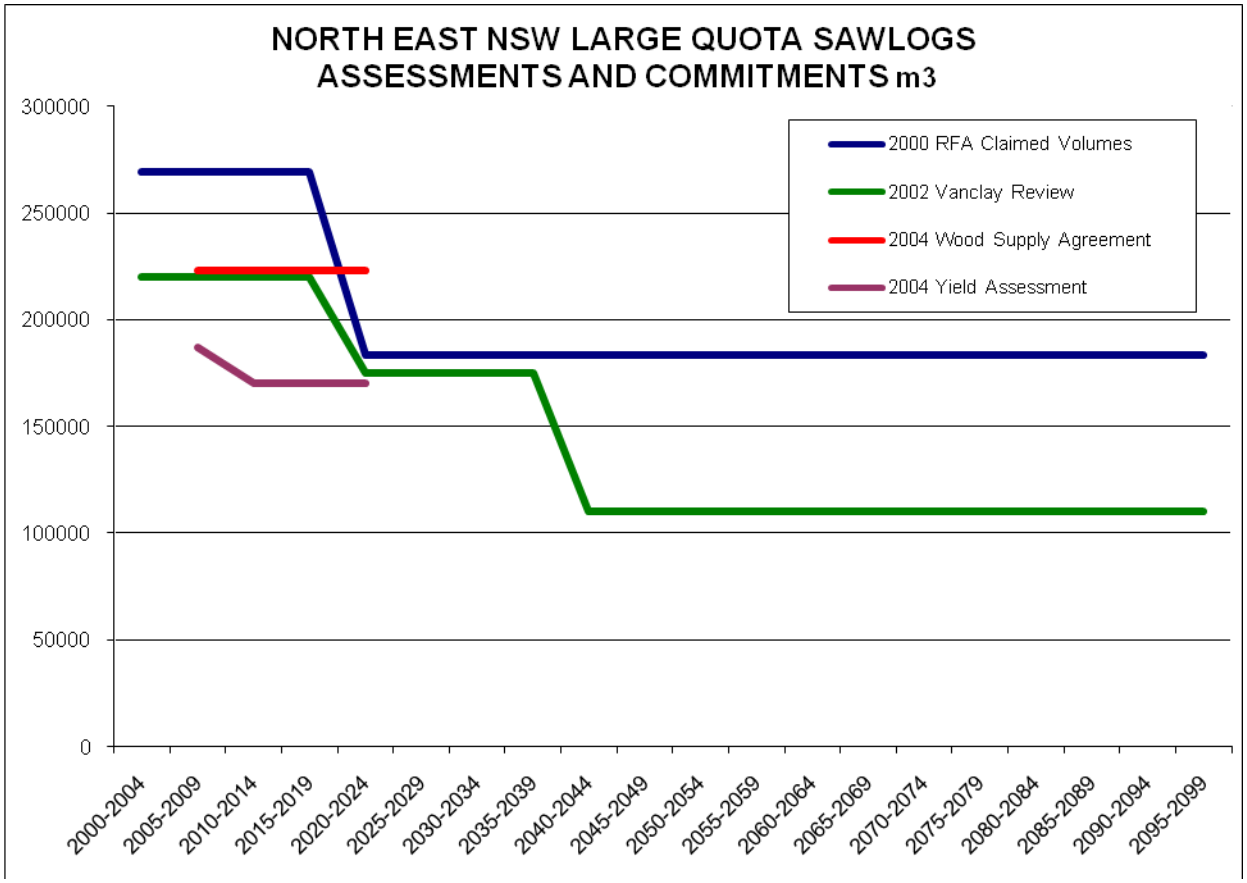
> *There was limited time to conduct a detailed statistical analysis of the inventory data and in our judgement little need to do so since it was clear that the prior basis of valuation had to be changed and that the new basis was still a work-in-progress the reliability of which could not be cost effectively determined. Consequently, we concluded that the 2004 valuation could differ substantially from the true value, and, in our judgement, none of the possible statistical analyses were going to change that conclusion.*

Partington and Stevenson (Forests NSW 2004) did identify a variety of problems with the work to date, such as errors in the data, inadequate data on some species, inadequate height models, poor estimates of loggable areas, flawed growth models, poorly specified models for estimating Total Standing Volume, etc., noting:

> *For example, in the inventory plot data that we received there are 304 trees which are reported as each having a total standing volume (TSV) in excess of 100 cubic metres, and there is one remarkable tree with a TSV of 597 cubic metres!* [1.6 cubic metres is considered the average per tree]
>
> *...*
>
> *In past valuations height was modelled according to species group as a function of site and Dbhob. In the current valuation the height is estimated by a single model for all species as a function of Dbhob. ... This use of a single model across all species is a weakness in the valuation modelling and is only acceptable as an interim measure. We anticipate that when a wider range of models are implemented next year that volumes may change significantly as a result.*
>
> *...*
>
> *Another complicating issue is that areas previously considered unmerchantable are now being reclassified as merchantable as the constraints on available timber become more severe.*

Partington and Stevenson (Forests NSW 2004) conclude:

> *In our opinion the comprehensive improvement of the hardwood inventory is highly desirable, and we believe that good work is being done. However, it is clear that the process is incomplete with many of the new models untested, and some models are still under development. Consequently, while it is feasible to conclude that this year's estimate of value represents the best estimate currently available, it must also be concluded that there is the potential for the value estimated to differ substantially from the true value.*
>
> *…*



So with a disgraceful history in yield estimations for native forests, a failed FRAMES modelling system and an untested new system, the Auditor General (2009) surprisingly "*found that Forests NSW has adequate estimates of how much timber is available from native forests, now and into the future*". He also concluded that *"Forests NSW should have sufficient timber to meet its wood supply commitments which are fixed for periods up to 2023 using both native and plantation hardwood".*

The Auditor General (2009, p23) relies upon the 2004 Forests NSW's "A Review of Wood Resources on the North Coast of New South Wales", though fails to consider the need identified in that assessment to reduce modelled estimates by 10-15%, and fails to acknowledge or consider the damning Partington and Stevenson (2004) report specifically prepared for the NSW Auditor General and the July 2004 report. It is perplexing why the 2004 report prepared for the Auditor General is not cited and, judging by comments, apparently not considered, particularly as the resource assessment the auditor now relies upon was found to have numerous significant flaws and "*concluded that there is the potential for the value estimated to differ substantially from the true value".*

In their 2003/04, 2004/5, 2005,06, and 2006/07 Forest Agreement Implementation reports, the New South Wales Government (2007) fails to identify the revised Wood Supply Agreements or acknowledge any of the 2004 yield reviews assessments, instead (i.e. New South Wales Government 2009c) extolling the virtues of Vanclay's (2002) outdated *"extensive independent review of FRAMES".*

Similarly the combined 5 and 10 year reviews of Forest Agreements DECCW (2010) and the draft NSW & CoA (2009) 5 year review of the Regional Forest Agreement extol Vanclay's *"independent review"*, pay cursory attention to the 2004 review (with no mention of the reduced yields it identified and the need for a 15% discount), and fail to acknowledge the existence of the Partington and Stevenson review or the July 2004 review. This is particularly strange as the link

(www.dpi.nsw.gov.au/forests/management/reporting/rfa-review-report) to Vanclay's report includes the Partington and Stevenson review.

It is particularly concerning that the NSW & CoA (2009) 5 year RFA review relies upon the 20 year estimates from the 2004 Review of Wood Resources as a surrogate for the long-term sustainable yield as required to be identified in the RFA (48g). Sustainable yield has to be maintained in perpetuity, not just for 20 years.

Similarly for his 5-year review of the RFA Spencer (2009) seems ignorant of the 2004 reviews and fails to consider the reduced yields and numerous problems they identify, instead only referring to Vanclay's review:

> *However there has been independent review of the system and to this extent there would appear to be compliance with RFA requirements. Nevertheless the last independent consideration of the system was at least 7 years ago. There have been a number of enhancements since that date and new data are presumably available.*

While Spencer appeared unaware, the 2004 data were available. For his review Spencer (2009) sought additional information from Forests NSW who once again only referred to Vanclay's (2002) redundant study.

This total failure of recent agency reviews to consider and address the numerous specific issues and problems identified in Forests NSW July 2004 review and by Partington and Stevenson (2004) is professional negligence and requires investigation. Of most concern is that there can be no assurance that the identified failings of the modified FRAMES have been satisfactorily dealt with, and no subsequent reports on remodelling of volumes based on the significantly changed attributes have been made public (Forests NSW did recently present graphs of new yield estimates for native forests, see next section).

So with yield estimate identifying that commitments of quota sawlogs should be limited to 187,000m^3 per annum for 5 years and then reduced to 170,000 m^3 per annum for years 6-20, and Forests NSW's own reports damning of the yield data, the NSW Government's decision to give the millers new tradeable and compensative WSAs for 215,422m^3 per annum for 20 years is an extremely dubious decision. Extending the WSAs by 5 years and expanding volumes by 260% to include small and low quality sawlogs was reckless. However, removing the ability to adjust yields in line with yield reviews was grossly irresponsible.

2.4.3. Coming to Grips with Sustainability

For groups, such as NEFA, concerned that the Regional Forest Agreement (RFA) had relied upon overestimated resources when identifying timber yields for the next 20 years, the RFA requirement for a review of timber yields by 2006 provided a last chance improve yield estimates and reduce commitments to a more sustainable level.

The UNE Forest Agreement (3.5) requires enhancement of FRAMES and:

> *The second level of refinement must be an aggregation of these progressive enhancements into a review of supply levels across the RFA Region at Year 8 of the 20 Year Term Agreements. The review must determine a supply level for Years 9-20 of the Term Agreements.*
>
> *The supply review at year 8 is specified in the Term Agreements. The review will be based on the 1999 forest agreement land base, the EPA conditions and Conservation Protocols applying to the 1999 IFOA (without amendment), and the enhanced FRAMES estimates of*

supply levels. The review must determine a supply level for Years 9-20 in accordance with the Term Agreements. In addition, value-adding criteria will have been applied at year 5.

The RFA "Attachment 12, Long-term Timber Supply Strategy and Sustainable Yield Systems and Processes, Part B, FRAMES and Wood Supply Reviews",states:

15 NSW, through SFNSW, agrees to complete the following by 1 December 2006:

- *Update the FRAMES information base and enhance the FRAMES Models consistent with Part E of this Attachment;*
- *Commission and publish an independent review of the enhanced systems and process, models, information base, and assumptions which contribute to the FRAMES system;*
- *Using the results of the above FRAMES enhancement and review, NSW will review the timber resource and the annual volume which may be harvested from 2007 – 2018 consistent with the overall Sustainable Wood Supply Strategy to achieve a long-term Sustainable Yield and to optimise sustainable use objectives consistent with this Agreement.*

There were also a variety of requirements to improve FRAMES such as establishment of additional inventory plots and to *"Monitor FRAMES performance through comparison of actual versus predicted volumes each 12 months for 20 years".*

Despite attempts to pass off Vanclay's 2002 review as satisfying the need for a 2006 yield review, Forests NSW's (2005) UNE ESFM Plan states:

Forests NSW will:

- *Undertake a Forest Resources and Management Evaluation System (FRAMES) inventory program to improve volume estimates at Forests NSW administrative region level by 2006;*
- *Improve the biometric models in FRAMES and refine harvesting area definition to improve the precision of standing timber volume estimates by 2006;*

As well as requiring a yield review by 2006, the Regional Forest Agreement (RFA) required a review of sustainable yield:

48 (g) Implement the review and monitoring processes and develop the strategic and operational requirements of sustainable yield systems and processes using enhanced Forest Resource and Management Evaluation System (FRAMES) as described in Attachment 12 (Part E) to enable the review of sustainable yield by 1 December 2006 as described in Attachment 12 (Part B);

The NSW Auditor General (2009) states that in 2006 and 2007 Forests NSW bought back wood supply allocations from two customers totalling 13,403m^3. It is assumed that these must have been for large sawlogs from north east NSW because WSA are now claimed to be 13,577 m^3 less. It is not revealed how much was paid to the millers.

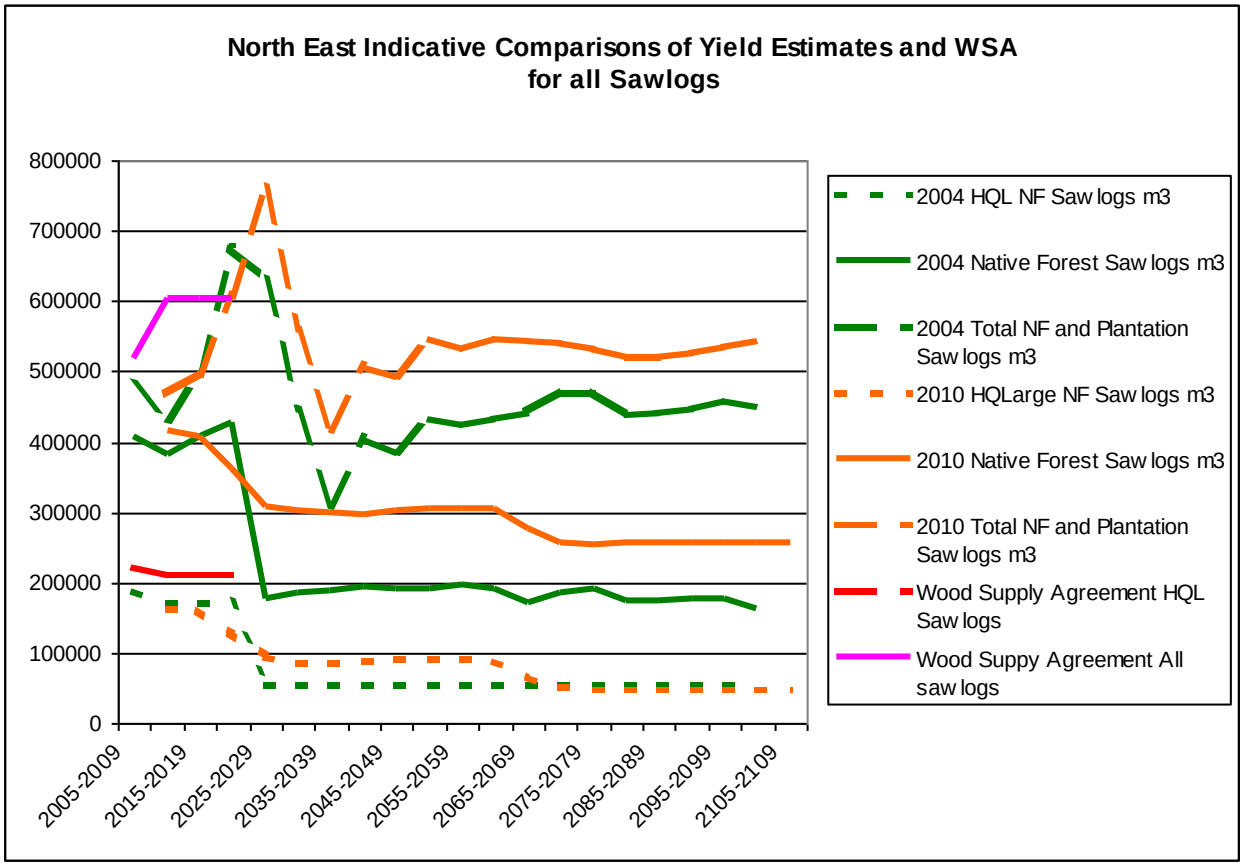
The NSW Auditor General (2009, Exhibit 20) indicates that the new Wood Supply Agreements are for 209,500 m^3 per annum of large high quality sawlogs. It is astounding that none of the NSW Forest Agreement implementation reports or reviews bother to identify the WSA commitments and the changes made to them. The draft NSW&CoA (2009) 5 year RFA review is the only document located that identifies the new Wood Supply Agreements, though it fails to identify their type.

While the Auditor General highlights one change there have obviously been significant changes to high quality small sawlogs (-25,087) and low-quality sawlogs (+125,657). Such changes to allocations of public resources should be made public and not kept secret.

WOOD SUPPLY AGREEMENTS FOR NORTH EAST PUBLIC FORESTS UNTIL 2023. From NSW & CoA 2009 4.21 Volume Review, Table 4.7.

Log type	UNE (cubic metres)	LNE (cubic metres)	TOTALS
High-quality large sawlogs including veneer logs and girders	83,686	125,814	209,500
High-quality small sawlogs	27,184	36,588	63,772
Low-quality sawlogs	153,677	176,867	330,554
Pulp grade and chipwood (domestic and export grade)	45,000	120,000	165,000

The Auditor General (2009) recommended that Forests NSW *"by June 2010, publicly report the results of yield estimates for high quality large sawlogs, high quality small sawlogs, low quality logs and pulpwood for each region"*. The graph below represents Forests NSW's latest yield offering made on their website in response to the Auditor General's recommendation, it is dated November 2010, though was not released until 24 December 2010. There is no explanatory report other than the statement that *"The charts included in this report show estimated annual yields by broad product category in cubic metres (m3) over the next 100 years"*. Forests NSW's latest yield estimates are presented without any methodology, explanation or review (independent or otherwise) and thus are of unknown veracity. As yet no data on plantation resources has been provided. Comparison with other yield estimates are made harder by the fact that the Central Region has now been separated from the North East Region and the data underlying the graphs has not been presented.



Notes on table: This table is presented for illustrative purposes. The 2004 data have been reduced by 15% in accordance with the caveat in the 2004 yield review. There are no revised plantation yields yet for 2010 so the 2004 plantation figures have been used. It is not known when the WSA commitments were increased for low quality purposes, though for plotting purposes 2009 was taken as the date (also for the reduction in HQL sawlog commitments). For comparison purposes the 2004 figures are aligned with 2005.

The only conclusion that can be reached from the data provided is that Forests NSW's new FRAMES is once again predicting significantly increased resources. The overall quota sawlog yields are on a par with the 2004 estimates before the identified 15% reduction is accounted for, and there has been a significant increase in estimates of total sawlogs from native forests.

Milestone 16.5 for the UNE RFA is:

> *Strategic and operational requirements of sustainable yield systems and processes, review sustainable yield every five years using enhanced FRAMES and publish methods*

This is well overdue and the revised FRAMES needs to be refined to reflect reality. Spencer (2009) concludes:

> *... the Auditor General, in his April 2009 Performance Review of Forests NSW effectively comes to the same conclusion of this Independent Assessment that there is a definite need to, at the very least, revisit estimates of wood availability as a matter of priority.*

NEFA remain incredulous that Forests NSW are allowed to get away with failing to document their yield estimates, accounting for the 2004 criticisms, comparing predictions with reality and ensuring their estimates are peer reviewed. There are many complicit agencies and Ministers who should also be held accountable for their lack of oversight of Forests NSW. Forests NSW need to urgently document their methodology and the NSW Government has to ensure that brand new FRAMES is peer reviewed and the estimates reality-checked against actual yields.

2.4.4. Avoiding Reality Checks

The UNE Forest Agreement (3.5) requires that monitoring be used to improve FRAMES, noting:

> *Monitoring of FRAMES performance will also comprise comparison of actual and predicted volume each 12 month period at the RFA Region level, and assessment of the progressive 20 year supply at the RFA Region level.*
>
> *The results of resource inventory and annual monitoring must be used to review the performance in achieving the implementation of sustainable yield of timber products.*

Milestone 16.4 for the UNE RFA is:

> *Monitoring FRAMES through comparison of actual versus predicted volumes*

The Auditor General (2009) identifies that since the unfavourable early outcomes, Forests NSW is not comparing actual yields to predicted yields:

> *Harvesting results are not used to update FRAMES. This makes it difficult for Forests NSW to develop a clear picture of the impact of harvesting on the inventory and future yield. …*
>
> *One way to check the reliability of yield estimates is to compare them to the actual timber volumes harvested from the forest. The Regional Forest Agreements require monitoring of actual versus predicted volumes on an annual basis.*
>
> *We found that Forests NSW does not routinely check its harvest results against yield estimates. ... we consider these reviews necessary to test its estimates.*

Regarding monitoring the New South Wales Government (2009c) follows Forests NSW's position of procrastinating while that they refuse to undertake any reality checks:

> *Tracking the performance of FRAMES is a notoriously difficult task. ... It is not appropriate to compare actual yields versus predicted yields at a level lower than the prediction level (i.e. the regional level). Plans are in place, subject to cost benefit analysis, to predict wood supply*

> *at a sub-regional level. ... Until the sub-regional planning project is successfully completed, the only information that is available is Allowable Cut (which is based on whole-of-region predicted yield from FRAMES) versus Actual Yield. Although the performance monitoring described above may be able to identify that yields are close to, or different from, the predicted cut, they do not identify whether detected variations are significant with respect to sustainability or timber supply agreements*

The draft NSW & CoA (2009) 5 year RFA review accepts NSW's claims, going so far as to pretend that *"The RFA requirement to monitor timber off-take and compare it against FRAMES predictions was addressed in the Vanclay review"*. For the 5-year RFA review Spencer (2009) could not understand why Forests NSW insisted that there could be no comparison between actual and predicted yields at any scale, stating:

> *However it is a specific RFA requirement to monitor modelled and actual performance on a continuous basis. The reasons for such a requirement seem quite obvious and to not do so suggests that models should be accepted without reference to whether they reflect reality.*

In response to Spencer's concerns, Forests NSW (Spencer 2009) maintain that:

> *FRAMES performance has been monitored through comparison of actual versus predicted volumes. Each year, actual volumes harvested have been reported against allowable cut, which is calculated according to the whole-of-region predicted volumes from FRAMES.*

It is astounding that Forests NSW can get away with pretending that comparisons between what was logged and annual commitments in anyway reflects a comparison between actual and predicted yields. If it does, then FRAMES is grossly over-predicting resources in the UNE (see section 2.4.5).

The concept of comparing actual to predicted yields is based on comparing predicted yields over a given area to the volumes actually obtained over that same area. This is the only way to test the accuracy of modelled timber volumes. The comparison of annual yields obtained over an unknown area to annual commitments says nothing what-so-ever about the accuracy of predictions, i.e. volumes per hectare could be half that predicted which means that Forests NSW just log twice the area to meet commitments and the shortfall does not become evident until they run out of forest to log. The worry is that this appears to be what is happening and that Forests NSW are trying to cover it up.

The Auditor General (2009) recommended that *by June 2010* Forests NSW *"compare harvest results against its yield estimates over five year periods as a means of testing the accuracy of estimates".* In response to questions on notice from the General Purpose Standing Committee No.1 Budget Estimates 2009-10, Steve Whan claimed that the annual and five year (till June 2010) *"results will be published on Forests NSW website by December 2010".* They were not. On the 24 December 2010 Forests NSW finally responded to the Auditor General, presenting some unreferenced graphs of revised timber volumes which were published on Forests NSW website (see Section 2.4.3) and effectively continuing their refusal to release results of comparisons between actual and predicted yields.

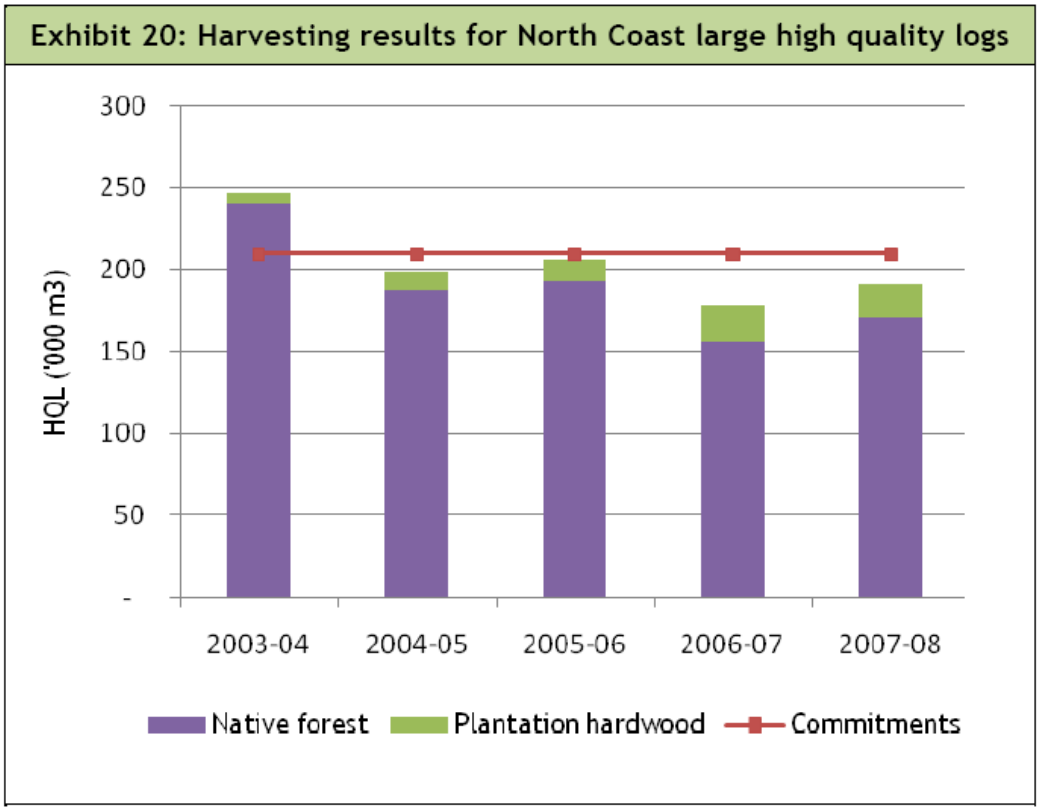
Despite the clear requirements to annually monitor actual versus predicted yields established by the RFA, and the repeated requests that they should do so, Forests NSW, with the support of the NSW Government, continues to avoid this requirement at any resolution. It is absolutely astounding that the NSW Government has managed to get away without comparing predicted and actual volumes since the unfavourable comparisons in 2002. Forests NSW can fiddle with their models all they like, but if there is no reality check they cannot be considered as anything other than fantasy.

2.4.5. Declining Yields

The Auditor General (2009) identifies that at 2008 there were wood supply agreements for some 209,500 m^3 per annum of large high quality sawlogs from north coast forests and that commitments are not being met (see below), and neither are commitments for low quality sawlogs. Immediately after giving the new Wood Supply Agreements to the millers, the Auditor General identifies that Forests NSW had to compensate mills for not supplying commitments and start buying back wood supply allocations, for example paying one mill $550,000 for 34,000$m^3$ of high quality large sawlog they were unable to supply during 2004-2006.

The Auditor General accepted that Forests NSW *"has not provided data on the total volume and value of allocations bought back and compensation payments made since the wood supply agreements were signed".* NEFA considers that such information should be publicly available and included in the annual Implementation Reports.

North coast high quality large commitments not being met (NSW Auditor General 2009)



Note that the Auditor General fails to account for increased WSA commitments pre 2006.

In 2008/9 the yield of high quality large sawlogs (including from plantations) was 101,504m^3 from LNE and 55,730m^3 from UNE (DECCW 2010), which is a continuation of the downward trend.

Since the new Wood Supply Agreements (WSAs) were introduced it is evident that WSA commitments are being significantly undercut for large sawlogs in the UNE, small sawlogs in the LNE, low-quality sawlogs in both UNE and LNE, and pulpwood in the UNE and LNE. In the UNE the cut of small sawlogs is significantly higher than commitments, presumably to help compensate for the significant undercut in large sawlogs. This just helps entrench un-sustainable logging further as the future large sawlogs are cut early.

NORTH EAST COMPARISON OF ACTUAL YIELDS TO COMMITMENTS From NSW&CoA (2009).(based on WSA commitments therein rather than Forests NSW (2005) ESFM Plan, note that WSA figures for UNE and LNE have been significantly changed over these three years though as the timing of the changes and their distribution across the regions is not publicly available, the current figures have had to be used)

		Wood Supply Agreement m^3 per annum	2004/5 yields m^3 (% WSA)	2005/6 yields m^3 (% WSA)	2006/7 yields m^3 (% WSA)	3 year deficit m^3 (% WSA)
High-quality large sawlogs (incl. veneer and girders	UNE	83,686	70,389 (84%)	70,333 (84%)	68,814 (82%)	-41,522 (-17%)
	LNE	125,814	127,539 (101%)	135,744 (108%)	111,537 (89%)	-2,622 (-0.7%)
Small high quality sawlogs	UNE	27,184	29,500 (109%)	32,763 (121%)	29,959 (110%)	+10,670 (+113%)
	LNE	36,588	24,780 (68%)	29,316 (80%)	31,127 (85%)	-24,541 (-22%)
Low-quality sawlogs	UNE	153,677	86,258 (56%)	88,219 (57%)	69,148 (45%)	-217,406 (-47%)
	LNE	176,867	147,401 (83%)	138,769 (78%)	148,788 (84%)	-95,643 (-18%)
Pulp-grade and chipwood (domestic and export grades) (tonnes)	UNE	45,000	11,648 (26%)	19,220 (43%)	12,269 (27%)	-91,863 (-68%)
	LNE	120,000	108,647 (91%)	97,170 (81%)	121,162 (101%)	-33,021 (-9%)

Annual shortfalls of at least 17% in large quota sawlogs and 47% in low-quality sawlogs in the UNE are significant. The failure to meet large sawlog commitments indicates an inability to meet supply commitments given in the Wood Supply Agreements. Given that this is one of the performance indicators the causes should have been documented by now. Across north east NSW over the 5 years 2004-09 there was a shortfall between commitments given in WSA and actual yields of large high quality sawlogs of at least 143,978m3 (13%).

NORTH EAST COMPARISON OF ACTUAL YIELDS TO COMMITMENTS. Source DECCW 2010, Auditor General 2009.

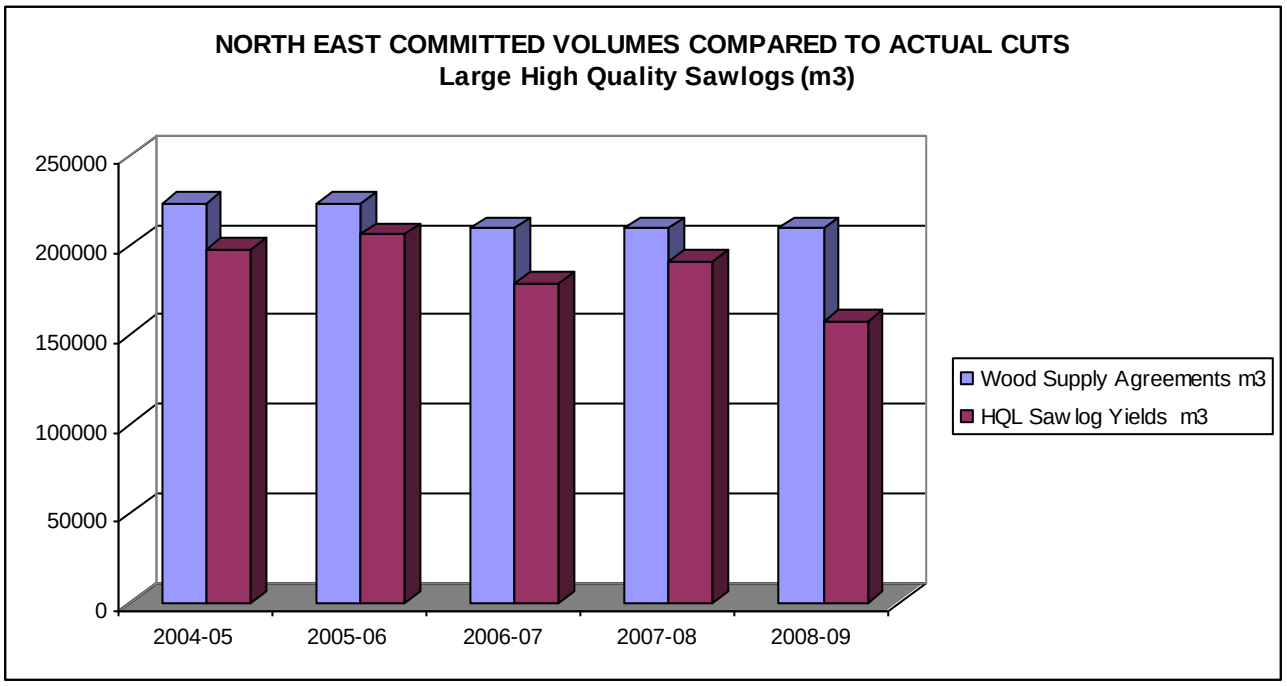
	Wood Supply Agreements m3	**HQ Large Yields m3**	**% Actual of WSA**
2004-05	223077	197928	89
2005-06	223077	206077	92
2006-07	209500	178351	85
2007-08	209500	191086	91
2008-09	209500	157234	75
TOTAL	**1074654**	**930676**	**87**

The Auditor General (2009) notes:

> *... Resource reviews were a key risk management tool for Forests NSW which is no longer available under wood supply agreements for large logs.*
>
> *...the North Coast region has been unable to meet its species commitment since 2004 for blackbutt, although this is based on 'best endeavours'. This commitment accounts for about 36 per cent of all high quality sawlog allocations on the north coast.*
>
> *Regional staff report that the Blackbutt commitment forces them to harvest coastal timber when they would prefer to balance commitments between the less accessible tableland*

timber and other species. This is in order to sustain the resource on the coast and buffer the impact of cost increases as it accesses more tablelands timber. This issue could have been addressed if the review clause remained in the north coast wood supply agreements.

NORTH EAST COMPARISON OF ACTUAL YIELDS TO COMMITMENTS.



The Auditor General identifies that Forests NSW is currently taking 56% more sawlogs from plantations than proposed, noting that if it is taking more than planned to meet commitments *"this could affect future production"* as plantations "*will form an increasing proportion of future supply"*, *"because current yield from native forests in the north coast is not sustainable in the long term; that is, beyond the term of the current contracts*".

Based on a comparison between commitments given in Wood Supply Agreements and actual yields in north east NSW it is evident that Forests NSW are unable to supply committed volumes of large high quality sawlogs, with the situation being particularly bad in the UNE. Over a 5 year period Forests NSW accumulated a deficit of 144,000 m^3, and the situation is deteriorating. Forests NSW have already had to buy back timber committed in WSAs and compensate mills that they couldn't meet supply commitments to. They appear to be overcutting small sawlogs in the UNE and sawlogs in plantations to help compensate for their shortfalls.

2.4.6. Supplementary Supplies

As well as possibly getting into the plantations and small sawlogs too early, the Auditor General notes that Forests NSW have not been meeting their target of 30,000m^3 per annum from private property for the north coast, instead averaging only 7,000m^3 per annum over 5 years. This increases the strain on public forests and plantations and further jeopardises future yields.

The Regional Forest Agreement 2000, Attachment 12, Part C, Hardwood Sawlog Supply Supplementation Strategy, states:

19 *The Parties agree that the following long-term hardwood sawlog supply supplementation strategy will be implemented to allow the supply of more timber and raise the long term*

Sustainable Yield of hardwood sawlogs from public forests in northern New South Wales;

- *Subject to availability of suitable land, New South Wales will spend the allocated $18 million between 1999 and 2004 to purchase Private Land and/or timber rights to provide approximately 180,000 m^3 of High Quality Large Sawlogs and Large Veneer Logs for the Upper North East and Lower North East regions within the term of this Agreement.*
- *Subject to the availability of suitable land, New South Wales will spend the allocated $30 million by 2004 to establish at least 10,000 ha of hardwood Plantations across both the Upper and Lower North East Regions to supplement supplies of High Quality Large Sawlogs and Large Veneer Logs from public forests. This initiative is expected to produce approximately 125,000m^3 per annum for 10 years commencing*

DECCW (2010) note:

> *Forests NSW has purchased 11 properties across the UNE and LNE regions (three in the UNE region and eight in the LNE region) under the Private Property Timber Supplementation Program. These cover an area of more than 13,000 ha of native forest with an estimated standing volume of 141,439 m^3 of high quality large quota sawlogs.*
>
> *As of June 2005, three timber sale agreements for purchase of private property timber rights have been implemented across the LNE region with a further 10,962 m3 of high quality large sawlogs estimated to be produced.*
>
> *In sourcing 152,401 m3 of supplementary high quality large sawlog, Forests NSW has made substantial progress in achieving the targeted outcome of 180,000 m3.*
> *....*
> *Forests NSW successfully established 7,543 ha of hardwood plantation in the UNE and LNE regions between 1999 and 2004.*
>
> *Subsequent strong real estate prices and competition for land have made it difficult for Forests NSW to secure appropriate land to establish additional hardwood plantations.*

These are significant shortfalls in the volumes (15%), areas (25%) and 2004 timelines established by the RFAs, it is thus surprising that they are not remarked on in FA Implementation Reports. It would be interesting to know if the $48 million provided by the Commonwealth has been spent.

One of the Auditor General's (2009) recommendations was for Forests NSW to investigate the reasons for not meeting its private property targets for hardwood timber. In their 24 December 2010 response Forests NSW make the extraordinary claim:

> *Important background note to this recommendation is that the 'private property targets' were set in the ESFM Plans framed in 2005, not in the Regional Forest Agreements signed around 2000.*

There are significant shortfalls in the targeted volumes of timber required to be obtained from private property and the areas of new plantations required to be established to enhance yields from 2018 until 2100. These are RFA commitments and have been funded by the Commonwealth, though Forests NSW seem unaware of this. When combined with declining yields and early logging of sawlogs from native forests and plantations the prospects of reasonable long-term yields are declining.

2.4.7. Costs Increasing

Forests NSW native forests operations are operating at a substantial loss. A situation that is expected to worsen dramatically into the future. NSW taxpayers are going to have to pay many millions more every year to prop up this unsustainable industry.

Partington and Stevenson (Forests NSW 2004b) warn that *"Only 50% of the native forest volume is easily accessible - on slopes less than 20º and more than 50m from an exclusion boundary. Harvesting practices and costs will need to address the issue of difficulty of access in order to meet current native forest commitments".* This means that the costs and difficulty of obtaining available timber will increase into the future.

Partington and Stevenson (Forests NSW 2004b) also consider *"we understand that there may be an increasing need to harvest crops previously considered unmerchantable" … "areas previously considered unmerchantable are now being reclassified as merchantable as the constraints on available timber become more severe".*

The Auditor General (2009) supports the contention that obtaining whatever timber is available will become increasingly expensive:

> *Over the last five years, harvest and haulage prices for all north coast products increased 45 and 36 per cent respectively. Central Region advised that harvesting is becoming more difficult as they are moving into more remote areas with lower yield per hectare and steeper terrain.*
>
> *Regional staff believe that the last five years of wood supply agreements for the north coast (i.e. 2018-2023) will be the most difficult, with Forests NSW increasingly accessing timber further away from sawmills.*

The Auditor General wonders how Forests NSW will perform in the future, given that:

> *... Native forest operations operated at a loss of $14.4m for 2007-08. We are unable to conclude if this is the result of inefficient operations, or because prices do not reflect the true cost of meeting wood supply commitments or a mixture of both.*

In response to questions on notice from the General Purpose Standing Committee No.1 Budget Estimates 2009-10, the Forestry Minister Steve Whan identified that Forests NSW's native forest operations ran at a loss of $8.1 million in 2009/10, stating:

> *Given, as reported by the Auditor General in 2009. that the current cash flow of Forests NSW Native Forests Operations Branch is negative, any NPV calculation now will result in a valuation of zero.*

With increasing costs involved in obtaining the timber available and an apparent need to buy out more quota and compensate millers for shortfalls, Forests NSWs losses can be expected to rapidly escalate into the future.

3. HOW WELL DOES PUBLIC FOREST MANAGEMENT PERFORM

In this section the performance of Forests NSW's operations in the Upper North East (UNE) Regional Forest Agreement (RFA) region is compared to the Australian Forestry Standard criteria in the context of legal requirements for logging in NSW.

The Australian Forestry Standards (AFS) require that:

> *4.1 Criterion 1—Forest management shall be undertaken in a systematic manner that addresses the range of forest values*
> *…*
> *4.1.3 The forest manager shall implement the management system to meet the forest management performance requirements.*
> *The forest manager shall ensure that—*
> *• operational plans, procedures, controls and guidelines are in place to achieve the forest management performance requirements;*
> *• roles and responsibilities are defined and there is capacity to implement the system of management;*
> *• staff and contractors have an adequate skills base and competencies to achieve the forest management objectives and targets;*
> *…*
> *4.1.4 The forest manager shall monitor and evaluate forest management activities and their outcomes to ensure that forest management performance requirements are met and that deficiencies are corrected (where identified) to support continual improvement in forest management.*
> *The forest manager shall ensure procedures are in place for the following:*
> *• checking management plans and practices for compliance with legislation, codes of practice, regional and local prescriptions, guidelines and other relevant controls;*
> *• monitoring and auditing of forest operations for conformance with planned arrangements and to ensure that the forest management performance requirements are met;*
> *• routine monitoring and evaluation of the outcomes of forest management using a sufficiently powerful approach that allows timely remedial actions to be applied when forest management performance requirements are not met; and*
> *• periodically auditing the forest management system to determine whether or not it conforms to the planned arrangements and has been properly implemented and maintained.*
>
> *4.1.5 The forest manager shall periodically review and, where necessary, modify the forest management system and its procedures to ensure its continuing suitability, adequacy and effectiveness, and to ensure continual improvement in management performance and forest management outcomes are achieved. The review shall cover—*
> *• the results of auditing and monitoring of forest operations and activities, and other relevant information;*
> *• monitoring and feedback mechanisms, including the adequacy of monitoring activities;*
> *…*

In our sample audits we have found that some of FNSW's planning process and procedures are not being applied at all and many are being applied inadequately to achieve requirements and implement the required management system. The only real performance requirement appears to be obtaining set timber volumes. There appears to be limited feedback loops to improve forest management or attempts to correct deficiencies, rather there is a demonstrated intent to avoid requirements wherever possible in order to reduce management costs and increase the volumes of timber obtained.

Over the past year the North East Forest Alliance has undertaken audits of 3 forest areas (Pugh 2009, Pugh 2010a, Pugh 2010b, Pugh 2010c, and Pugh 2010d). These have been brief and preliminary, have only assessed a small fraction of the forestry operations undertaken, and have only been able to focus on a limited range of issues in each area. Despite this, these audits have revealed numerous breaches of statutory licence conditions, many of which are systemic. These findings have been supplemented by the results of random audits undertaken to the south-west of the UNE by a concerned individual (Sparkes 2010). It appears that some licence conditions are being breached in most logging operations being undertaken in UNE most of the time. While limited attention has been paid to planning processes, it is also apparent that they are being inadequately implemented.

In addition to the above audits, a NEFA member has direct experience as a neighbour from when Forests NSW extended their operations onto a property he owns and manages for conservation.

It is emphasised that this review is based upon partial assessments of a small sample of logging operations in the UNE. If, as they appear, these are representative examples of what is occurring across the region then the magnitude of environmental harm resulting from such comprehensive failures is staggering to contemplate. It appears that tens of thousands of trees are likely to be felled in contravention of licence requirements each year, and that millions of dollars are being made by those engaged in this unlawful logging. That this logging is being condoned and accredited by the AFS is to their discredit.

3.1. The Licencing System

Due to court actions by NEFA in the early 1990's the NSW Government was reluctantly forced to develop codes of practice for logging, firstly to protect threatened species, and secondly to control erosion. As part of the Comprehensive Regional Assessment (CRA) process these codes were further developed in negotiations between the NSW Government agencies. There were no national baseline standards (as required by the NFPS 1992) and the state did not develop its own. The erosion control measures were based on some experience. While the prescriptions for threatened species were based on some understanding of species' habitat requirements, there are no performance measures and there has never been any assessment of their effectiveness in mitigating impacts on the target species. This is what Forests NSW pretend is adaptive management.

The Integrated Forestry Operations Approval (IFOA) for Upper North East Region states:

> *(1) Pursuant to section 34 of the Forestry and National Park Estate Act 1998, this approval contains the terms of the following licences:*
>
> > *(a) a licence under the Protection of the Environment Operations Act 1997 (set out in Appendix A);*
> >
> > *(b) a licence under the Threatened Species Conservation Act 1995 (set out in Appendix B); and*
> >
> > *(c) a licence under Part 7A of the Fisheries Management Act 1994 (set out in Appendix C).*
>
> *(2) Any person carrying out forestry operations is taken to hold, and is bound by, licences in those terms under the relevant Acts, and the licences have effect, for all purposes (subject to the Forestry and National Park Estate Act 1998), as licences under the relevant Acts.*

These are referred to as Environmental Protection Licence (EPL), Threatened Species Licence (TSL) and Fisheries Licence (FL). Together with various clauses of the IFOA these constitute the regulatory regime applied to forestry operations on public lands in north-east NSW.

Notwithstanding this requirement, Forests NSW no longer obtain EPLs for most forestry operations, limiting their application to the most highly erodible soils. For example in 2006/7 there were 221 forestry operations in the UNE region, the EPL applied to 23 of these, leaving 198 operations where logging occurred without EPL coverage. Forests NSW achieve this by specifying in their harvest plans that the contractors must abide by the EPL requirements. This is intended to exempt Forests NSW from requiring an EPL licence and from being held publicly accountable to its requirements. This stops them being liable to penalties and fines for non-compliance. Though it is hard to fathom why this refusal to "switch-on" the EPL is not a breach of the IFOA.

In response to a variety of our complaints regarding failure to implement conditions of the EPL in Yabbra SF (Pugh 2009), DECCW (Smith 19 May 2010) replied:

> *Forests NSW did not seek, and were not required to seek, Environmental Protection Licence coverage for harvesting and burning operations in compartment 162 and 163 of Yabbra State Forest. As such, operations within protection zones of unmapped drainage lines are not regulated under the Environment Protection Licence.*

Whatever the deal between Forests NSW and DECCW to ignore the EPL, the Harvesting Plan still required that the EPL conditions be applied. Logging, roading and burning of unmapped drainage lines (as well as other breaches) was still in contravention of the EPL conditions and thus the Harvesting Plan – though it appears that no action was taken against those responsible.

Despite the EPL only applying to 10% of operations in the UNE in 2006/07, in 5 brief audits DECCW identified 146 non-compliances related to the EPL requirements – this is an average of 29 breaches per audit. It is no wonder that Forests NSW refuse to get licences – it allows them to get away with avoiding the requirement to apply best practices most of the time. The frequency of obtaining licences appears to be declining over time.

This lack of licencing does not yet seem to have got through to the Commonwealth, as the draft NSW & CoA (2009) 5-year RFA review still maintains:

> *Internal and external audits check compliance against licences, codes and guidelines with respect to soil and water quality following the construction of roads and harvesting operations.*
>
> *...*
>
> *An environment protection licence is obtained for conducting specified forestry activities for areas of state forest that come under a RFA, and subsequently, a NSW FA and integrated forestry operations approval.*
>
> *...*
>
> *... Internal and external audits check compliance against licences, codes and guidelines with respect to soil and water quality following the construction of roads and harvesting operations. ...*

Some of the EPL requirements are reflected in the Fisheries Licence (FL), meaning that there is theoretically some accountability. Though as Fisheries NSW and Forests NSW are both in the Department of Industry and Investments there is a strong reluctance by Fisheries to regulate or penalise their colleagues, as evidenced by just one FL audit/complaint being dealt with in the UNE over the 10 years 1999/2009, and no enforcement action being taken. Our recent audits prove that the FL is being regularly breached, the problem is that there is no enforcement.

Another problem is that Forests NSW interprets the licence to mean that they do not have to take specified actions to protect threatened fish species unless the data is first provided by Fisheries NSW. When NEFA recently complained about the failure of Forests NSW at Doubleduke to consider information presented in the 2005 Recovery Plan for the nationally endangered Oxleyan Pygmy Perch, (Pugh 2010c) we were told (J. Murray pers. com., November 2010) that they didn't need to consider the species because Fisheries NSW had not provided them with the required

information. It is revealing that Fisheries NSW were going to give them the data 5 years ago, but hadn't got around to it, as stated in the 2004/5 RFA report:

> *Preparation of distribution data for the Oxleyan pygmy perch (Nannoperca oxleyana), a species occurring in coastal areas of northern New South Wales, and Macquarie perch (Macquaria australasica) occurring in streams of the southern highlands and slopes, is complete. Both species could be affected by forestry operations and the distribution data is expected to be provided to Forests NSW shortly*

It is also revealing that Fisheries NSW approved the Doubleduke assessment without themselves identifying the missing endangered species. What you don't know won't hurt you – just the fish.

DECCW are principally responsible for ensuring Forests NSWs compliance with the Environmental Protection Licence (EPL) and Threatened Species Licence (TSL). In the 5 years 2004/9 DECCW undertook an average of some 3 audits a year (assuming EPL and TSL audits were combined as they were in 2006/7), and while they located a large number of breaches of the EPL in 2006/7 and 2007/8, they otherwise appear to find relatively few breaches.

Auditing licences held by Forests NSW in the UNE region (from DECCW 2010)

Audit results	**1999/ 2000**	**2000/ 2001**	**2001/ 2002**	**2002/ 2003**	**2003/ 2004**	**2004/ 2005**	**2005/ 2006**	**2006/ 2007**	**2007/ 2008**	**2008/ 2009**
EPL										
Audits	4	5	10	4	4	4	2	5	3	2
Non-compliance incidents	*	12	79	20	58	61	7	146	122	19
Complaints	*	0	0	Yes	0	2	1	0	2	1
Feedback	*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Penalty notices	2	0	2	2	0	1	0	0	0	0
Warning letters	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Clean-up notice	*	0	1	0	0	0	0	0	0	0
Remedial work (number of locations)	*	8	6	4	29	5	5	12	12	0
Request to obtain expert advice	*	7	0	0	4	2	4	1	0	0
Prosecutions	*	0	0	0	0	0	0	0	0	0
TSL										
Audits	1	7	15	3	1	3	1	5	1	2
Complaints	6	20	7	6	8	0	1	2	2	1
Breaches/ contraventions	*	Yes	Yes	Yes	2	Yes	5	11	17	14
Penalty notices	0	0	0	0	0	0	0	0	2	0
Warning letters	0	0	0	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Prosecutions	0	0	0	0	0	0	0	0	0	0
FL										
Audits/complaints	0	0	0	0	0	0	0	0	0	1
Contraventions	0	0	0	0	0	0	0	0	0	0
Advice provided/enforcement	0	0	0	0	Yes	Yes	0	0	0	0

For example DECCW (2009) identify that in 2006/7 it conducted three proactive audits and two reactive audits as a result of community complaints, noting:

> *The audit identified a total of 157 non-compliances with licence conditions; 146 non-compliances were related to the EPL requirements and included:*
>
> - *failure to mark roads on maps*
> - *incorrect or insufficient drainage structures*
> - *administration errors, for example incorrect or incomplete planning documents.*
>
> *DECC identified 11 non-compliances with TSL conditions, including:*
>
> - *insufficient or incomplete surveys for bats and birds*
> - *harvesting of trees in protection zones*

- *post logging burning that damaged retained habitat trees.*

As a result of the audit, DECC provided verbal feedback and sent three Warning Letters to Forests NSW outlining the issues of non-compliance identified. DECC also required that expert soil conservation advice be sought for one site and that remedial work be carried out at 12 locations.

It is revealing that DECCW issued no Penalty Infringement Notices (PINs) after 2004/05 for breaches of the EPL and only 2 PINs over the ten years from 1999/2009 for breaches of the TSL. One PIN was for failing to exclude tracks and logging from the vicinity of wombat burrows (Sparkes 2010). This failure to issue PINs is obviously not due to a lack of breaches, but rather lax auditing and enforcement. For our Yabbra audit alone DECCW issued 4 PINs for breaches of the TSL and Fisheries NSW issued 2 PINs for breaches of the FL, and we consider there should have been more.

Forests NSW also have their own internal audit process, for example 253 incidents of non-compliance were recorded in 2003/4 in the UNE region (NSW Government 2007), across NSW *"In 2003/2004 the main area of noncompliance soil erosion and water quality (59%), followed by flora and fauna issues (33%). The remaining 8% of incidents were related to other issues such as safety".* Details of these are not provided in RFA reports.

We only checked Forests NSW's own breach reports for Girard SF (Pugh 2010d). Before NEFA informed Forests NSW that we were going to undertake an audit, they had identified 9 breaches; 6 related to trees being dropped and pushed into streams, one related to a tree being dropped into a rainforest exclusion, one related to four breaches of a frog exclusion area, and one related to bulldozing a road across two drainage lines. The records indicate that no action has yet been taken for a single breach, other than the contractors being talked to occasionally, and it is apparent that no rehabilitation works have been undertaken for the road across the drainage line.

Of the 4 breaches identified after we informed Forests NSW of our audit, 3 related to hollow-bearing and recruitment trees and, significantly, one related to a major intrusion into a wildlife corridor and FMZ 2 area. It is revealing that before we specifically told Forests NSW's CEO that we expected to find breaches of hollow-bearing and recruitment tree requirements because they are common, Forests NSW had not reported any such breaches.

In our brief audit (Pugh 2010d) of the same area they had been auditing for months, and intensively for the two weeks after we informed them of our proposed audit, we independently found 3 of their reported breaches and documented numerous additional breaches of 2 conditions of Forests NSW's Integrated Forestry Operations Approval, 24 conditions of their Threatened Species Licence, 9 conditions of their Fisheries Licence and 10 conditions of their Environment Protection Licence. On a site inspection we showed some of these breaches to Forests NSW and they did not assuage our concerns.

Even when breaches are proved the agencies downplay them and only implement token fines. Pursuant to our complaints for Yabbra SF (Pugh 2009, Pugh 2010a) the following action against Forests NSW eventuated:

1 DECCW issued a Penalty Infringement Notice (PIN) and a $300 fine for "harvesting timber within IFOA mapped rainforest", this was for illegally logging dozens of trees within 3ha of rainforest and causing massive damage by pushing over and piling up over 100 rainforest trees.

2 DECCW issued a Penalty Infringement Notice (PIN) and a $300 fine for "the failure to mark Yellow-bellied Glider sap feed trees and feed trees", we detailed 11 extant sap feed trees and estimate there were more than 50 such trees, many of which would have been logged. In addition to retaining sap-feed trees Forests NSW were required to identify, mark and retain 15 "feed trees" within various distances of sap-feed trees and 34 mapped Yellow-

bellied Glider records, which equates to hundreds of trees, none of which were marked, and many of which are likely to have been logged.

3 DECCW issued a Penalty Infringement Notice (PIN) and a $300 fine for “timber felling within a wetland and wetland exclusion zone”, Fisheries NSW issued a warning letter for these same offences, this was for logging over a dozen trees within what were meant to be 10m exclusion zones around two small wetlands. They also failed to mark their boundaries, conduct searches for the frog Philoria within them, exclude post logging burning from them, and excluded cattle from them.

4 DECCW issued a Penalty Infringement Notice (PIN) and a $300 fine for “machinery entry within a wetland and wetland exclusion zone”, this was for the two wetlands above, where machinery drove through the wetlands at a number of locations, causing extensive damage.

5 DECCW also issued a formal warning to Forests NSW for not identifying habitat and surveying for Richmond’s Frog, and inadequate mark-up of exclusion zones and retained habitat trees.

6 Fisheries NSW issued a Penalty Infringement Notice and $500 fine, for failing to mark exclusion boundaries on unmapped drainage lines, we identified 5 unmapped grainage lines which had not been identified in the field or on harvest plans in contravention of the ESFM Plan, EPL and FL and expected there to be dozens more.

7 Fisheries NSW issued a Penalty Infringement Notice and $500 fine for logging, bulldozing and burning within 10m of these unmapped streams. We documented 22 trees to have been illegally removed from these stream banks and suspect that there were over a hundred such trees logged, as well there were a variety of snig tracks constructed within these buffers and across the streams which were not rehabilitated.

As a result of our complaints Forests NSW also repaired drainage on four stream crossings and one track because they were not up to pollution control requirements.

So, for illegally logging 3ha of rainforest, 2 wetlands, numerous stream banks, and potentially hundreds of feed trees of the Yellow-bellied Glider, Forests NSW were fined a total of $2,200. In addition to this Forests NSW were given token reprimands for a variety of other offences, excused many other breaches on the basis that they did not have an Environmental Protection Licence (DECCW could not take action against the contractors), and excused others on the basis that their controlled burn got out of control. This is an insult as Forests NSW and the contractors made far more money from the timber illegally logged than what they were fined. It cost us more than the fine to undertake our audit.

As well as being concerned about the paltry penalties, we are concerned that DECCW and Fisheries NSW failed to explicitly identify the breaches that occurred, treated multiple breaches as single breaches, failed to apply required auditing methods, and (despite the evidence of systemic breaches) failed to assess additional areas in the vicinity of our complaints (we also believe that they did not assess all our complaints). Forests NSW also assessed our complaints but refused to provide us with a copy of their report.

We are also concerned that at Yabbra, despite the presence of Bell Miner Associated Dieback, rampant lantana, an endangered ecological community, the Endangered Black-striped Wallaby and a variety of other threatened species, there was no assessment of the habitat degradation associated with the breaches and no specific rehabilitation works required (aside from the erosion mitigation works) in the rehabilitation plan prepared by Forests NSW and approved by DECCW.

At Doubleduke we found that, despite complaints from the community, DECCW were not able to locate incursions into an Endangered Ecological Community until after we had detailed them in our audit (see Section 4.1.1.). Part of the problem is that DECCW refuse to invite complainants to accompany them and show them the breaches they have identified. Unlike DECCW we invited the complainants to accompany us on our site inspection. We are also concerned that our complaints to

the Ministers of two breaches of the Fisheries Licence (Pugh 2010c) were not passed onto NSW Fisheries. Forests NSW repaired the two crossings and no breaches were recorded.

We are still waiting for DECCW to finalise their reports on our June Doubleduke complaint and August Girard complaint, and subsequent November Doubleduke complaint. Similarly we are waiting on Fisheries NSW to respond to our Girard complaint and supplementary Doubleduke complaint. We do not consider these timely responses, particularly as logging in these areas continued unabated.

3.2. Marking Up

One of the basic requirements of the Threatened Species Licence is the Compartment Mark-up Surveys (TSL 5.2.). Under the TSL (5.2.1d) Harvesting Operations are prohibited in areas which have not been subject to compartment mark up surveys.

At this time *"an adequately trained person must conduct a thorough search for, record and appropriately mark … threatened and protected species features".* These features include nests, roosts and dens of a variety of hollow-dependent species, Koala high use areas, latrine and den sites of the Spotted-tailed Quoll, Glossy-black Cockatoo feed trees, Yellow-bellied Glider and Squirrel Glider sap feed trees, bat tree roosts, Swift Parrot and Regent Honeyeater feed or nest trees, wombat burrows, soaks and seepages in Philoria spp. habitat, and threatened flora. This is a key step in providing the intended protection to a range of threatened species. It is only by undertaking the required on-ground assessment that the features can be found that that trigger a variety of prescriptions.

These features are not necessarily easy to locate and the diverse range of tasks requires a high level of expertise in a range of fields, which is a lot to ask of any person. The requirement to thoroughly search for the features requires that the necessary techniques and methods are applied. There is also a necessity to reasonably assess the entire compartment, and particularly the nett harvest area.

PHOTOS: What had been potential soaks for Richmond Frog that were meant to be protected with 10m buffers. Forests NSW were fined $300 and not required to do any rehabilitation.

In our audits we found a poor outcome from the mark-up surveys with regards to identifying and protecting the targeted features:

- the targeted nests, roosts and dens of a variety of species have not been identified at any sites, despite some obviously being present;
- Koala's were present at all sites, though no intermediate or high use areas were identified (Pugh 2010b);
- Yellow-bellied Glider sap feed trees were present at all sites (we identified 11 such trees at Yabbra, Pugh 2009)) and were not identified;
- Sparkes (2010) found that wombat burrows and exclusion areas were not being identified;
- Sparkes (2010) found that bat tree roosts have not been identified anywhere in the UNE;
- Sparkes (2010) found that Tiger Quoll latrine sites were identified in one area, though misplaced, none were found in our audit areas though the species would have been present;
- soaks and seepages in Philoria habitat at Yabbra (Pugh 2009) were not identified; and,
- threatened flora at Doubleduke were not identified (Pugh 2010b).

Forests NSW's Threatened Species Licence (5.2.1b) requires them to identify and appropriately protect locations around an array of threatened plant species. There have been no locations identified within the nett logging areas in the Harvesting Plans we have assessed. In a single inspection of Doubleduke SF a botanist employed by the North Coast Environment Council (see Benwell 2010, Pugh 2010b) found *"The endangered species Lindsaea incisa (a small ground fern) was identified at a site that appeared to be within the harvestable area of cpt 145"* and in compartment 144 he found the threatened grass *Paspalidium grandispiculatum "amongst earth on an upturned stump at the edge of the recently constructed or upgraded access track, so would appear to have been directly damaged during track construction".* We subsequently found large numbers of *Lindsaea incisa* (within a wetland and its buffer that had been illegally logged) without any attempt to exclude logging and roading from within 50 metres as required.

In Doubleduke, Benwell (2010) considered "*No pre-logging flora surveys or flora assessments that could have detected this species appear to have been carried out by FNSW".* After roading and logging resumed in compartment 144 NEFA was informed that a foreman had been trained (by showing him a picture) to identify the cryptic *Paspalidium grandispiculatum.*

The Fisheries Licence (Section 9) requires that "Pre-Logging and Pre-Roading Aquatic Habitat Assessments" be prepared under certain circumstances by "*suitably experienced and trained persons".* In Doubleduke SF (Pugh 2010c), compartment 144, the assessment was undertaken by a Forester who apparently did not have the required expertise as he failed to undertake a proper assessment and omitted to consider the nationally endangered Oxleyan Pygmy Perch.

Endangered Ecological Communities are excluded from Forests NSW's licence, making picking or harming an endangered ecological community a direct offence under sections 118A and 118D of the National Parks and Wildlife Act 1974. At Doubleduke SF (Pugh 2010b, Pugh 2010c) we have identified 4 incursions into an Endangered Ecological Community, in part because the planning process failed to accurately identify the community and in part because the forester undertaking the marking up apparently did not have the expertise to identify and delineate what is, at its core (i.e. away from edges), an easily identifiable community. We have counted 1,453 trees and shrubs picked or harmed within this EEC.

The Compartment mark-up is the time when many other features are marked for protection, notably a range of exclusion zones, a variety of feed trees, habitat trees, and recruitment trees. Importantly this is the time when stream and wetland exclusions are marked.

We have found numerous instances of failures to mark exclusion boundaries and required trees:

- At Yabbra (Pugh 2009) exclusion boundaries and habitat trees were rarely marked in the field away from roads, unmapped streams and wetlands had not been identified and marked, feed trees were not marked, and rainforest was not identified;
- At Doubleduke (Pugh 2010b) we found active logging in an area they had not fully marked-up. In some areas at Doubleduke marking-up seemed to be limited to defining the boundary of the nett logging area with little other tree marking away from roads. The boundary of an Endangered Ecological Community was not delineated. At one site the required number of habitat trees had not been marked for retention, though sufficient trees had been retained. At other sites tree retention appeared deficient.
- At Girard (Pugh 2010d) one area had been marked up, though the boundaries had been erroneously marked-up at two locations, a mapped stream was not identified and cleared, some unmapped streams were not marked and cleared and drainage depressions were not marked and severely impacted. Habitat and recruitment trees had been marked, though there were insufficient trees marked. In another area at Girard there had been a failure to mark stream buffers, threatened frog exclusion area, feed trees and enough habitat trees - marking up was limited to token hollow-bearing trees near the main track.

The TSL provides an out for marking up;

> *The only exception to the marking of the retained trees can occur where the understorey consists of thick impenetrable lantana greater than one metre high or other impenetrable understorey.*

While this out only applies to section 5.6 Tree Retention of the TSL, which primarily relates to marking of hollow-bearing and recruitment trees, it is applied far more widely.

This was the excuse used at Yabbra for failing to undertake sufficient marking up of the boundary of exclusion areas, marking of hollow-bearing trees, marking of recruitment trees, and marking of Yellow-bellied Glider feed trees. While there were quite a few areas with severe lantana infestations resulting from past logging and poor regeneration, we found that marking up was also not undertaken in many areas with rainforest and even grassy understories.

At Girard the excuse is that there are large areas of tangled viney growth along some streams, which was mapped by the foreman. This is only partly true, as the failure to mark exclusion areas, habitat trees and feed trees occurred well outside the mapped areas.

What ever the excuse we do not consider that adequately trained people are undertaking thorough searches for the *threatened and protected species features* required by the TSL at the mark-up stage. We also found that other required features are not being adequately located and marked in the field.

Part of the problem is that often the contractors in their machines are driving around choosing what to log. They have effectively replaced the forest foreman in many operations. They have limited chance of finding many of the required fauna features, such as Koala scats, and little chance of finding cryptic threatened plants. They place reliance upon their Geographic Position Systems (GPS) and often measure exclusion areas from mapped features rather than the required natural features (i.e. top of stream banks). GPSs are also of limited accuracy in the forest.

Forests NSW appear to be moving in the direction of increasing mechanization and away from mark-up surveys. The principal problem with this is that it precludes the implementation of a raft of requirements of the TSL aimed at minimizing impacts on threatened flora and fauna.

3.3. Neighbourly Relations

Criteria relating to good neighbour relations were able to be audited directly as Forests NSW undertook forestry operations adjacent to and on a property owned and managed for nature conservation by a member of NEFA.

Forests NSW (2005) ESFM Plan states:

> *Forests NSW will consider the effect of proposed operations on all affected parties, including neighbours.*
>
> *…*
>
> *Fire fuel management activities are planned in consultation and cooperation with other members of the District Bushfire Management Committees and with neighbours of State forests.*
>
> *…*
>
> *Immediate neighbours are consulted, especially if their vehicular access is affected or proposed truck routes are shared with other sensitive traffic (for example school buses).*

The following description relates to a single case where a landholder was recently affected by forestry operations carried out adjacent to his property. However, if this case is representative of the many forest operations undertaken adjacent to private landowners, it demonstrates a significant failure of good neighbourly relations and a lack of explicit procedures for dealing with poor forestry practices that effect neighbours. This description is based on numerous correspondences between the landholder, the Minister and Forests NSW, however details have been omitted for privacy reasons. The landholder is willing to make more detailed information available to accreditation agencies on request.

The Australian Forestry Standards include *"4.2 Criterion 2—Forest management shall provide for public participation and foster on-going relationships to be a good neighbour*". Following is the experience of a neighbour compared to the criterion:

> *4.2.3 The forest manager shall foster appropriate relationships in order to be a good neighbour. Good neighbour considerations shall include—*
>
> - *considering the impact of forest operations on neighbours;*
> - *notifying neighbours that may be directly affected and responsible authorities, where appropriate, before commencing forest operations;*
> - *taking appropriate actions to minimise any adverse impacts; and*
> - *employing appropriate mechanisms to resolve disputes and grievances.*

Considering the impact of forest operations on neighbours;

For almost 30 years the affected landowner has owned a forested property adjoining a State Forest and, for over a decade, a national park. While the Department of Environment and Climate Change have been in regular contact over the past decade, until recent events Forests NSW did not once contact the landowner as a neighbour in the past decade. For the State forest compartments adjacent to his property, Forests NSW prepared a harvesting plan in September 2008, undertook roading in January 2009, undertook harvesting operations between March and August 2009, prepared a Prescribed Burn Plan in August 2009, and undertook burning operations between 16 and 22 September 2009. While they claim to have made some unspecific initial attempt to contact the owner at the planning stage, they admit to making no subsequent attempts to contact him. Their proposal included logging large old eucalypts and rainforest up to his boundary, locating a major log dump adjacent to his house and constructing a track as close as they could get to his boundary. The landowner maintains that, if anything, the operations were designed to maximise impact upon him. He had local knowledge and information on threatened species that would have been of use to Forests NSW in their planning process.

Notifying neighbours that may be directly affected and responsible authorities, where appropriate, before commencing forest operations;
As noted above, despite being a neighbour about to be directly affected, Forests NSW did not contact the landowner during their planning process or before commencing operations. Further to this, at the completion of operations Forests NSW undertook a hot burn adjacent to his property (going within a few metres of his boundary) without giving him the required 24 hours notice. Forests NSW failure to inform him of the post-logging burn is an offence under the Rural Fires Act 1997 (Part 4, Division 5, Section 86). The Rural Fires Regulation 2008 (Part 5, Clause 33) requires that *"notice must be given …at least 24 hours before the fire is lit*". Despite Forests NSW maintaining that the fire burnt out of control for days, they made no attempt what-so-ever to contact him and warn him of this threat. When he visited in late October after the operations, trees were still smouldering near his boundary with nobody in attendance.

Taking appropriate actions to minimise any adverse impacts;
Harvest Plans are legal documents which contractors are required to abide by under their contract. The relevant Harvest Plan states (clause 6.3 "Critical Boundaries"):

- *Private Property adjoins compartment … to the north. This boundary is fenced.*
- *The harvesting must not impact on private property.*
- *Directional falling techniques must be used when operating within two tree lengths of a fenced boundary – and where there is the possibility of damaging fence lines. Any damage to a functional fence must be immediately repaired by the contractor.*

Forests NSW marked what they considered to be the property boundary as an exclusion area (claimed to be prior to operations commencing). Despite this clear marking and the presence of an old fence, there were 15 incursions across this marked boundary where trees were felled and pushed onto the private property, including where 96m^2 of the property was bulldozed clear (adjacent to a house) across this marked boundary. A subsequent boundary marking well onto the property was made, apparently in order to disguise this intrusion.

The owner maintains that his attempts to understand why these intrusions occurred and why they were not subsequently identified by Forests NSW were met with lies and obtuseness. At one site where trees were obviously felled across his boundary, he claims he had two senior foresters tell him on different occasions that the contractor claimed the trees were pushed along the ground across his boundary in control works for the post-logging burn when it got out of control. Even though this was evidently incorrect the foresters refused to admit this couldn't be true. It was not until an inspection by Forests NSW's CEO, Nick Roberts, that he agreed the trees must have been felled to be positioned between standing trees, some of which had their crowns broken off as the trees fell.

At the landowner's insistence Forests NSW eventually paid to have the boundary surveyed, revealing that it had been incorrectly marked and that 610m^2 of the private property was machinery cleared for a road and that there were 12 incursions affecting a further 480m^2 of his property by having trees dropped and pushed on to it (the revised boundary excluded three breaches). His assessment is that Forests NSW killed some 143 rainforest trees over 3m tall and some 779 juvenile trees, understorey shrubs, vines, ferns, herbs and grasses on his property. Forests NSW say it was 22 trees.

In addition to this Forests NSW logged rainforest adjacent to his property, creating an edge effect for 900m along the boundary with the private property that will have variously affected the biota for tens or hundreds of metres into the private rainforest. This edge effect along the boundary is due to Forests NSW's failure to provide a buffer to the private property or even to selectively log near the boundary rather than clearing up to and over it.

Forests NSW also constructed a section of track along the boundary which did not have the required cross drainage in accordance with the Environmental Protection Licence (Appendix A, Schedule 4) and Harvest Plan (clause 5) and that directed runoff from the track onto the private property. When the landowner complained, Forests NSW initially constructed cross drains onto his property, before he prevailed upon them to redirect it away from his property. The landowner maintains that if he had not complained he doubts anything would have been done.

Employing appropriate mechanisms to resolve disputes and grievances.
At the time of their operations Forests NSW made no attempt to remove the debris they had deposited on the private property, did not attempt to fix the functional sections of the boundary fence and made no attempt to inform the landowner of their repeated trespasses. Their post-logging audits failed to identify any problems.

The landowner did not become aware of the trespasses until late October, and of their magnitude until late November. He wrote his initial complaint to the Forests Minister on 4 December 2009.

On the 22 January 2010 Minister Macdonald's policy advisor, Jason Stewart, informed the landowner that *"the CEO of Forests NSW has requested that an independent investigation be undertaken"*. Instead Forests NSW appointed Andy Stirling (Manager, Planning and Environment, Native Forest Operations) to oversee the existing audit already being undertaken by Forests NSW's staff. On the 5th February the landowner wrote to the Minister:

> *Unfortunately, it is my view that this issue is not being satisfactorily dealt with by your office as the promised independent investigation has not been instigated and I have no faith that my complaint is being honestly dealt with.*

It was not until February that Forests NSW contacted the landowner, and this was because he complained to the Minister that they were undertaking their assessment without consulting him. He received my first formal response from Forests NSW on 23 March 2010. He states that on his first site inspection with Forests NSW he was shown where a forest foreman had remarked their mutual boundary which showed his property extending beyond the fenceline in one place and within it in another. He claims that he was verbally abused and bullied by a forester because he would not agree to cede an area within his fenceline to them without a survey by a registered surveyor. It took until June to overcome Forests NSW's refusal and have the boundary surveyed by a registered surveyor to accurately identify the boundary between their properties, and until September for the landowner to be provided with a copy of the July survey report.

One of the landowner's concerns was that, given the clearing and fence destruction on his boundary, cattle using the State Forest would enter his property and damage regrowth. As there is no occupational permit to allow grazing on the native forest adjacent to his property he complained that grazing of the forest was in contravention of TSL condition 5.15 and Fisheries Licence condition 6.1. On the 9 March 2010 Forests NSW confirmed in writing that the grazing was unauthorised and that the cattle *"have apparently escaped from authorized leases on plantations"* adjoining the native forest (given the lack of fences in many areas between the plantation and the native forest this is not surprising) and that *"Forests NSW has contacted the lessees and has requested that they remove their stock and repair the fences to prevent them escaping again"*. Despite these assurances, when he inspected the forest with Forests NSW on 23 July 2010 there were numerous cattle on the adjacent State Forest and he claims Forests NSW told him that there had been no agreement to remove them.

Despite the landowner's repeated requests for assurances that some action will be taken against those responsible for the trespasses on his property, he is still waiting for some indication that any action has been taken against anybody. There is no accountability. His repeated requests for an independent arbiter to resolve key issues were denied and he remains dissatisfied with forests NSW's response to their trespasses onto his property. He considers that a resolution is still some way off and that the only way he can achieve a just outcome is through resort to the courts.

NEFA does not consider that this illustrates appropriate mechanisms to resolve disputes and grievances. It has taken a lot of effort on the landholder's behalf to deal with Forests NSW and the landholder has found the denial and cover-up very frustrating. If this example is any indication, it does not appear that Forests NSW has appropriate mechanisms to resolve disputes and grievances.

4. SIGNIFICANT BIOLOGICAL DIVERSITY VALUES

As presented in section 2 of this document the current reserve system fails to satisfy national reservation targets for many forest ecosystems, old growth forest types, and habitat of threatened fauna. As a result many ecosystems and old-growth forest that are under-represented in the regional conservation reserve system are still being logged on public and private lands. The identified habitat needed to protect viable populations of a plethora of threatened fauna has not been reserved (section 2.3.).

Attainment of targets for reservation is the most basic underpinning of Ecologically Sustainable Forest Management. It is only with the adequate protection of the full suite of representative ecosystems, and viable populations of the most vulnerable animals, that ESFM can be considered to have a sound foundation. Forestry operations being undertaken in the UNE, one of Australia's biodiversity hotspots, clearly do not satisfy this basic requirement.

This failure to satisfy reservation targets puts greater emphasis on the adequacy of off-reserve management to protect poorly reserved forest types, oldgrowth forest, and threatened species. The Forest Agreement for the UNE (2.3.1) identifies that the CAR reserves system includes "Values protected by prescription" in FMZ3 areas and:

> *By protective prescriptions as set out in the Conditions for the Conservation of Threatened Species or a licence under the Threatened Species Conservation Act 1995 or in any IFOA for the Region. These conditions complement the dedicated reserves and informal reserves and include protection of rare non-commercial forest types, old-growth forest, rainforest, and threatened species in all areas that are available for managed for sustainable timber production. These prescriptions must be routinely applied in both FMZ3 and FMZ4.*

The reality is that Forests NSW only protects "rare non-commercial" forest types and rainforest off reserve, the reservation status of other forest ecosystems is not considered in the planning and implementation process, with the consequence that very poorly reserved ecosystems suffering from dieback are subjected to maximum economic utilisation logging (Section 5.3, Pugh 2009).

Oldgrowth forest on public land is largely protected on public lands off reserve in the UNE, though in two of our three audit areas we found that significant stands of oldgrowth forest mapped in the CRA process had been (Pugh 2010d) or were proposed for logging (Section 2.2). Aside from a subset of mapped oldgrowth forest termed "High Conservation Value Old Growth", Forests NSW do not even admit to the existence of oldgrowth (Section 2.2.), let alone consider its reservation status.

Many threatened species are claimed to be protected off reserve by "General Prescriptions" in the Threatened Species Licence relating to the protection of stream buffers, rainforest, High Conservation Value Old Growth, and habitat trees. A variety of other species have specific prescriptions which apply when they are found or suspected. And for a few species a site specific condition is required before logging can proceed. Our audits found frequent and systemic breaches of these prescriptions throughout the forest.

The relevant Australian Forestry Standards include 4.1.3, 4.1.4, and 4.1.5 as detailed in the proceeding section, and:

> *4.3.3 The forest manager shall implement practices to support the protection and maintenance of Significant Biological Diversity Values likely to be affected by forest operations. Planning and implementation of forest operations shall be consistent with those specified in recovery/action plans or equivalent instruments and prescriptions for management and conservation of threatened (including vulnerable, rare or endangered) species and ecological communities developed under Commonwealth, State and Territory legislative processes.*

Significant Biological Diversity Values include:

- *threatened (including vulnerable, rare and endangered) forest types or ecosystems and old-growth forest that is depleted within a forest type or ecosystem as identified, under the nationally agreed forest reserve criteria;*
- *forest types or ecosystems and old-growth forest that are under-represented in the regional conservation reserve system, as implemented through Regional Forest Agreements;*
- *known and likely occurrences of threatened (including vulnerable, rare, or endangered) species and communities and relevant habitat;*
- *habitat of migratory species listed under the Commonwealth's Environment Protection and Biodiversity Conservation Act 1999;*
- *Ramsar wetlands; and*
- *natural heritage places with regionally or nationally significant concentrations of biological diversity values (e.g., refugia and centres of endemism).*

Of most worry with the logging prescriptions for flora and fauna is that they were developed without taking into account the reservation status of the species, there are no baseline standards to measure their effectiveness against, and despite existing for decades there has been no attempt to assess or quantify their effectiveness. Even when properly implemented there is no assurance they work.

In this section we review how a variety of Significant Biological Diversity Values were managed during logging operations in Upper North East NSW. Our audits are only a small sample of operations, however they reveal that there is a far larger problem.

4.1. Protection of Endangered Ecological Communities

An ecological community is a group plants and animals that occur together in a particular area including trees, shrubs and understorey plants. An Endangered Ecological Community is an ecological community listed under the *Threatened Species Conservation Act 1995* as being at risk of extinction unless threats affecting these areas are managed and reduced.

Endangered Ecological Communities are excluded from Forests NSW's licence, making the undertaking of forestry operations within them a direct offence under sections 118A and 118D of the National Parks and Wildlife Act 1974 where it is an offence to pick or harm endangered ecological communities. Currently the maximum penalty is $220,000 and up to 2 years jail, with an additional $11,000 for each plant illegally logged (picked), bulldozed out of the ground, trampled or squashed (harmed).

In our audits we located two Endangered Ecological Communities (EECs). At Doubleduke Forests NSW failed to take adequate measures to identify and protect an EEC that was known to occur but was not mapped (Pugh 2010b). The EEC was consequently logged. At Yabbra the mapped equivalent forest type to the EEC was excluded from logging, but accidently burnt (Pugh 2009). , and despite the need for rehabilitation, the impacts of the burn and the EEC itself are not considered in the rehabilitation plan (Forests NSW 2010).

John Edwards (pers.comm. 2010) found that a 15ha stand of the Endangered Ecological Community "Lowland Rainforest of the NSW North Coast" was incorrectly typed as Blackbutt - Scribbly Gum Forest in the harvest plan and subsequently logged in Grange State Forest. Edwards considers *"the person compiling the harvest plan may be innocent, simply copying someone else's error, but the officer marking up would have known that what they were doing was illegal".*

These only represent a small sample of breaches that have occurred in logging operations in the UNE in recent years, so there are likely to be worse examples out there. In Doubleduke, Forests NSW have left themselves exposed to a total maximum fine of over $16 million.

4.1.1. Sub-tropical Coastal Floodplain Forest

The lower elevations of Doubleduke State forest comprise part of the Richmond River floodplain. Evidence for this is provided by the alluvial soils, the 1:100 year flood mapping for the area and wetland mapping undertaken for DLWC for the Richmond River catchment. The Endangered Ecological Community (EEC) *Sub-tropical Coastal Floodplain Forest of the NSW North Coast bioregion* occurs across all coastal floodplains on the NSW North Coast and is widespread in this area.

The NSW Scientific Committee has identified all the remaining native vegetation on coastal floodplain soils of northern NSW to be threatened. Thus, for any native vegetation growing on floodplains in the area, the only question is which EEC it is. There is no excuse for the failure of Forests NSW to identify the extent of EECs in Compartment 145 of Doubleduke SF.

The Harvesting Plan for Compartment 145 identifies the EEC *Subtropical Coastal Floodplain Forest* as occurring in the compartment and that it should be excluded from logging, though unjustifiably limits consideration to Forest Type 92, stating:

> *Forest type 92 (Forest Red Gum) is likely to meet the definition of this EEC.*
> *Exclude harvesting from mapped forest type 92 unless the Regional ecologist determines that the forest does not meet the criteria for this EEC.*
> *SFO to search for and exclude further areas of Forest type 92 unless the Regional ecologist determines that the forest does not meet the criteria for this EEC*

The Endangered Ecological Communities we sampled in 145 were dominated by Red Mahogany and Grey Gum, with a readily discernable understorey dominated by Ti-tree. They were obvious to anyone who knew what they were looking for. Even a cursory consideration of the description of this community and comparison with soil and flood data would have alerted Forests NSW to the fact that the *Subtropical Coastal Floodplain Forest* EEC was not confined to Forest type 92.

In Doubleduke SF concerns about the logging of an Endangered Ecological Community (EEC) were included in a letter to the Environment Minister, Frank Sartor, by the Clarence Environment Centre on 15 May 2010. DECCW subsequently audited the area and failed to find the breach (and most other breaches).

In June both the North Coast Environment Council and North East Forest Alliance (Pugh 2010b) independently engaged botanists who confirmed what had been an obvious logging intrusion into an EEC. At that time we identified 20 trees logged at one location within the EEC and a range of other breaches (Pugh 2010b).

On 13 September 2010, the Minister for Forests replied to a NSW Parliamentary Committee that:

> *We are certainly not scared of having independent audits or audits of areas such as Doubleduke Forest, which is one that you mentioned. I am advised that in that case no high conservation value old-growth habitat trees, wetlands or endangered ecological communities were disturbed in that forest.*

Forests NSW were either still in denial or deliberately misleading their Minister.

In November, with both Forests NSW and DECCW supposedly actively auditing the area without finding any additional intrusions, NEFA was again required to engage a botanist to document 3 additional incursions into the same EEC in the same compartment. Within the EEC a further 46

trees were found to have been logged and 1,387 other trees and shrubs had been bulldozed out of the ground, trampled by machinery, or had trees dropped on them (Pugh 2010c).

PHOTOS: Logging within EEC at Doubleduke. We counted 46 trees logged and 1,378 trees and shrubs bulldozed or trampled in this one area of the EEC.

We have found that even within the EEC half of the oldest and biggest hollow-bearing trees were unlawfully removed, a wetland and its buffer was unlawfully logged and roaded, a Yellow-bellied Glider feed tree and surrounding habitat was unprotected and logged (Pugh 2010b), and a large population of an endangered fern and the required 50m buffer was logged and roaded (pers. obs.).

NEFA is still waiting for a response to its complaints. One of our concerns (Pugh 2010c) from the supplementary audit was that *"As perpetrators Forests NSW have apparently been aware of the additional breaches of the EEC for at least the past 4 months and failed to admit to them".*

4.1.2. White Gum Moist Forest

In the CRA Dunn's White Gum was identified as a "Rare" ecosystem and set a reserve target of 100%. To date only 534 hectares have been reserved and thus only 55% of its national reserve target has been met. It is threatened by Bell Miner associated eucalypt forest dieback, frequent fire, weed invasion, and grazing.

NSW Scientific Committee's (2008) final determination for listing *White Gum Moist Forest* as an Endangered Ecological Community states:

> *11. White Gum Moist Forest has undergone changes in structure, including loss of hollow-bearing trees, as a consequence of timber harvesting. Its dominant tree species are valuable commercial timber species and much of the community is currently in a state of regrowth after past logging activity. Benson and Hager (1993) estimated that less than 10% of the E. dunnii forest they surveyed was in an 'old growth' state and that 87% of the trees they sampled had a diameter at breast height of less than 0.5 m. Logging operations continue in stands of the community on state forest and private land, which account for approximately two-thirds of the remaining suitable habitat (DEC 2007). For example, recent logging of the community has been reported in Beaury State Forest (DEC 2007).*
>
> *...*
>
> *12. White Gum Moist Forest is threatened by forest eucalypt dieback associated with over-abundant Bell Miners and psyllids (Wardell-Johnson et al. 2006, DEC 2007). This complex*

process is associated with substantial changes in community composition and structure, including the defoliation and eventual death of canopy eucalypts, increased densities of mid-stratum plant species and decline in diversity of small forest birds. ...

....

13. White Gum Moist Forest is also potentially threatened by grazing and inappropriate fire regimes. Cattle grazing is practiced in large areas of freehold and leasehold eucalypt forest in north-east NSW, including White Gum Moist Forest. Frequent burning of the understorey is carried out as part of forest management for both cattle production and timber production.

...

14. Clearing activity, forest dieback, grazing, frequent burning and other disturbances accelerate the invasion of weeds into White Gum Moist Forest. Principal weed species include Lantana camara, Ochna serrulata and Senna septemtrionalis. Lantana camara was recorded in 40% of 43 documented sites of White Gum Moist Forest, and dominated the mid stratum at most of these sites. Infestations of this species have been implicated in forest eucalypt dieback (Wardell-Johnson et al. 2006). The invasion and establishment of exotic species in White Gum Moist Forest results in a large reduction in the ecological function of the community. 'Invasion, establishment and spread of Lantana camara' is listed as a Key Threatening Process under the Threatened Species Conservation Act 1995.

Within compartments 162 and 163 there are 11 hectares of the "forest type 51" Dunn's White Gum, though Dunn's White Gum is more widespread than this shows, as is probably the mappable EEC. The Dunn's White Gum has a variable composition, with some large individuals scattered through regrowth resultant from past logging. The understorey varies from rainforest to dense lantana on the most heavily disturbed sites. Bell Miner Associated Dieback has affected the lower elevations.

The 4 mapped areas of Dunn's White Gum were excluded from logging on the basis that it is an Endangered Ecological Community (EEC) (though the boundary of the EEC was likely to be more extensive). Under the Threatened Species Licence (5.1 Operational Requirements) forestry activities, including hazard reduction burns, are prohibited in exclusion zones. Two of the stands, representing over half of the mapped occurrences, were burnt in a post logging burn that reputedly got out of control. A large Dunn's White Gum, with a diameter (DBHOB) of over 1.9 metres was burnt to the ground.

The rainforest understorey of these areas suffered high mortality with numerous trees and shrubs harmed in contravention of the National Parks and Wildlife Act 1974. The degradation is likely to result in increased promotion of lantana and Bell Miner Associated Dieback.

'Invasion, establishment and spread of Lantana camara' is listed as a Key Threatening Process under the Threatened Species Conservation Act 1995 and lantana is a threat to the EEC White Gum Moist Forest. 'Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners' is also a Key Threatening Process identified as a threat to White Gum Moist Forest.

In response to our complaint DECCW (Simon Smith, 19 May 2010) stated:

During field inspections, DECCW officers observed that some areas of Dunn's White Gum EEC and margins of some mapped Rainforest areas were burnt. DECCW considers that the extent of incursion of fire into these areas was a result of unexpected severe fire weather conditions intensifying and spreading the fire beyond the planned burn area …

DECCW fail to recognise that while the burning of this area may be excusable, it is still a breach of legal requirements (and should have been recognised as such) and will facilitate two "Key Threatening Processes".

In Forests NSW's (2010) subsequent "Rehabilitation and Monitoring Plan, Compartments 162 and 163 Yabbra State Forest No 394" there is no mention of Dunn's White Gum, let alone an assessment of the fire impacts or the likely promotion of lantana and dieback.

PHOTO: Large Dunn's White Gum burnt down in post-logging burn. Note the extensive Lantana in the background which will now extend its dominance of the understorey due to the killing of rainforest understorey plants.

An inadequately reserved rare ecosystem, identified as an Endangered Ecological Community burnt in contravention of the Threatened Species Licence and NPW Act, and there is no assessment of the impacts of the burn and it does not even rate a mention in the "Rehabilitation and Monitoring Plan". An ecosystem of national importance, affected by a weed of national significance, and under attack from two key threatening processes and it is ignored. This plan has been endorsed by DECCW.

The post logging burn did kill many understorey plants in this ecosystem and will likely result in an increase in both lantana and the affects of BMAD. Such processes are best dealt with immediately by active weed control in affected areas before the lantana regenerates. There is no excuse to wait for further monitoring while the weeds re-establish, before taking action to control the regeneration and proliferation of lantana, it was already necessary.

4.2. Implementation of General Prescriptions

Many threatened species are claimed to be protected off reserve by "General Prescriptions" in the Threatened Species Licence relating to the protection of stream buffers, rainforest, High Conservation Value Old Growth, Rare Non-commercial Forest Types and habitat trees.

Oldgrowth Forest is dealt with in Section 2, and Stream Buffers in Section 6, of this report.

As well as a variety of failures identified elsewhere in this report, our audits have found examples of a variety of failures to implement the general prescriptions, such as:

- failure to identify and appropriately protect the conservation values of Forest Management Zone 3B;
- Illegal logging of 3ha of rainforest, including bulldozing and piling of over a hundred trees, with no rehabilitation; and
- systemic failures to mark the required numbers of hollow-bearing and recruitment trees, to select appropriate trees, and to remove debris from around them (it often appears to be deliberately stacked). The required numbers of trees are often not retained.

4.2.1. Protected Forest Management Zones

Forest Management Zones (FMZs) are required to be implemented by the North East Forest Agreement (2000) between the NSW and Commonwealth Governments and by the Integrated Forestry Operations Approval which is made pursuant to the NSW *Forestry and National Park Estate Act* 1998. They are also required by Forests NSW's (2005) ESFM Plan and State Forests (1999) Forest Management Zoning in State Forests. Four zones (FMZ1, FMZ2, FMZ3A and FMZ3B) are counted as contributing to the national Comprehensive, Adequate and Representative (CAR) forest reserve system, with the *Special Prescription Zone* 3B being the only one that allows modified logging.

In our Girard audit (Pugh 2010d) we identified two locations where trees had been felled into FMZ3A, only one of which had previously been reported. After we told Forests NSW that we were going to do an audit they identified that an FMZ 2 area comprising "*Wildlife corridor, ridge and headwater and riparian protection"*, being 50m on each side of a stream, was logged to within 19m of the stream. For one of the FMZ3A breaches and the FMZ2 breach incorrect boundary marking appears to have been partially responsible. Breaches of FMZ 8 are documented in Section 6.2.

In Girard (Pugh 2010d) a 9ha stand of mapped tall oldgrowth forest and a wildlife corridor had been assigned to FMZ 3B. For FMZ 3B "*The priority is to protect and manage identified conservation values whilst allowing other management and production activities, modified where required, which enhance or maintain those values".* Each individual FMZ 3B area is required to have prescribed 'activities not permitted', and 'special conditions' included in State Forests' Geographic Information System (GIS) data base.

The 1999 Forest Agreement for Upper North East states:

> *3. Values protected by Prescription. Values are protected in two ways:*
> *By including areas of State forest within Forest Management Zone 3 (FMZ3) under SFNSW Forest Management Zoning System. Lands included in FMZ3 contain particular values which are subject to protection mechanisms listed in local prescriptions approved by the Minister for Forests.*
> *…*
> *Forest Management Zone 3 (FMZ 3) are areas managed by prescription according to JANIS criteria. They will also contribute to the comprehensive, adequate and representative reserve system.*

The DECCW (2010) combined 5 and 10 year reviews of the IFOA identifies that of the 2,045 hectares of FMZ3B in the UNE 836ha (41%) is unavailable for logging. Conversely Forest's NSW (2005) ESFM Plan identifies 2,411ha of FMZ 3B in the UNE all of which is available for logging. While the NSW Government may not know how much FMZ3B there is, or how much of it is protected from logging (even though it is mandated that they should), they have absolutely no idea

why this area in Girard was protected, and what values it is counted as contributing towards the CAR reserve system.

PHOTOS: Girard oldgrowth in FMZ3B managed for its special values. Note the person at the base of the tree on the left, and extensive clearing of rainforest understorey – Forests NSW were proud of this despite it being in contravention of the TSL.

The harvesting plan identifies this as an "*old educational preserve that is no longer required for this purpose*", and the operational map identifies *"non-aboriginal heritage"* values in this area. Neither of these is correct and it appears the actual reasons for protecting this area were never recorded in Forests NSW's database. The 1995 Environmental Impact Statement (EIS) for Tenterfield and relevant background documents did not identify that there were either educational or historical values associated with this area. When we questioned a Forest's NSW planner they admitted that there was no evidence at that time for either heritage or educational values.

The FMZ 3B zoning was a translation from the EIS's Preferred Management Priority zoning system, where it appears on the 1995 EIS maps to be Class 1.1.3 (Special Emphasis Education) and/or 1.1.7 (Special Emphasis Flora and Fauna Protection). PMP 1.1.3 *"covers areas that have special natural or cultural features, demonstrate forest values or forest practices, or promote environmental awareness*", while PMP 1.1.7 "*covers areas containing habitats of flora and fauna of special significance and areas reserved for general habitat protection …".*

It can be no coincidence that this stand of oldgrowth was specifically included in the original PMP zoning. While the reasons for the selection of this area are not detailed in the EIS, it is apparent that the intent was to protect a wildlife corridor along the creek for "*fauna of special significance*" and the stand of oldgrowth forest for its "*special natural features"*.

The forest ecosystem is Northern Grassy Sydney Blue Gum which achieved 57% of its reserve target in the RFA in Dedicated Reserves, which increases to 87% with the inclusion of Informal Reserves and Protection by Prescription. It is assumed that this FMZ 3B area was counted as contributing to 'Protection by Prescription' CRA reserve targets. It was also counted in the owl landscape plan as an exclusion area contributing to targets for their protection.

The reality is that there was no accurate identification of "*identified conservation values"* in Forest NSW's Harvest Plan and no special management implemented to protect existing values. Forests NSW's planning process failed, or maybe they just didn't care. The outcome was that Forests NSW did not even meet minimal tree retention standards in logging the area (Pugh 2010d),

4.2.2. Rainforest Protection

Rainforest was mapped in the CRA and identified for protection as an outcome of the Regional Forest Agreement. The Threatened Species Licence (5.4) prohibits forestry operations in mapped rainforest.

John Edwards (pers.comm. 2010) found that a 15ha stand of the Endangered Ecological Community "Lowland Rainforest of the NSW North Coast" was incorrectly typed as Blackbutt - Scribbly Gum Forest in the harvest plan and subsequently logged in Grange State Forest.

At Yabbra (Pugh 2009, Pugh 2010a) an area of mapped rainforest occurs within an accredited plantation. Forests NSW failed to identify the existence of this mapped rainforest in their planning and logging processes, failed to recognise it when marking up the logging area, and logged 3 hectares of rainforest.

PHOTOS: Illegal rainforest logging at Yabbra. Forests NSW were fined $300 and not required to do any rehabilitation.

NEFA was appointed to the Eucalypt Plantation Technical Advisory Committee (EPTAC) in February 1997 to oversee the identification of areas meeting the definition of plantations for accreditation. The committee reviewed a number of areas that Forests NSW were claiming as plantations and found that many did not meet the required definition, i.e. that *"the predominant number of trees forming, or expected to form, the canopy are trees that have been planted".* Based on a review of the data base and supporting evidence, one of NEFA's recommendations (submission 4 May 2000) to EPTAC was to remove *"areas mapped as rainforest or oldgrowth (few minor areas)"*. The mapped rainforest in this claimed plantation was one of those NEFA based its recommendation on. Forests NSW decided to disband the Committee and pursue accreditation on their own.

While Forests NSW evidently decided against excluding mapped rainforest from their claimed plantations, the complying development standards for plantations of Division 3 of Part 4 of The Plantations and Reafforestation Code (established under the Plantations and Reafforestation Act 1999) requires that mapped rainforest must be retained. So they did not escape their obligation to protect it, in fact they are now required by both the Threatened Species Licence and Plantations and Reafforestation Code to protect mapped rainforest.

The existence of this mapped rainforest went unnoticed in Forests NSW's implementation of plantation accreditation process (despite being pointed out to them), it was not noticed in the planning process for logging in this compartment, was not identified according to Forests NSW's "rainforest protocol" when marking up, and was logged. This illegally obtained timber would have been identified as "plantation timber".

Further work undertaken since our audit (Pugh 2010a) has established that 1.9ha of mapped rainforest was logged, and re-mapping by Forests NSW's botanist Doug Binns has identified an additional hectare that he considers qualifies as rainforest according to application of the standard protocol "Forest Practices Circular No. 2005/02, dated 24 June 2005". This brings the total area of rainforest unlawfully logged to some 3ha, and raises the question as to why Forests NSW's planning processes and forest foremen failed to identify it for protection.

When this area of rainforest was previously logged it was common practice to plant eucalypts along snig tracks and in log dumps, and this appears to have been what occurred here. This practice was stopped around 1980 in the then Urbenville Management Area when the principal author of this report complained to the Urbenville office of the then NSW Forestry Commission that the planting of eucalypts in rainforest was inappropriate as it would later be claimed that it was not really rainforest. It is apparent that the primary target of this operation was eucalypts planted in earlier operations, though some rainforest species were also felled.

There was maximum damage deliberately done to the rainforest understorey in the logging operation, with hundreds of rainforest trees bulldozed over with the apparent aim of maximising disturbance to promote eucalypt growth. Some large rainforest trees were cut down (along with eucalypts previously planted along old snig tracks and in log dumps for rehabilitation) and there are already some significant weed problems. Much of the debris is piled up and hindering regeneration.

In Forests NSW's (2010) subsequent "Rehabilitation and Monitoring Plan, Compartments 162 and 163 Yabbra State Forest No 394" this area is considered, though the early intervention required to get regeneration on track was not admitted and monitoring is all that is proposed for illegally logged rainforest. DECCW have approved this plan.

Pursuant to our complaint, DECCW issued Forests NSW with a Penalty Infringement Notice and a fine of $300 for logging in this rainforest. A low fine for trashing 3 hectares of rainforest and less that what Forests NSW and the contractors would have made from the single Hoop Pine logged, let alone the numerous eucalypts illegally removed.. And they don't even have to rehabilitate the rainforest. We have not been informed of any action being taken in relation the the breach of the Plantations and Reafforestation Code.

4.2.3. Hollow-bearing and Recruitment Trees

A plethora of forest animals depend upon the trunk and branch hollows provided by big old trees for their survival. Approximately 20% of the Australian bird fauna, 75% of arboreal marsupial fauna and an undetermined proportion of the bat, reptile and invertebrate fauna are dependent on the hollows provided by old trees for roosts, nests and shelter.

Generally speaking, small hollows begin to develop once a eucalypt is over 100 years old, and the large hollows required by many species after a tree is over 200 years old. Depending on the species and site conditions trees may live for 300 to over a thousand years old, providing their lives are not cut short. In order to provide for hollows through time it is necessary to protect those trees with existing large hollows, as well as sufficient trees in the next age class to replace them when they die, and trees in the next age class to replace the replacements.

The NSW Scientific Committee has identified *Loss of Hollow-bearing Trees* as a Key Threatening Process, stating:

> *... The presence, abundance and size of hollows is positively correlated with tree trunk diameter, which is an index of age. Hollows with large internal dimensions are the rarest and occur predominantly in large old trees, which are rarely less than 220 years old. Larger, older trees also provide a greater density of hollows per tree. As such, large old hollow-bearing trees are relatively more valuable to hollow-using fauna than younger hollow-bearing trees. The latter are important as a future resource.*
>
> *Mature and old hollow-bearing trees offer other valuable resources. Mature trees provide more flowers, nectar, fruit and seeds than younger trees, and a complex substrate that supplies diverse habitats for invertebrate populations. When hollow-bearing trees collapse or shed limbs they also provide hollow logs that serve as important foraging substrates and shelter sites.*
>
> *The distribution of hollow-bearing trees depends on tree species composition, site conditions, competition, tree health and past management activities. Hollows occur at varying densities; undisturbed woodlands typically contain 7–17 hollow-bearing trees per hectare, undisturbed temperate forests 13–27 per hectare and old-growth wet and dry sclerophyll forest of south-east Queensland typically contains 35 and 37 hollow-bearing trees per hectare. ...*
>
> *...*
>
> *In forests managed for timber and firewood production, silvicultural practices have greatly reduced the density of hollow-bearing trees, especially where repeated harvesting events have occurred. ...*
>
> *Even when trees are retained during harvest they are susceptible to damage from logging operations and post-harvest burning, or can suffer poor health owing to changes in abiotic conditions. Consequently, retained trees are prone to early mortality, especially with repeated exposure to harvesting events over their lifespan. In addition, the average age of hollow-bearing trees in harvested areas will continue to decrease as the few remaining very old trees die. ...*

The highest priority action for this KTP is "*Adopt appropriate policies for recruitment tree ratios with a stipulated minimum retention density in areas of forestry operations"*.

It is also the large old trees that are disproportionally significant as storehouses of carbon in forests (Roxburgh *et.al.* 2006, Mackey *et. al.* 2008).

The Australian Forestry Standards (AFS) include:

> *4.3 Criterion 3—Forest management shall protect and maintain the biological diversity of forests, including their seral stages, across the regional landscape*
>
> *4.3.1 The forest manager shall actively identify and assess the significance of biological diversity values and structural elements (such as standing and fallen dead wood and hollow bearing trees) to support the maintenance and protection of identified Significant Biological Diversity Values.*

Under the Threatened Species Licence (TSL 5.6 a) a minimum of 10 hollow-bearing trees per 2 hectares, selected from the largest trees in the stand, are required to be retained within the nett harvest area. Where there are insufficient hollow-bearing trees then the largest trees need to be retained. In the coastal "regrowth" zone only extant hollow-bearing trees need to be retained (TSL 5.6 c), that is that if only one hollow-bearing tree is left then that is all that needs to be retained.

Under the TSL (5.6 b, d) a “mature to late mature” recruitment tree is required to be retained for each hollow-bearing tree required to be retained, so that when the old tree dies the recruitment tree will be old enough and healthy enough to provide the required homes for hollow-dependent species.

Retained hollow-bearing trees must be selected from the trees with the largest dbhob and must be live trees and should have good crown development and minimal butt damage (TSL 5.6 a, c). Recruitment trees are required to be mature to late mature growth stages, to have good crown development and minimal butt damage, and also to not be “suppressed” (TSL 5.6 b, d). Suppression occurs when trees are out competed by adjoining trees and become consequently stunted and deformed, which can persist after the competing trees are removed.

Retained trees must be scattered throughout the logging area. The TSL (5.6 g) requires damage to retained trees to be minimised and that *“logging debris must not, to the greatest extent practicable, be allowed to accumulate within five metres of a retained hollow bearing tree”* or recruitment tree.

The (TSL 5.6 (f) (iii)) requires that retained trees *“must be marked for retention”.* This is required to be undertaken at least 100m in advance of logging.

In Yabbra (Pugh 2009) it appeared that, with few exceptions, hollow-bearing and recruitment trees were not marked in the field, except near the principal roads and one side track. At that time we did not attempt to quantify the retention deficit as we thought DECCW would (we were wrong). At a number of sites large stumps made it apparent that hollow-bearing trees had been felled despite there apparently being insufficient hollow-bearing trees retained in the vicinity. Many of the marked recruitment trees were small and/or suppressed trees which have limited prospects of developing into the habitat trees of the future – they were not mature to late mature trees.

PHOTO: Yabbra: note the butt damage to the marked hollow-bearing tree and the small size of the marked suppressed recruitment tree. The large old tree is vulnerable to burning and is unlikely to survive long, while even if the recruit was healthy it has no chance of providing replacement hollows in time – though as it is suppressed it will be lucky to outlive the hollow-bearing tree. This is pure and deliberate tokenism.

In our first audit of Doubleduke (Pugh 2010b) we found logging underway in Compartment 146 without hollow-bearing and recruitment trees being marked. We complained at the time. When we returned after logging had finished we found that the hollow-bearing trees that had survived had subsequently been marked. Though it appeared to us that retention requirements had not been met.

At another area in Doubleduke (Pugh 2010b) where tree retention appeared deficient, a large senescent hollow-bearing tree had been felled while nearby damaged late-mature trees without significant hollows had been marked as hollow-bearing trees for retention.

In a third area in Doubleduke (Pugh 2010c) it was found that an average of 1.9 hollow-bearing trees, and 1.3 recruitment trees, per hectare had been marked for retention. A measurement of all trees and stumps in a subset of this area found that sufficient trees had been retained to meet retention requirements, though 3 of the 7 largest trees had been logged. In this area it appeared that someone had walked along a track and the boundary of the nett harvesting area marking habitat trees in an ad-hoc manner as they went, without venturing far into the logging area.

In one area at Girard (Pugh 2010d) trees and stumps were measured to quantify tree retention standards. In that area the density of Greater Gliders exceeded 1 per hectare so the TSL owl prescription (6.9d) required the retention of 8 hollow-bearing trees per hectare and the general recruitment tree prescription required the retention of 10 mature/late mature recruitment trees per 2 hectares. It was found that while there were originally 7.8 large old (late mature/senescent) trees per hectare they only retained 4.8 per hectare, and of the next size class (mature/late mature) there were originally 19 per hectare but only 3.9 per hectare were retained. Insufficient trees were retained to satisfy TSL licence requirements. It is important to recognise that the area measured was oldgrowth forest within a special prescription zone, with tree retention generally appearing significantly lower elsewhere in the compartment.

PHOTOS: Girard: note the debris stacked around the habitat tree ready for burning, and the extensive damage to the retained hollow-bearing tree on the right.

In another area at Girard (Pugh 2010d) only three hollow-bearing trees and two recruitment trees were marked for retention in a 3.7 ha area, giving a retention rate of one hollow-bearing tree per 1.2ha and one recruitment tree per 1.4ha. In this case there were additional trees available for marking though these were not quantified. It appeared that, even with the inclusion of the unmarked trees, that retention was still deficient. It appeared that someone had walked along the

track only marking easily accessible hollow-bearing and recruitment trees in the vicinity of the track. Near the end of the track a "clump" of trees had been marked in an attempt to improve counts.

Contrary to licence requirements retained hollow-bearing trees often have butt damage. Trees retained as recruitment trees are commonly too young and too suppressed to satisfy licence requirements. At both Yabbra and Doubleduke (Pugh 2009, Pugh 2010b) it was found that marked recruitment trees were often suppressed regrowth trees with poor crown development . At one site at Girard (Pugh 2010d) 2 hollow-bearing trees and 7 recruitment trees were classed as suppressed, and one recruitment tree had 60% of its butt severely damaged. At the other site 1 hollow-bearing tree and 1 recruitment tree had significant butt damage.

At both Yabbra and Doubleduke (Pugh 2009, Pugh 2010b) it was found that retained trees often had large amounts of debris felled and pushed around their bases. At one site at Girard (Pugh 2010d) 8 of 13 hollow-bearing trees and 7 of 10 recruitment trees had significant amounts of debris dropped or pushed around their bases. At the other site all five marked trees had significant amounts of debris left around their bases.

There is a war of attrition against hollow-bearing trees being waged. Their numbers are being depleted by continued logging, the required replacements are not being retained and funeral pyres are regularly being constructed around them in apparent attempts to burn them to the ground. The Australian Forestry Standards (4.4.5) require that the forest manager shall ensure damage to forest growing stock during forest operations stays within tolerable levels, in order to maintain wood quality and promote forest health. We consider that the damage being caused to hollow-bearing and recruitment trees is beyond tolerable levels and is causing forest degradation.

In their brief assessment of our Yabbra complaints DECCW (Simon Smith 19/5/10) excused most failures to mark habitat trees due to the dense nature of the understorey, noting:

> *During field audits, DECCW officers observed limited instances of failure to mark hollow bearing and recruitment trees where Forests NSW could not subsequently support the presence of dense understorey. DECCW has issued Forest* (sic) *NSW a formal warning letter in relation to this matter.*
>
> *During field audits, DECCW officers also observed an instance of poor selection of a recruitment tree. DECCW has issued Forests NSW with a Formal Warning regarding this breach.*
>
> *DECCW officers identified instances of debris greater than 1 metre in height within 5m of retained trees. However it is* (sic) *appears this debris was resultant from fire control activities …"*

Unfortunately DECCW do not identify the areas they assessed or the time they spent, though we seriously doubt they had a good look around if this is all they found. We consider that the failures were more widespread than admitted by DECCW. We are still waiting for their responses to our other complaints.

Habitat Tree Modelling

There is an unmet requirement which we consider should be expedited without delay. The 2000 North East Regional Forest Agreement, Attachment 8 "Improvements to New South Wales' states:

> *New South Wales will further improve its Forest Management System across forest management agencies and land tenures by:*
>
> *….*
>
> *(q) Developing by the end of 2010, a model to predict recruitment and maintenance of habitat trees over time*

DECCW (2010) make no mention of this commitment for the UNE, though in relation to this requirement for the *Southern Forest Agreement* DECCW (2010) note:

> *An initial model was prepared in 2003, and resource analysts conducted a sensitivity analysis in 2007. The model was updated to include proposed changes and a draft paper was provided to the Journal of Forest Ecology and Management. Peer review suggested some substantial revision was required but this is yet to occur. Forests NSW aims to review and complete the model as soon as practicable.*

We consider that once a proper peer reviewed assessment is completed then it is likely that the retention of recruitment trees will need to be increased to account for the inevitable mortality of many individuals before they can develop into hollow-bearing trees. The maintenance of the ecological functioning of our forests depends upon maintaining and replacing hollow-bearing trees in perpetuity. The key to achieving this is to ensure that enough healthy trees are retained in all size classes to supply a steady flow of recruits to the hollow-bearing tree stages as those now retained die out.

We also consider that the active restoration of adequate numbers of hollow-bearing trees throughout native forests should be a goal of ecologically sustainable forestry. This is the only way to maintain functional populations of some species, and the ecosystem services they provide. We are concerned that in the coastal forests the prescriptions only require management to maintain the existing density of hollow-bearing trees, particularly as few have survived the intensive logging and ringbarking that has occurred in the past. Current practices are resulting in the gradual attrition of the surviving hollow-bearing trees in these forests.

This is particularly evident when hollow-bearing trees are illegally removed, have debris stacked around them so that they are killed or damaged in post-logging burns, and when the required mature recruits are not retained. These are common practices. When we complain at best DECCW send them a warning letter and nothing is done to recompense the fauna for the loss their vital hollows.

NEFA considers that all trees that predate European settlement are worthy of protection for their heritage values alone.

4.3. Protection of Threatened Species

In NSW the protection of Threatened Species in logging operations on public lands is governed by the Threatened Species Licence. As well as general prescriptions there are species-specific prescriptions. The results from our audits, and those of Sparkes (2010), provide an indication of the scale of the problem. It is emphasised that only a small sample of the logging areas have been audited and that problems are evidently far more widespread.

Under the Australian Forestry Standards “Significant Biological Diversity Values” include “*known and likely occurrences of threatened (including vulnerable, rare, or endangered) species and communities and relevant habitat”.*

From his review of 384 harvest plans for north east NSW, Sparkes (2010) considered that conditions of the Threatened Species Licence (TSL) that are under represented in these plans were:

- *Microchiropteran bat roost tree exclusions (TSL 5.14.1b);*
- *Koala high use area exclusion (TSL 6.14c);*
- *Yellow-bellied Glider Den exclusion (TSL 6.17a);*
- *Bird Nest and Roost site protection (TSL 5.13); and*

- *Threatened Flora conditions of the TSL (TSL 6.22, 6.23, 6.24.,6.25,6.26,6.27,6.28)*

In relation to audits of the prescriptions specified in the TSL, documented below, we identified failures to:

- Recognise the existence of, and appropriately plan for, the endangered fish Oxleayan Pygmy Perch;
- Recognise the habitat of the endangered Richmond Frog, undertake required surveys, exclude logging, roading and burning, assess and rehabilitate habitat;
- Mark exclusion zones around the habitat of the endangered Stuttering Frog and fully exclude it from logging;
- Recognise the habitat of the endangered Hastings River Mouse, and undertake required surveys;
- Assess and rehabilitate the habitat of the endangered Black-striped Wallaby after it was accidently burnt, and we maintain, over-logged;
- Adequately assess habitat of the vulnerable Koala, and conduct pre-logging scat searches;
- Identify den and sap-feed trees of the vulnerable Yellow-bellied Glider and apply prescriptions for retention of feed trees;
- Appropriately locate and protect exclusion areas established for the vulnerable Spotted-tailed Quoll;
- Protect and apply prescriptions for the regionally significant Wombat; and,
- Identify roost and nest trees for the vulnerable Powerful Owl and apply prescriptions.

Forests NSW often measuring exclusion zones along creeks (often with GPS) from the mapped centreline rather from the top banks (which can make them considerably wider). For this reason alone they frequently and repeatedly under-protect riparian areas.

In relation to biodiversity Forests NSW (2005) ESFM Plan notes:

> *Forests NSW will use adaptive management principles and actions within State forests to complement the management of the CAR reserve system.*
>
> *…*
>
> *During operations, site specific conditions are continually assessed, results recorded, the appropriateness of operational conditions reviewed and plans amended where necessary.*
>
> *Operational auditing monitors compliance with plan conditions and, where non-compliance occurs, assesses environmental harm, details repair works where necessary, the cause of non-compliance, whether sanctions are necessary and how the non-compliance can be avoided in future operations.*

We have come across no evidence of this, quite to the contrary we are concerned that Forests NSW does not learn from their mistakes. We are most concerned that neither DECCW nor Forests NSW bother to assess the effectiveness of prescriptions and improve them accordingly. Rather than applying adaptive management as a routine practice we find that Forests NSW use it as an occasional excuse to log somewhere they shouldn't.

One has only to look at the supposed rehabilitation plan for Compartments 162 and 163 of Yabbra SF (Forests NSW 2010) where, despite the intense scrutiny, Forests NSW failed to consider why numerous prescriptions were inadequately applied, failed to assess the impacts that eventuated and failed to identify any rehabilitation measures (aside from repairing drainage). Despite being found guilty, they apparently learnt nothing.

4.3.1. Oxleayan Pygmy Perch.

Nannoperca oxleyana is identified as 'endangered' under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and the NSW *Fisheries Management Act 1994*.

The "*Terms of Licence under section 220ZW of the Fisheries Management Act, 1994 to harm threatened fish species during undertaking of forestry related activities. Upper North East Region"* (the Fisheries Licence) requires in Section 9 for Forests NSW to prepare "Pre-Logging and Pre-Roading Aquatic Habitat Assessments": While the licence implies these should be prepared for all operations, in practice they are only prepared when in-stream works are proposed. In response to our request for the assessment for compartment 144 of Doubleduke SF (Pugh 2010c) NEFA was provided with the document *"Assessment of Proposal for In-stream Works in Aquatic Habitats"* (1/7/2009).

The assessment undertaken failed to recognise the existence of Oxleyan Pygmy Perch despite the 2005 Recovery Plan identifying that this compartment occurs within the identified *"likely natural distribution"* of the Oxleyan Pygmy Perch, with a pre 1980 record of this species apparently near Compartment 145. The assessment guidelines included in the licence also identify this as one of the 3 primary target species in UNE.

The Fisheries Licence requires that those undertaking assessments have some expertise and to consider existing records. Forests NSW apparently get untrained foresters to do their aquatic habitat assessments despite their not having the appropriate expertise (Pugh 2010c). Though according to a Forests NSW planner under the licence they only need to consider a species if records and data are first provided by Fisheries, which was meant to happen five years ago, as stated in the 2004/5 RFA report:

> *Preparation of distribution data for the Oxleyan pygmy perch (Nannoperca oxleyana), a species occurring in coastal areas of northern New South Wales, and Macquarie perch (Macquaria australasica) occurring in streams of the southern highlands and slopes, is complete. Both species could be affected by forestry operations and the distribution data is expected to be provided to Forests NSW shortly*

Intentional ignorance, supposedly by a fish expert, should not be an excuse for inaction to protect an endangered species.

As of November 2010 Fisheries NSW had still not provided the documentation to Forests NSW. This oversight means that since Oxleyan Pygmy Perch was listed as endangered Forests NSW has used their intentional ignorance to justify not taking any specific action to protect it. Given that the *"Assessment of Proposal for In-stream Works in Aquatic Habitats"* for compartment 144 was approved by Fisheries NSW, and it did not even recognize the existence of Oxleyan Pygmy Perch, it is apparent that there is something very wrong with Fisheries approval process. You would think that over the years someone would have noticed that Oxleyan Pygmy Perch wasn't being duly considered.

It is assumed the Purple-spotted Gudgeon is similarly disregarded.

4.3.2. Richmond Frog.

NSW has identified *Philoria richmondensis* as an Endangered Species, it is also listed as endangered on ICUN's Red List. For the Richmond Frog only 56% of the habitat targeted for reservation is included in the reserve system in north-east NSW, and this target is only a fraction of the habitat needed for a viable population. For Philoria species, the CRA expert panel (Environment

Australia 1997) identified changes in soil moisture resultant from logging and roading as the most significant threats to these species.

DECCW's website identifies a variety of threats including:

- *Degradation of habitat due to changes in hydrological regimes and water quality, and also from trampling by domestic stock*
- *Reduction of moisture levels caused by intensive forest management, including timber harvesting, road construction and burning.*

On their threatened species site DECC state:

What needs to be done to recover this species?

- *Prevent conversion of large areas of old-growth forest to young, even-aged stands.*
- *Protect known and potential habitat from forest management practices that reduce dry season stream flows and ground moisture levels.*
- *Protect areas of known habitat from roading, logging and other disturbance.*
- *Reconnect isolated rainforest patches with corridors of wet forest, particularly along drainage lines in stream headwaters.*
- *Adopt the DEC frog hygiene protocol to prevent the spread of chytrid fungus in amphibian habitat.*

Section 5.2.1 of the Threatened Species Licence requires that an adequately trained person must conduct a thorough search for, record and appropriately mark permanent soaks and seepages in *Philoria* spp. potential habitat during or before the marking-up of a compartment. In Compartment 163 of Yabbra State Forest (Pugh 2009) we found 2 soaks/wetlands that had not been identified in the planning process and had not been surveyed for *Philoria* spp. as required. Forests NSW had mistakenly identified that surveys for *Philoria loveridgei* rather than *P. richmondensis* were required, though neither was apparently searched for. One of these soaks was identified in our audit as likely to have been potential habitat for *P. richmondensis,* though the intensity of the disturbance has now rendered it unsuitable habitat.

As wetlands, both these soaks were required by the Fisheries Licence and Threatened Species Licence to be marked on the harvesting plan, have 10m buffers established and have forestry operations excluded. Both the soaks were intensively disturbed by roading, logging and burning (Pugh 2009). As a consequence of our audit DECCW issued Forests NSW a Penalty Infringement Notice for "timber felling within a wetland and wetland exclusion zone", Fisheries NSW issued a warning letter for these same offences, and DECCW issued a formal warning to Forests NSW for not identifying habitat and surveying for Richmond's Frog.

In Forests NSW's (2010) subsequent "Rehabilitation and Monitoring Plan, Compartments 162 and 163 Yabbra State Forest No 394" there is no mention, or assessment of the condition, of these wetlands and no proposal to undertake any remedial actions to restore the wetlands. And this has been agreed to by DECCW.

4.3.3. Stuttering Frog.

Mixophes balbus has been identified as Endangered in NSW and nationally as Vulnerable. For the Stuttering Frog only 73% of the mean of the habitat targeted for reservation is included in the reserve system in north-east NSW, though 5 populations have met targets. For the Stuttering Frog, the CRA expert panel (Environment Australia 1997) identified changes in hydrology and erosion due to logging and roading as the most significant localised threats to this species. A DECCW priority action is "Control weeds in known habitat for this species".

On their threatened species site DECC state:

> *What needs to be done to recover this species?*
> *Retain native vegetation, including groundcover and leaf litter, up to 300 m from creeks and streams where the species occurs.*

For the Stuttering Frog a 30m exclusion buffer is required to be applied to all streams within 200m of the record. Rather than being applied from the centreline of mapped streams it needs to be measured and marked from the stream bank to satisfy the TSL condition 6.3 (b):

> *The width of exclusion zones must be measured from the top of the bank of the incised channel or, where there is no defined bank, from the edge of the channel.*

In contravention of requirements Forests NSW failed to mark the boundary of the exclusion zone for Stuttering Frog on the ground in Girard SF and subsequently logged part of it (Pugh 2010d). Part of the problem seems to be that a machine mounted GPS was relied upon to identify distances from mapped creek lines, instead of undertaking the required inspections and markup on foot to identify distances from tops of banks, which can be a long way from the creekline. In one area the stream was also incorrectly mapped and this had not been corrected in the planning process. Because Forests NSW instead relied upon their GPS and applied the exclusion zone to the centre of streams, irrespective of whether there was a defined bank, they ended up logging up to the top of the bank in some areas (Pugh 2010d).

Forests NSW did not satisfy requirements of the Threatened Species Licence to establish and protect 30m buffers around stream banks in the vicinity of a known record, in part because they relied upon mapped streams and in part because they refused to measure exclusion zones from the top of banks (Pugh 2010d).

This refusal to measure exclusion zones from the tops of banks of streams, and instead rely upon GPS distances measured from the centre of mapped streams, is a frequent problem when marking riparian exclusion areas. Even though this has long been recognised as a problem it is still done frequently.

4.3.4. Hastings River Mouse.

Pseudomys oralis is listed at both state and national levels as an Endangered species. For the Hastings River Mouse only 8% of the mean of the habitat targeted for reservation is included in the reserve system in north-east NSW, all 8 populations have achieved less than 29% of reservation targets, with 6 below 10%. For Hastings River Mouse, the CRA expert panel (Environment Australia 1997) identified predation by foxes and cats as the biggest threat to this species, followed by burning.

On their threatened species site DECC identify as threats:

- *Loss of habitat through clearing.*
- *Reduced groundwater and stream flow as a result of clearing or canopy reduction.*
- *Cattle grazing and trampling of preferred habitat, especially close to water.*
- *Too frequent fires, which may destroy or severely reduce species diversity ground cover.*
- *Predation by foxes and feral cats.*

The Threatened Species Licence (TSL 6.13) requires that exclusion zones of 200-800 metres must be established around records of Hastings River Mouse. TSL 8.8.9 establishes that habitat surveys and trapping surveys need to be undertaken in modelled habitat before it can be logged.

In three separate forests Sparkes (2010) identified a total of 83 hectares of modelled habitat of the Hastings River Mouse where the required surveys had not been undertaken. Because the required surveys were not done it is not known whether the mouse was present and the exclusion zones should have been applied. DECCW issued warning letters for two of these breaches.

4.3.5. Black-striped Wallaby

Macropus dorsalis is identified in NSW as an Endangered Species. With 848 breeding units estimated to be reserved, the Black-striped Wallaby has only achieved a mean of 36% of its reservation target. For Black-striped Wallaby, the CRA expert panel (Environment Australia 1997) identified predation by foxes and dogs as the biggest threat to this species.

The NSW Priority actions include *"Undertake assessment of the effectiveness of private and public forest management prescriptions"* as one of two high priority actions*, "Where appropriate, undertake strategic stock grazing or exclusion to maintain habitat" and "Control feral animals in known habitat for this species*" as two of 4 medium priority actions, and *"Where appropriate, maintain vegetation structure and habitat mosaic at a landscape level through fire management"* as a low priority action.

On their threatened species site DECC state:

> *What needs to be done to recover this species?*
>
> - *Undertake control of predatory foxes and feral cats. Control competing feral grazing animals such as goats and rabbits.*
> - *Manage known and potential habitat to maintain mosaic of dense understorey vegetation and open areas.*
> - *Reduce or prevent grazing of habitat by domestic stock.*
> - *Control weeds in areas of known and potential habitat.*
> - *Protect known and potential habitat from clearing, fragmentation and isolation.*
> - *Reconnect patches of known and potential habitat with wide, densely vegetated corridors.*
> - *Monitor populations with shelter or feeding habitat occurring on private land.*
> - *Report any instances of illegal killing to the DEC.*

Black-striped Wallaby requires the development of Site-specific conditions in accordance with the Threatened Species Licence (TSL) condition (1.2). Forests NSW obtained a site specific prescription for this species from DECCW in September 2007, which included as requirements:

> *(a) Removal of no more than 50% canopy cover in the net harvest area.*
>
> *…*
>
> *(c)Particular attention must be paid to application of the Threatened Species Licence conditions of the IFOA for 5.4 Rainforest, 5.15 Grazing, 5.16 Burning, 5.17 Ground Habitat Protection, 5.18 Feral and Introduced Predator Control in these operations.*

Theoretically, as no doubt intended, this is a meaningless prescription to apply for an endangered species as the silvicultural prescription required 60% canopy retention and paying "particular" attention to existing requirements does little. Though it seems that the requirement to retain at least 50% canopy cover throughout the logging area has established yet another benchmark that Forests NSW did not meet.

NEFA's complaint (Pugh 2009) was that

> *The endangered Black-striped Wallaby was recorded by Forests NSW at two sites in the logging area, and is likely to be more widespread. Forests NSW failed to abide by the species-specific requirements to retain 50% of canopy and comply with existing conditions*

relating to minimizing understorey and ground disturbances (breaches TSL conditions 1.2 (d), as well as requirements 5.9(h),5.16 (a), 5.16 (b), and 5.17 (a)).

Despite there being no occupational permit to allow grazing in these compartments and a recovery action for the Black-striped Wallaby being to "*Reduce or prevent grazing of habitat by domestic stock"*, Forests NSW agist cattle on their adjoining plantation and because there are no adequate fences allow them to graze in the Black-stripe Wallaby habitat in contravention of TSL 5.15. DECCW refused to issue a penalty notice or warning letter for this grazing though claimed (Simon Smith, 19 May 2010) that Forests NSW *"have requested the owner of the cattle to immediately remove them from the area*". Two months later when NEFA inspected the area with Forests NSW's CEO, Nick Roberts, on 23 July 2010 we observed a large herd of cattle in the Black-striped Wallaby habitat and the forester in charge of their audit denied there was any commitment or intent to remove the cattle.

The TSL 5.15 also requires that Forests NSW prepare Grazing Management Plans by 2004 that consider the habitat requirements of threatened species. The IFOA (33:3, 4) identified that Forests NSW must prepare a "model document" by 30 June 2000 and (33:5) grazing management plans with 6 months of the model plan for the whole of UNE. Ten years later DECCW remained unconcerned when they identified (Simon Smith, 19 May 2010) that Forests NSW have no grazing plan but are developing a "model grazing plan" that DECCW requested consider unauthorised grazing.

In DECCW's response they deny that more than 50% of the canopy was removed, though do not address the loss of understorey in contravention of TSL 5.16 and 5.17. In Forests NSW's (2010) subsequent "Rehabilitation and Monitoring Plan, Compartments 162 and 163 Yabbra State Forest No 394" there is no mention, or assessment of the condition of the habitat in the vicinity of the records of Black-striped Wallaby and no remediation proposed. And this has been agreed to by DECCW.

We maintain that in compartment 163 there can be no doubt that tree removal was excessive in the vicinity of the Black-striped Wallaby, and would welcome ground transects to establish the truth. Understorey removal was also excessive, while this is attributed to the post-logging burn getting out of control it is still a breach of requirements. We consider the habitat to be significantly degraded and in need of active weed control and canopy regeneration.

4.3.6. Spotted-tailed Quoll

Dasyurus maculatus is identified nationally as Endangered, though only as vulnerable in NSW. For the Spotted-tailed Quoll north-eat NSW is its mainland stronghold. Reservation targets were set for 4,536 breeding units covering 4 populations, though only a mean target achievement of 25% in reserves was achieved, with one reserved population expected to be less than 108 females. For the Spotted-tailed Quoll, the CRA expert panel (Environment Australia 1997) identified competition and predation by foxes, cats and dogs, and baiting for dingoes, as the biggest threats.

On DECCW's Threatened Species website the identified priority actions are largely aimed and survey and monitoring. Two of the high priority actions are *"Habitat requirements of Spotted-tailed Quolls to be adequately conserved within environmental planning instruments and through other legislative protection mechanisms, including property vegetation plans*", and *"Renegotiate habitat retention prescriptions in IFOAs if they are found to be inadequate following research into disturbance thresholds and habitat requirements of breeding females".*

On DECCW's Threatened Species website includes as a recovery action *"Retain and protect large, forested areas with hollow logs and rocky outcrops, particularly areas with thick understorey or dense vegetation along drainage line".*

The Threatened Species Licence (TSL 6.15) requires exclusion zones to be established around dens and latrine sites of the Spotted-tailed Quoll. Latrine sites are important sites of social interaction.

Sparkes (2010) identified one place where a 12.5ha exclusion zone was placed outside the State forest and another where 1.7 ha of an exclusion area was logged. Sparkes identifies that DECCW failed to take any action in relation to these breaches.

Sparkes (2010) found that Forests NSW logged 1.7ha of a quoll latrine site, noting:

> *In 2003 when Forests NSW were logging in an adjacent compartment they identified a number of Quoll latrines and placed one of a number of required exclusions in this compartment. At that time I complained that the TSL's intent (6.15.iii) was to protect the actual latrine rather than adjacent bush, but I was told by DECC the condition had been abided by. By the time Forests NSW got around to logging this compartment in 2008 the exclusions had mysteriously disappeared from FNSW planning database. The excuse given to me was that there are apparently a number of data bases used by forest NSW that are called different names which may or may not be up to date with threatened species records or noncompliance reports when planning logging and which may or may not be the document described in the TSL or EPL .*
>
> *This is one of a number of cases I have found where FNSW have been incapable of keeping accurate registers of either the threatened species records or the non-compliance data*

While we expect that Spotted-tailed Quolls were present at most of our audit sites (i.e. the adjacent landowner had recorded one at Yabbra), no evidence of their presence was located by Forests NSW (we doubt they looked) and so nothing specific was done to protect them.

We consider that there is a need to implement the identified high priority actions to adequately conserve the habitat requirements of Quolls and to:

> *Renegotiate habitat retention prescriptions in IFOAs if they are found to be inadequate following research into disturbance thresholds and habitat requirements of breeding females"*

The Quoll prescription is ten years old and needs to be reconsidered in light of available research since then, with priority information gaps targeted for further work. The effectiveness of the prescription in protecting dens and latrines needs to reviewed.

4.3.7. Wombat

Vombatus ursinus is in decline in the UNE and was identified as a regionally significant species in the CRA. The Wombat achieved a mean of 53% of its reserve targets in north-east NSW, meeting breeding female targets in only one of its 4 populations.

The Threatened Species Licence (TSL 6.18) requires that, for areas north of the Oxley Highway *"A 20 metres radius exclusion zone must be established around all entrances to burrows where the burrow is greater than one metre in length"*.

Butterleaf State Forest has long been recognised as the wombat's northern stronghold. Sparkes (2010) reported breaches in three compartments in Butterleaf SF involving *"the destruction of wombat burrows, and the possible death of resident wombats, during logging".* For these breaches,

DECCW issued Forests NSW with a warning letter for one and a Penalty Infringement Notice for the other.

Sparkes (2010) notes:

> *The examples listed were the tip of the iceberg, as the breaching of wombat burrow exclusions by Forests NSW was blatant and widespread in this forest. Given that I had reported similar breaches in the same forest in 2000 there can have been no excuse for their repetition. I am concerned that this second round of breaches may have been a deliberate attempt to exterminate these animals from this forest.*

This appears to be a systemic problem, and indicates a refusal to protect or apply the prescription required for the wombat.

4.3.8. Koala.

Phascolarctos cinereus is identified in NSW as a Vulnerable species. The Koala did better than some, with a mean of 83% of its reserve target achieved, with targets satisfied for 4 out of 7 populations. In the CRA the highest threat identified by the expert panel was Habitat clearing, followed by feral predators (foxes and dogs) then *"Logging that fails to retain stems in the 30-80 DBH size class".*

Sparkes (2010) is concerned that the identification of Koala high use exclusion areas (TSL 6.14c) occurs less than would be expected. In all 3 of our audits we have found evidence of Koalas, yet Forests NSW have not been required to delineate or protect "intermediate" or "high" use areas. Logging is excluded from "high" use areas and in "intermediate" use areas there is a requirement for increased retention and marking of Koala feed trees. Identification of such areas is based upon the numbers and distribution of Koala scats found in pre-logging searches meant to be undertaken as part of the compartment mark up searches.

The Threatened Species Licence (TSL, 5.2.2 a) requires that in compartments which contain preferred forest types marking up must be conducted at least 300 metres in advance of harvesting operations, with an adequately trained person thoroughly searching for Koala scats around the bases of feed trees at ten metre intervals (5.2.2 (b)). Our audits have clearly established that in many areas Forests NSW is not undertaking markup surveys, and where they do they are often limited to the marking of exclusion zones with little marking up away from boundaries.

Our opinion is that Forests NSW are under-identifying "intermediate" and "high" use Koala areas because they are not undertaking the required searches for scats in many areas. We also doubt that when they do undertake markup surveys they are spending the time required for *"thoroughly searching the ground for scats within at least one metre of the base of trees greater than 30 centimetres dbhob"*. Having a prescription based on searches during compartment markup is of no value if Forests NSW does not do markups all the time.

At Girard (Pugh 2010d) the Koala was not considered in the Threatened Species Survey Report and Harvesting Plan, despite the Harvest Plan Operational Map showing a Koala record in the adjacent compartment less than a kilometre away and the "Koala Fire Trail" being located within the harvestable area of Compartment 46. This shows a clear failing in the planning process as instead of being a target species, it was not identified as having been recorded or as requiring surveys in the Threatened Species Survey Report. It is similarly ignored in the Harvesting Plan.

Outside rainforest, all the forest types within the Girard compartments are identified in the TSL as either having primary browse trees for Koalas as dominant species (Types 47, 60, 62 and 163) or

secondary species (Types 46, 53, 93, 122 and 167).. It is not known if the required surveys were ever undertaken. If they were, they failed to pick up evidence of Koalas. While logging was still underway, our audit located a mother Koala with a baby on its back in compartment 55 on the edge of a heavily logged area.

At Yabbra (Pugh 2009) the mark-up survey failed to find evidence of Koalas, though one was seen and scats were found during the pre-logging and pre-roading survey. Given the presence of preferred food trees, Forests NSW were required to undertake searches for Koala scats 300m in advance of logging. Though given the lack of marking of habitat trees, Yellow-bellied Glider feed trees and exclusion boundaries it is highly unlikely that searches for Koala scats were undertaken in many areas.

We consider that the efficacy of the Koala prescription and its implementation needs to be reviewed and improved. It used to be that if Forests NSW saw a Koala in a tree they would wait for it to move before cutting the tree down, we do not seem to have advanced much.

4.3.9. Yellow-bellied Glider

Petaurus australis is a NSW state vulnerable species. Only a mean of18% of the habitat required to be included in the reserve system in north-east NSW has been protected, and all of the 8 populations are below 30% of their targets. The CRA expert panel (Environment Australia 1997) identified the principal threat to this species as *"Logging that fails to retain a high proportion of large trees and hollows".*

On DECCW's Threatened Species website identified threats are:

- *Loss and fragmentation of habitat.*
- *Loss of hollow-bearing trees.*
- *Loss of feed trees*

On DECCW's Threatened Species website recovery actions identified are:

- *Retain den trees and recruitment trees (future hollow-bearing trees).*
- *Retain food resources, particularly sap-feeding trees*
- *Retain and protect areas of habitat, particularly mature or oldgrowth forest containing hollow-bearing trees and sap-feeding trees.*
- *Maintain connectivity between habitat patches.*
- *In urban and rural areas retain and rehabilitate habitat to maintain or increase the total area of habitat available, reduce edge effects, minimise foraging distances and increase the types of resources available.*

The Yellow-bellied Glider is a species that is managed off-reserve by specific prescriptions. These prescriptions require the identification of den trees (TSL 5.2.1) and protection of 50m around them (TSL 6.17), the identification of sap-feed trees (they chew channels into the bark to collect sap) (TSL 5.2.1), and the retention of 15 feed trees within varying distances of sap-feed trees, sightings and where calls are heard (TSL 6.17). Retained trees are required to be marked for retention (TSL 6.17).

From his review of harvesting plans, Sparkes (2010) considered that application of Yellow-bellied Glider Den exclusions (TSL 6.17a) did not occur as often as they should. The Threatened Species Licence (TSL 5.2.1) requires that as part of compartment markup *"An adequately trained person must conduct a thorough search for"* Yellow-bellied Glider den trees. Dens are large hollows in big old trees in which Gliders sleep during the day, often leaving them at dark and returning before dawn.

Undertaking surveys for den trees requires listening at nightfall over at least 2 nights for the calls they make as they exit their dens. If you know what you are doing, on the first night you can locate the general area the call comes from and on the second night the tree. This would have to be repeated throughout the compartment. So a "thorough" search would require many nights work by someone who knew what they were doing. It is highly improbable that a person marking up a compartment in the day will ever find a den tree. This should more rightly be a requirement of the pre-logging survey by ecologists.

At Yabbra (Pugh 2009) there were 34 call or observational records mapped. Given this species' tendency to live in family groups in 30-60ha territories with a number of den trees, there can be no doubts that a variety of den trees occurred in the logging area, though not one den tree was found. It is doubtful that they were specifically looked for.

These same trained experts are also meant to undertake thorough searches for, and protect, "sap-feed" trees. These are trees that Yellow-bellied gliders tap for sap by chewing holes and grooves into their trunks and licking up the sap that accumulates. They show high fidelity to particular trees. Unlike den trees these are readily detected during the day if you have basic training. We detailed 11 extant sap feed trees, observed others, and estimate there were more than 50 such trees in our Yabbra audit (Pugh 2009). Not a single one was identified by Forests NSW, and thus there can be no doubt that many were logged. We found another sap-feed tree in Doubleduke, within an Endangered Ecological Community that has been logged around and the debris piled up at its base. We have yet to come across a sap-feed tree marked by Forests NSW. They simply do not look.

In addition to retaining sap-feed trees Forests NSW are required to identify, mark and retain 15 "feed trees" within various distances of sap-feed trees, call records and sight records. Feed trees are preferentially required to be the large smooth-barked trees favoured by Gliders for foraging. Forests NSW have identified call detection and observation sites for many individuals in their pre-logging surveys, all of which are required to have 15 feed trees marked and retained within 100-200m. All the audit areas have identified extensive areas for application of the feed tree prescription. These feed trees are required to be marked in the pre-logging markup. In our audits we have found that Forests NSW have not identified or marked a single Yellow-bellied Glider feed tree (though dozens were required to be marked and retained in all areas).

Forests NSW's standard response is that they inadvertently retain the required numbers of trees (blind faith). At some sites we had no doubt that the required feed trees were not retained, though we did not quantify this. The feed tree prescription is simply ignored.

At Yabbra there were 34 mapped call and sight observations of Yellow-bellied Glider which required that over 500 Yellow-bellied Glider feed trees had to be retained, with any in the net logging area marked for retention. We did not locate any marked trees, and expect that many of those required to be retained were logged. DECCW issued Forests NSW a Penalty Infringement Notice (PIN) and a $300 fine *for "the failure to mark Yellow-bellied Glider sap feed trees and feed trees"*.

4.3.10. Powerful Owl

Ninox strenua has been identified as Vulnerable in NSW. Because of their long life expectancies, Powerful Owls were only set relatively small targets of 378 breeding pairs in each of 2 populations. Only a mean of 61% of the Powerful Owl habitat required to be included in reserves was protected, with both populations below their targets. The CRA expert panel (Environment Australia 1997) identified logging that reduces prey mammals as the principal threat to Powerful Owl and Sooty Owl.

On their website DECCW identify as a threat:

> *Inappropriate forest harvesting practices that have changed forest structure and removed old growth hollow-bearing trees. Loss of hollow-bearing trees reduces the availability of suitable nest sites and prey habitat.*

And identify as recovery actions:

> *What needs to be done to recover this species?*
>
> - *Apply low-intensity, mosaic pattern fuel reduction regimes.*
> - *Searches for the species should be conducted in suitable habitat in proposed development areas and proposed forest harvesting compartments.*
> - *Retain at least a 200 metre buffer of native vegetation around known nesting sites.*
> - *Retain large stands of native vegetation, especially those containing hollow-bearing trees.*
> - *Protect riparian vegetation to preserve roosting areas.*
> - *Protect hollow-bearing trees for nest sites. Younger recruitment trees should also be retained to replace older trees in the long-term.*
> - *Minimise visits to nests and other disturbances, including surveys using call playback, when owls are breeding.*
> - *Assess the importance of the site to the species' survival. Include the linkages the site provides for the species between ecological resources across the broader landscape*

For the Powerful Owl at Girard (Pugh 2010d) we found that an area required to be protected from logging, and the extra habitat trees required to be retained in high quality habitat, were logged. The area specifically considered here was classed as Forest Management Zone (FMZ) 3B, we consider, in order to protect a stand of oldgrowth forest and a wildlife corridor. This zone requires the protection and management of identified values whilst also allowing other management and production activities. The Powerful Owl was one identified value.

Powerful, Masked and Barking Owls have been dealt with according to the "Landscape Approach", specified in condition 6.9 of the Threatened Species Licence (TSL), in the audited areas. This requires retention (and exclusion from logging) of set percentages of modelled owl habitat over broad areas. Girard was the only audit that reviewed this approach (Pugh 2010d). It was found that the Owl Landscape plans included the logged FMZ 3B area as a logging exclusion area counting towards targets for both Powerful and Masked Owls. It was also found that long linear strips were specifically added to improve target achievement in contravention of a TSL (6.9. e) design requirement. It is also apparent that Forests NSW paid no heed to their owl landscape plan when planning their operation in the FMZ3B area.

High quality habitat for the Powerful Owl, Masked Owl, and Barking Owl is determined by the presence of more than one Greater Glider per hectare. Where found the TSL owl prescription (6.9d) requires an increase from the retention of 10 hollow-bearing (habitat) trees per two hectares to 8 per hectare in the net logging area. In compartment 44 (encompassing the FMZ 3B area) in Doubleduke it was found (Pugh 2010d) that the need for the increased retention rates had been identified in the Harvest Plan, but that the general habitat tree retention rates had not been complied with, let alone the increased retention required for the owls. And this was found to be the case within the FMZ 3B area that formed part of the owl exclusion areas and should not have been logged.

The Threatened Species Licence (TSL 5.13) requires that 50m exclusion zones must be placed around Powerful Owl nest sites and 30m around roost sites, and that (5.2.1) as part of compartment mark-ups "an adequately trained person must conduct a thorough search for, record and appropriately mark" these, and a range of nest and roost sites. We are not aware of the finding of any Powerful Owl nests or roosts in mark-up surveys in north-east NSW, despite, for example, their likely being present somewhere in all our audit areas. The lack of mark-up surveys in many areas, particularly in the vicinity of heads of streams where nests and roosts are most likely, limits the

chances of finding such features. We strongly doubt that roost and nest sites are being thoroughly searched for by an adequately trained person.

Though we also doubt the efficacy of this prescription, given the difficulty of locating nests and roosts in the field. Such features can be expected in the heads of streams. Enhanced protection of such areas may be a preferable approach. Though we are finding that many such areas are not being protected in accordance with current requirements, particularly unmapped drainage lines and drainage depressions (see Section 6).

5. BELL MINER ASSOCIATED DIEBACK

There are many forms of dieback affecting native forests and remnant trees in partially cleared land in NSW. The most obvious example of forest ecosystem collapse in NSW is the dieback associated with logged forests, psyllid infestations and colonies of the Bell Miner. “Bell Miner Associated Dieback” (BMAD) has affected tens of thousands of hectares of forests in north-east NSW, in severe cases leading to death of trees and replacement by lantana.

The Bell Miner Associated Dieback Working Group (BMADWG 2004) summarise the problem:

Bell miners are a natural part of eucalypt ecosystems and normally have minor and positive impacts on forests. However, increases in Bell miner populations and their distribution, in addition to other factors such as tree stress, psyllid infestation, dense forest understories as well as weed invasion, drought, logging, road construction, pasture improvement, bio-diversity loss both floral and faunal, soil nutrient changes, and changing fire and grazing regimes have all been implicated in the spread of dieback. The outward expression of BMAD is generally characterised by:

- *trees stressed and dying;*
- *high populations of psyllids and other sap-sucking insects contributing to tree stress;*
- *high Bell miner numbers, with their aggressive territorial behaviour, driving away insectivorous birds that would otherwise help to control insect numbers;*
- *alteration of the forest structure: canopy and midstories depleted with grassy and wet and dry sclerophyll understoreys replaced by dense shrubby vegetation, often associated with lantana invasion*

The Bell Miner Associated Dieback Working Group (BMADWG 2004) summarise the consequences:

The potential impacts of BMAD on forest productivity and biodiversity cannot be overstated.

Potential impacts for conservation include:

- *Extreme degradation of forest ecosystems in World Heritage listed National Parks such as Border Ranges NP, Murray Scrub and Dome Mountain in Toonumbar NP, Bungdoozle and Cambridge Plateau in Richmond Range NP, Mt Nothofagus NP, Kooreelah NP, and Mt Clunie NP.*
- *Major disruption in ecosystem function, and reduction in diversity and abundance of threatened flora and fauna species including Dunn's White Gum (Eucalyptus dunni) and Rufous Bettong (Aepyprymnus rufescens) across all land tenures,*
- *Increased weed invasion and associated displacement of native forest species.*

Impacts on forest productivity can be severe. Dieback defoliates the crown, ultimately leading to the death of standing trees. Not only do the standing trees die, but the lack of foliage and flowering and subsequent fruiting, reduce and eventually eliminate the seed production necessary for forest regeneration. Dense understorey development (primarily Lantana weed invasion in northern NSW and Cissus in the south) continues with little overstorey and reduced alternative species competition. Reduced eucalypt flowering directly impacts on honey production and on bird species and populations that compete with Bell miners.

Impacts of BMAD on private lands are significant, as these areas are critical to the livelihoods and well being of local communities. Forest woodlots and timber supplies, honey production, shelter belts and forest-related lifestyles are under threat from BMAD.

Local economies may also be impacted through declining forest tourism as dieback reduces the value, significance and aesthetic appeal of the forests.

In 2004 Forests NSW identified almost 20,000 hectares of the approximately 100,000 hectares of apparently susceptible forest types in an area of north-eastern NSW bounded by the Border Ranges, Richmond Ranges and Captains Creek as being affected by dieback attributed to BMAD (Wardell-Johnson et. al. 2006). The NSW Scientific Committee's (2008) final determination for listing 'Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners' as a Key Threatening Process notes that:

> *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).*

Wardell-Johnson *et. al.* (2006) state

> *Bell Miner Associated Dieback (BMAD) is a significant threat to the sustainability of the moist eucalypt forests of north-eastern NSW and south-eastern Qld, and to biodiversity conservation at a national scale.*
>
> *...*
>
> *BMAD is a nationally significant conservation problem that has the potential to reduce the chances of achieving sustainable forest management in north-eastern NSW. There is a strong likelihood for significant biodiversity loss in the medium future in the general region, including south-eastern Qld, as well as reduced available timber volumes. Blaming Bell miners for the problem will not lead to its resolution.*
>
> *...*
>
> *The severity of the BMAD problem is such that tens of thousands of hectares in north-eastern NSW is currently affected with over 2.5 million hectares considered potentially vulnerable (Ron Billyard pers comm., Nov. 2004). A substantial (although uncertain) area of south-eastern Queensland is similarly affected, although less attention has been directed there. BMAD occurs on both public and private land and the area affected is expanding rapidly. The severe impact of this form of forest canopy dieback has profound implications for the conservation of the internationally significant biodiversity of the region.*

There are numerous requirements for Forests NSW to redress dieback and restore degraded areas to a healthy and productive condition.

The Australian Forestry Standards state:

> *4.4 Criterion 4—Forest management shall maintain the productive capacity of forests*
> *NOTE: The intent of the requirements under this criterion is to ensure that harvesting and utilisation of forest products is consistent with the objective of maintaining the long-term productive capacity of the land.*
> *4.4.1 The forest manager shall identify existing productive uses of the defined forest area to support the maintenance of the land's long-term productive capacity and ensure it is not compromised by wood production.*
> *...*
> *4.4.4 The forest manager shall ensure that regeneration of native forests and establishment of plantations is effective and timely. Species composition and the density of the regeneration of native forests and the stocking rate of plantations shall be assessed and remedial action taken where necessary to ensure effective regeneration and establishment.*
>
> *4.5 Criterion 5—Forest management shall maintain forest ecosystem health and vitality*
> *4.5.1 The forest manager shall identify, assess and prioritise any potential damage agents (such as weeds, insect and vertebrate pests and diseases and pathogens) that may impact on forest ecosystem health and vitality.*
> *…*
> *4.5.2 The forest manager shall implement practices to support the maintenance of forest ecosystem health and vitality and ensure that damage stays within tolerable levels.*

Management shall include procedures for forest health surveillance and control or eradication of damage agents.

…

4.5.4 The forest manager shall manage forests that have been degraded by damage agents to facilitate their rehabilitation.

The IFOA (2.7.1) requires that in carrying our forestry operations "SFNSW must give effect to the principles of ecologically sustainable forest management as set out in Chapter 3 of the document entitled, "ESFM Group Technical Framework".

Principle 1 is: *Maintain or increase the full suite of forest values for present and future generations across the NSW native forest estate.* Relevant specific criteria are:

3.2.1.2 The productive capacity and sustainability of forest ecosystems

- *maintain ecological processes within forests (such as the formation of soil, energy flows and the carbon, nutrient and water cycles, fauna and flora communities and their interactions);*
- *maintain or increase the ability of forest ecosystems to produce biomass whether utilised by society or as part of nutrient and energy cycles;*
- *ensure the rate of removal of any forest products is consistent with ecologically sustainable levels;*
- *ensure the effects of activities/disturbances which threaten forests, forest health or forest values are without impact, or limited.*

3.2.1.3 Forest ecosystem health and vitality

- *…*
- *ensure the effects of activities/disturbances within forests, their scale and intensity, including their cumulative effects are controlled and are benign;*
- *restore and maintain the suite of attributes (ecological condition, species composition and structure of native forests) where forest health and vitality have been degraded.*

The IFO (4.26) also requires:

SFNSW must ensure that the scale and intensity at which it carries out, or authorises the carrying out of, forest products operations in any part of the Upper North East Region, does not hinder the sustained ecological viability of the relevant species of tree, shrub or other vegetation within the part.

Forests NSW's (2005) ESFM Plan identifies as policy:

Forests NSW will maintain or enhance the health and productivity of forests to support nature conservation, timber production and other ecologically sustainable uses in Upper North East (UNE) Region.

In relation to BMAD Forests NSW (2005) go on to state:

Chronic decline occurs when long term environmental changes, as a result of human management, impair tree health. It is increasing throughout dry and moist eucalypt forests, particularly in coastal areas. Approximately 20,000 ha of forest within UNE Region, including about 6,000 ha on State forest is showing signs of decline while a larger area of forest throughout the region is thought to be susceptible.

In UNE Region; Forests NSW is collaborating with other agencies, universities, landholders and conservation groups through the Bell Miner Associated Dieback Working Group in the coordination of efforts to better manage chronic decline. The group has identified key actions that need to be undertaken to develop effective management measures including surveying and assessing the extent of decline, supporting independent literature review, lantana removal trials, guidelines for restoration of affected areas and promotion of the issue.

…

Declining forests are susceptible to invasion by exotic weeds such as lantana because unhealthy trees are weak competitors, and the weeds are better adapted to changed soil conditions that make the trees unhealthy.

One of the requirements of the UNE Forest Agreement (2.11.2, Appendix 9) is annual reporting on factors affecting forest health:

Indicator 3.1.a Area and percent of forest affected by processes or agents that may change ecosystem health and vitality (narrative as interim).

Rationale

A number of agents can affect ecological processes in forests and may produce significant changes to the condition of the forest. This indicator measures the areas affected by those processes, and the level of impact within those areas.

Indicative target

Minimisation of the area and percent of forest affected by processes or agents that reduce ecosystem health and vitality. Note that on the level of individual agents, specific targets may be generated with further research.

Data requirements and Monitoring methodology

Processes and agents that may change ecosystem functioning need to be identified on a regional basis. These include interactions between natural events and management actions in the following areas; fire, climatic events, river regulation, salinisation, grazing, introduction of exotic biota, logging, clearing, roading, bell-miner dieback, insects and diseases.

RFAFTI data should be considered as baseline data, e.g., disturbance codes.

Data from agency fire monitoring, pest control programs and pest survey and research. Data may be generated out of local observation.

Reporting

Narrative, and where possible quantitative, reporting of the area and percent of forest affected by given processes or agents considered important at a regional level.

Narrative, and where possible quantitative, reporting of the area and percent of forest where given processes or agents are controlled or their effects are countered by rehabilitation.

Reporting processes should distinguish between natural and human induced effects.

The RFA reviews recognize the significance of BMAD, The seriousness of BMAD is stated in the NSW & CoA (2009) 5 year review of the RFA:

The resultant cycle of tree stress commonly causes the eventual death of forest stands, and serious ecosystem decline. In NSW the potential impact of BMAD-induced native vegetation dieback represents a serious threat to sclerophyll forest communities, particularly wet sclerophyll forests, from Queensland to the Victorian border. The forests most susceptible to dieback are those dominated by Dunn's white gum (Eucalyptus dunnii), Sydney blue gum (E. saligna), flooded gum (E. grandis) and grey ironbark (E. siderophloia). There is also evidence that some normally nonsusceptible dry sclerophyll types may be affected when dieback is extreme. Current estimates place the potential at-risk areas at a minimum of approximately two and a half million hectares across both public and private land tenures in NSW.

BMAD is emerging as a pressing forest management issue in both the UNE and LNE regions. The potential impacts include:

- *degradation of sclerophyll forest ecosystems across the UNE and LNE*
- *reduction in diversity and abundance of threatened flora and fauna species including Dunn's white gum and rufous bettong*
- *increased weed invasion and associated displacement of native forest species.*

Dieback-affected areas are located in the catchments of the major rivers of the North Coast of NSW including the Tweed, Richmond, Clarence, Macleay and Hastings. Maintenance of water quality in these river systems is critically dependent on maintenance of healthy forest cover over the catchment uplands. Bell miner associated dieback has the potential to degrade these forests, and consequently impact negatively on rivers and catchment communities through increased sediment and nutrient loads, and increased frequency and intensity of flooding.

The 2003/4 FA implementation report (NSW Government 2007) and DECCW (2010) echo these concerns and identify BMAD as *"a serious threat to sclerophyll forest communities, particularly wet sclerophyll forests".* The NSW&CoA (2009) 5 year RFA review identifies that BMAD *"is of prime concern in the northern forest regions of the state".*

Continued logging of BMAD areas can-not be considered to be maintaining ecological processes, conducive to biomass production, to be ecologically sustainable, without (limited) impact, benign, restorative of forest health, or not to hinder the ecological viability of the natural vegetation. This is degrading the forest ecosystems and forest productivity. Logging of affected areas is clearly not in accord with any of the principles of ecologically sustainable forest management.

One of the RFA milestones is for co-operation on BMAD.

Milestone 6.5
Cooperation between agencies on other forest health issues, such as bell miner associated dieback
Refer to UNE, LNE, Southern Forest Agreements section 2.12; Eden Forest Agreement section 2.11

While the problem remains out of control, DECCW (2010) consider that because there is now a BMAD strategy (which does not address forestry operations) "this milestone is considered complete".

5.1. What are the causes of Bell Miner Associated Dieback

NEFA considers that in the UNE Bell Miner Associated Dieback is typically associated with heavily logged forests where much of the overstorey has been removed and the understorey invaded by lantana. While we recognise that there are a variety of confounding factors we consider heavy logging to be the primary factor responsible for its current extent. Our concern is that the range of secondary factors are being used to confuse the issue and frustrate required responses.

NSW Scientific Committee's (2008) final determination for listing 'Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners' as a Key Threatening Process notes that:

Broad-scale canopy dieback associated with psyllids and Bell Miners usually occurs in disturbed landscapes, and involves interactions between habitat fragmentation, logging, nutrient enrichment, altered fire regimes and weed-invasion (Wardell-Johnson et al. 2006). At present, no single cause explains this form of dieback, and it appears that 'Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners' cannot be arrested by controlling a single factor. 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.).

…Increased light intensity associated with canopy reduction promotes the growth of the expanding foliage preferred by psyllids as well as understorey growth which is also influenced by altered fire regimes. Increased understorey growth, particularly of the invasive weed Lantana camara, suppresses eucalypt regeneration and provides enhanced shelter and safer nest sites for Bell Miners.

Stone *et. al.* (1995) found that the affected areas range in size from 1 ha to nearly 100 hectares, with the Sydney Blue Gum league of forest types (FT no's 46, 49, 53 and 54) most affected and the grey ironbark/grey gum league (FT 60) second most affected. They note that *"The vast majority of plots (97%) had been exposed to some degree of logging and were on their second or third rotations"*, postulating *"that bell miners prefer a dense understorey and a discontinuous sclerophyll overstorey."* Stone et. al. (1995) concluded that:

"A possible long-term explanation of why the dieback problem may be increasing, is that the proportion of moist sclerophyll forest being exposed to selective logging is increasing throughout the State. In support of this argument is the observation that the non-logged old growth Sydney blue gum stands in Pt. Giro State Forest (Walcha District) are in good health(based on aerial observations) and bell miner colonies appear to be absent in this forest (R. Kirwood, Forester, Walcha District, pers. Comm.)."

Wardell-Johnson *et. al*. (2006) state

A range of multi-tropic attributes (e.g. local climate/host tree condition and structure/natural enemies) have been identified as contributing to elevated psyllid populations. Fragmentation, changed disturbance regimes (particularly fire and logging), and pathogens are implicated. Changes in nutrients and other soil constituents, climatic regimes and hydrological factors have also been implicated.

...

Logging and associated disturbances can have direct and indirect effects on overstorey, midstorey and understorey structure and floristics. However, studies directly associating logging, forest structure, floristics and BMAD have not been carried out. While the proliferation of dominant understorey weeds, such as Lantana (Lantana camara), in the north-eastern region of NSW has largely been attributed to the disturbance caused by logging and associated activities, no direct link between BMAD and Lantana has been established.

…

Bower (1998) argued that it is probable that broad-scale habitat modification through intensive logging operations and subsequent Lantana domination has promoted conditions that favour the establishment of psyllids and Bell miner colonies.

...

Kavanagh and Stanton (2003) argued that their findings supported the hypothesis that the disturbance associated with logging can be a contributing factor in creating the habitat conditions required by Bell miners.

...

…Stone (1999) suggested that selective logging without effective overstorey regeneration encouraged dense understorey development. She suggested that this provided conditions favouring the colonisation of Bell miners. Stone (1999) argued that Bell miners then trigger forest decline because they interfere with predators that would otherwise regulate folivorous insects.

…

Hence, logging operations may be both implicated in the development of BMAD, and affected by changes in yield induced by BMAD. Nevertheless, the literature remains very limited concerning the impacts of logging and associated disturbance on the initiation or development of BMAD.

...

...we have not been able to locate information concerning the impacts of logging on BMAD. We find it surprising that more information is not available concerning the direct and indirect impacts of logging, in the preferred Bell miner habitat of north-eastern NSW. The increase in the area of BMAD has potential not only for significant biodiversity loss, but also for significant reduction in timber yields from these eucalypt stands.

In the UNE BMAD is most commonly associated with the invasive weed lantana. Even where not associated with dieback, lantana is the most significant understorey weed in UNE. In deciding to list the Invasion, establishment and spread of Lantana (*Lantana camara* L. *sens. lat*) as a key threatening process, the NSW Scientific Committee note:

9. L. camara readily invades disturbed sites and communities. Various types of sclerophyll woodlands, sclerophyll forests, rainforests and dry rainforests are all susceptible to Lantana establishment ... There is a strong correlation between Lantana establishment and disturbance (Stock and Wild 2002; Stock 2004), with critical factors being disturbance-mediated increases in light and available soil nutrients (Gentle and Duggin 1998) and, in rainforest, the competitive advantage of seedlings relative to many native species (Stock 2004). ...

...

16. The generally suppressive effect of Lantana on a wide range of native species is attested by several studies (Gentle and Duggin 1998, Day et al. 2003) and a multitude of field observations. Swarbrick et al. (1995), citing observations by Driscoll and Quinlan (1985) that "eucalypt seedlings generally fail to establish under lantana", infer inhibition of germination through lack of light. ....

...

22. L. camara is "regarded as one of the worst weeds in Australia because of its invasiveness, potential for spread, and economic and environmental impacts" (CRC Weed Management 2003). It is one of the initial 20 Weeds of National Significance declared under the National Weeds Strategy, and a national Lantana Strategic Plan has been adopted (ARMCANZ ANZECC&FM 2001). ...

In relation to lantana, the Bell Miner Associated Dieback Working Group (BMADWG 2004) state:

Lantana is a highly invasive weed affecting a range of land-use types within a wide range of climates and topographies of Australia. The complexity of this weed is amplified by its 29 different varieties, difficulty in integrating control measures and finding suitable biocontrol agents. The extensive infestation across more than 4 million hectares poses a threat to economically effective control. Lantana is a social problem for landholders and community. The National Lantana Strategy highlights the need for increased responsible action and incentive to landholders, local government, regions and State government to take action. The Strategy establishes the National Lantana Management Group; provides for extension and education; encourages best practice in lantana control and management; and includes a community biocontrol element encouraging adoption of biological control measures.

Wardell-Johnson et. al. (2006) state

While Lantana may not be a primary causal factor initiating BMAD, the literature suggests that its presence reflects increased canopy opening, which in itself may be a primary cause for increases in psyllids. These outbreaks in turn may attract the presence of Bell miners, which have the benefit of increased food resources and suitable structure for nesting. There has been some advocacy for management strategies which reduce weed encroachment and plant community degradation to identify and maintain ecological barriers to Lantana invasion. Because large areas in the region affected by BMAD are dominated by Lantana, there has also been advocacy towards the use of fire as a means of Lantana control.

...

For the environments in which BMAD occurs, arguments have been presented suggesting a need both for more frequent fire, and for less frequent fire in particular ecosystems. ...

...
... Lantana in particular has become a dominant understorey plant in open areas of eucalypt forest in the region (Bower 1998: Wardell-Johnson et al., 2005). There have been many recent changes in agriculture and forest management in north-eastern NSW that have been associated with the spread and intensification of Lantana in particular, but also a wide range of other weedy species (see Kanowski et al., 2003; Wardell-Johnson et al., 2005).
...
Bower (1998) argued that the proliferation of Lantana in his study areas was largely associated with the disturbance associated with logging activities which improves the conditions for Lantana germination and recruitment. Bower (1998) further argued that while high intensity burns can be effective at controlling Lantana, many post-logging burns are of low to medium intensity and have often been found to be ineffective at controlling Lantana, which resprouts from basal stems. Bower (1998) argued that the inability of Lantana dominated areas to regenerate significantly impacts on the succession of a structurally complex forest ecosystem.
...
Gentle and Duggin (1997)...found that shading played a greater role as a limiting factor than any other and concluded that successful invasions of Lantana are likely to occur whenever canopy disturbances create patches of increased light availability. ...
...
... While it is no surprise that Lantana proliferates as the eucalypt canopy opens or dies or that Lantana is associated with events which disturb the soil and open the ground to sunlight, this does not mean that Lantana is a cause of BMAD.

While there have been a number of logging trials established, the principal problem is that Forests NSW continue to log in and adjacent to BMAD areas without considering the impacts of their operations on the proliferation of the Key Threatening Processes of BMAD and Lantana invasion. In affected areas logging is focussing on the removal of most of the healthiest trees surviving, is promoting lantana due to extensive understorey removal, and this degradation then favours BMAD. And they can not be bothered monitoring the effects or undertaking post-logging rehabilitation. These impacts will be compounded by increasing severity of droughts due to climate change (which is likely to already be a factor in the spread of this problem).

5.2. What is being done about Bell Miner Associated Dieback

The North East Forest Alliance has been pursuing the issue of Bell Miner Associated Dieback for over twenty years. We tried to get it addressed in the Environmental Impact Statements prepared in the early 1990s. This was a major issue we pursued when we were on the North East Harvesting Advisory Board in 1996/8. We unsuccessfully attempted to have this issue dealt with in the CRA process. We have been involved with the BMAD Working Group since early 2002.

While we recognise that we have made some progress over that time the condition of the forests has continued to decline, and Forests NSW are continuing to ignore and compound the problem in their logging operations.

State Forests recognised dieback associated with psyllids as a significant problem in the Gosford-Wyong area of north-east NSW in 1950 (Moore 1959). Stands of Sydney Blue Gum were reported as dying during the period 1949 to 1958, *"the increasing numbers of deaths reaching economic significance toward the end of that period"* (Moore 1959). The two areas assessed by Moore showed 55% and 59% of trees as dead or expected to die. Moore (1959) hypothesised that *"the abnormal rainfall adversely affected the physiology of* Eucalyptus *and other species generally,*

making them susceptible to heavy attack by psyllids." Bird et. al. (1975) report Moore (1962) as finding that *"there were more than 150 separate occurrences of variable extent up to 1,500 ha."*

Wyong District Forester, Charlie Mackowski (pers. comm.), noted that field work in the early 1990's had delineated 5,000 hectares of "Bellbird Dieback" on State Forests in the then Wyong District.

Forests NSW (Stone et. al. 1995) have identified significant areas of dieback in the Morisset, Bulahdelah, Gloucester, Taree, Wauchope, Kempsey, Walcha and Urbenville districts. Stone et. al. (1995) notes *"More recently, District staff have reported that affected areas are increasing in size and that previously unaffected areas are developing symptoms."*

In 2003 the NSW Nature Conservation Council Annual Conference unanimously passed the resolution:

> *'that there should be no further logging in BMAD affected forests or those at high risk of developing BMAD until the causes of the problem are better understood and an acceptable, sustainable management plan is developed to restore the health of these forests'.*

The Bell Miner Associated Dieback Working Group (BMADWG 2004) has identified key actions that they consider need to be undertaken in order to develop effective management measures for BMAD. They do not address logging directly, though include "Developing guidelines for restoration of dieback affected sites which may be implemented by landholders and government agencies".

The NSW Scientific Committee's (2008) final determination for listing 'Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners' notes that

> *8. Due to the complex interaction between factors that have been altered as a consequence of landscape-level disturbance, there is at present no obvious means of arresting the threat presented by 'Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners'. Moreover, expert opinion varies considerably as to which factors are causes of dieback and which factors are effects. Broad-scale research and adaptive management are required to understand how to best manage this threatening process, to prevent its expansion throughout forests of eastern New South Wales.*

NEFA understand (J. Morrison pers. com.) that DECCW are presently preparing a 'Statement of Intent' to address the BMAD Key Threatening Process determination. NEFA note that this is a considerably weaker response than the preparation of a 'Threat Abatement Plan' and is only required on the NPWS estate. NEFA consider that attempts to address the BMAD issue warrants strong legislative requirements across all tenures in relation to disturbance to at risk forests and mandatory requirements to undertake post disturbance rehabilitation where disturbance cannot be avoided.

The Bell Miner Associated Dieback Working Group (BMADWG 2004) identifies Forests NSW's claimed approach:

> *Consistent with the EFSM requirements FNSW are preparing Regional Forest Health Management Plans as part of the Native Forest Health Management Strategy. The current management intent is to integrate native forest harvesting with trials to reduce the spread of dieback into open forests by use of frequent low intensity fire and to trial rehabilitation methods for dieback affected areas.*

While some trials have been instigated, the heavy logging of BMAD affected areas continues unabated.

Wardell-Johnson et. al. (2006) conclude:

> *...It may be appropriate for management to prevent the creation of habitat that is preferred by the Bell miner, as such habitat will also facilitate the primary cause of eucalypt dieback. However, to attempt such management intervention in isolation from an understanding of*

both the processes and the behaviour of Bell miners under different levels of disturbance may compound the problem.

Forests with existing colonies of bell miners and susceptible tree species are at very high risk of developing BMAD following disturbance and subsequent weed invasion. NEFA considers that considerable resources need to be directed towards rehabilitation of extensive weed infested tracts of susceptible forest types, and the minimizing of disturbance to less than thirty percent canopy removal relative to a fully stocked healthy forest stand.

When NEFA were on the North East Harvesting Advisory Board in the late 90s we attempted to get Forests NSW to map dieback areas in compartments on harvest plans. According to Jim Morrison (pers. comm. 2010) the BMAD Working Group's attempts to get Forests NSW to take appropriate action has been similarly frustrated:

The BMADWG has for a number of years requested that FNSW record simple data about the presence of Bell Miners and or associated dieback on its harvest plans as they are prepared. Systematic, simple BMAD identification procedures urgently need to be made a mandatory part of the harvest planning process. This could be done when ecological surveys are undertaken, and also by the harvesting forester and be required to be reported just like any other threat identified in logging compartments. In fact the continued refusal of Forest NSW to undertake this simple task requested by the BMADWG only heighten suspicion that Forest NSW don't want to reveal the full extent of the problem across its estate.

There is an urgent need for a moratorium on logging in and adjacent to Bell Miner Associated Dieback areas until such time as a responsible response to this growing problem is identified.

5.3. A Case Study in Management

The audit of Yabbra (Pugh 2009) encompassed a large expanse of forests in Compartment 163 suffering from Bell Miner Associated Dieback (BMAD), with a dense lantana understorey in places. The forest ecosystems most affected are Grey Box-Red Gum-Grey Ironbark, and Wet Bloodwood-Tallowwood, which have achieved 41% and 82% respectively of their national reservation targets (including in Informal Reserves and Protection by Prescription). Also affected is the Endangered Ecological Community *White Gum Moist Forest.* In the affected areas there were numerous sick and dead trees with extensive lantana understoreys.

The degraded nature of these stands can be largely attributed to past logging opening up the overstorey and burning regimes promoting lantana. The creation of a low dense understorey and opening up of the canopy are factors which favour dominance by Bell Miners. The Bell Miners in turn facilitate lerp predation on retained trees and regrowth, causing widespread dieback.

These forests had been suffering from Bell Miner Associated Dieback for over thirty years (pers. obs.) and thus those trees still hanging on were survivors. It is likely that the presence of Yellow-bellied Gliders assisted their survival by predating on lerps. Though the ability of the few trees now remaining to persist has been jeopardised by Forests NSWs felling of the sap and feed trees required to be retained to maintain Yellow-bellied Gliders in the area.

The Harvesting Plan for compartments 162 and 163 of Yabbra SF (4.2) states:

Lantana & shrubby understorey is providing conditions suitable for occurrence of Bell Minor (sic) *Associated Dieback (BMAD). A significant section of the harvest area has been adversely affected. There are many dead stems and the crowns of some of the remaining trees are thin and appear unhealthy. BMAD affected areas will have unhealthy merchantable trees removed during this operation*.

This is it. There was no mapping of dieback areas, no assessment of severity, no consideration of amelioration measures to apply in dieback areas, nothing.

PHOTOS: Bell Miner Associated Dieback areas in Yabbra subject to maximum economic utilisation logging. No rehabilitation is proposed and regeneration is currently being smothered by weeds.

The applied logging prescription "*BMAD affected areas will have unhealthy merchantable trees removed during this operation"* resulted in a logging intensity well in excess of the 35% Basal Area removal claimed in the harvesting plan and the maximum 40% allowed to be removed by the IFOA (1.5.10) silvicultural practices. What is effectively a "maximum economic utilisation" silvicultural regime is not allowed for by the UNE IFOA.

.

Given that most eucalypt trees in the worst affected areas were either dead or unhealthy, this prescription resulted in the removal of most of the biggest and healthiest trees from the dieback areas. Some retained trees were killed in the post logging burn and others by the added stress.

From our audit (Pugh 2009), we reported that:

> *Most remaining healthy trees were removed from forests affected by Bell Miner Associated Dieback (resultant from previous logging operations), having significant degrading impacts on forest health, ecosystem functioning and viability and forest productivity. Many retained affected trees had then succumbed to the hot post-harvest burn. This logging and "management" is clearly not in accord with any of the principles of ecologically sustainable forest management as defined in the IFOA (breaches IFOA conditions 2.7.1 and 4.26).*
>
> *Bell Miner colony establishment was noted to be widespread throughout Compartments 162 and 163 and appeared to have been favoured by the logging and burning operations. It can be expected that the threatening process associated with colonies of this species (BMAD) will cause further deaths of trees, severely retard forest recovery and result in the loss of substantial areas of threatened species' habitat in the mid to long-term.*

It was obvious to those visiting the site that there had been excessive canopy removal, though neither Forests NSW nor DECCW would accede to our request to measure tree retention by establishing transects as required in their own auditing manual. Initially both Forests NSW and DECCW told NEFA that it was impossible to audit tree retention, though in accordance with an IFOA requirement in 2003 Forests NSW developed a "Forests Practices Circular" (2003/01) "Monitoring and Measuring Compliance of Operations" which includes a "Compliance check sheet – Tree

retention". It basically requires the recording of trees on 250m transects. That neither DECCW nor the forester in charge of auditing Yabbra realised that such a methodology existed specifically to audit retention of habitat trees, recruit trees, Yellow-bellied Glider feed trees, winter flowering trees, and Koala feed trees is a worry.

The outcomes from this logging and burning of the dieback areas were significant reductions in canopy cover, further degradation of the understorey, and prolific weed growth, particularly of lantana. While there has been eucalypt regeneration amongst the weeds, the problem for Forests NSW is that this means that the weeds can not be burnt until the eucalypts are large enough to survive the burn. Many will not be able to out-compete the weeds. The forestry operations have greatly compounded the existing BMAD problems and left the dieback areas in a parlous state (see photos Pugh 2009).

In DECCW's response (Simon Smith, 19/5/2010) they dismiss our concerns regarding BMAD on the spurious grounds that the logging, burning and subsequent weed proliferation that occurred in and adjacent to an existing BMAD area could not be proved to have affected it:

> *DECCW notes your concerns regarding Bell Miner Associated Dieback (BMAD) and the principles of ecologically sustainable forest management. It is noted however that the NSW Scientific Committee's determination in relation to broad-scale canopy dieback associated with psyllids and Bell Miners "involves interactions between habitat fragmentation, logging, nutrient enrichment, altered fire regimes and weed-invasion". The Scientific Committee's determination also notes that "at present, no single cause explains this form of dieback. And it appears that 'Forest eucalypt associated with over-abundant psyllids and Bell Miners' cannot be arrested by controlling a single factor". An Inter-agency BMAD working group is working to improve knowledge on the interrelation of land management activities and the prevalence of BMAD.,*
>
> ...
>
> *As noted above, the NSW Scientific Committee's determination notes that there is inadequate information available to determine if Bell Miner populations and Bell Miner associated Dieback has been favoured by these logging and burning operations.*

This is an abomination of the "Precautionary Principle" in that lack of certainty about the interaction of known causative agents of BMAD is used to justify undertaking activities known to contribute to dieback. What is most reprehensible is that DECCW did not consider that the undertaking of activities that were likely to aggravate the BMAD, a Key Threatening Process, even warranted documenting and monitoring.

It is evident that logging is a contributing factor to Bell Miner Associated Dieback, and that the reduction in canopy and the growth in weeds (enhanced by the hot fire) are contributing factors to this key threatening process and will thus exasperate existing problems. As can been seen from the photographs (Pugh 2009) the forest is a mess.

The fact that the BMAD in compartment 163 is affecting inadequately reserved forest ecosystems, the endangered ecological community *White Gum Moist Forest*, and known locations of the Endangered Black-striped Wallaby, vulnerable Yellow-bellied Glider and vulnerable Brush-tailed Phascogale, appears to be irrelevant to DECCW.

By no stretch of anyone's imagination can logging of these dieback areas be considered "ecologically sustainable". As is particularly obvious in compartment 163, logging is being undertaken in dieback areas in contravention of silvicultural requirements to apply single tree selection, retain 60% of basal area of trees above 20cm dbh, and concentrate growth on the more vigorous trees while promoting low level site disturbance for regeneration. Rather logging is based on a maximum economic utilization basis.

Despite BMAD and lantana being emphasized in our audit, and on a site inspection with Forests NSW's CEO Nick Roberts, in Forests NSW's (2010) subsequent "Rehabilitation and Monitoring Plan, Compartments 162 and 163 Yabbra State Forest No 394" there is no mention what-so-ever of the dieback issue, no delineation of problem areas, and no identification of rehabilitation measures relevant to the problem. There is no identification of problem and noxious weeds, not even a mention of Lantana. This plan has been endorsed by DECCW.

There are generic prescriptions for enrichment plantings with eucalypts and Hoop Pine should sites requiring rehabilitation be identified, though no such sites have been identified. There is also an intention to "*Introduce and maintain low intensity fire regime into the grassy forest areas on 3-5 year cycle",* though this is inappropriate in eucalypt regrowth and in areas that naturally have a rainforest understorey. Given that most of the understorey in the dieback areas is now thick weeds with a scattering of eucalypt seedling which have little chance of out-competing the lantana, the forest is in a parlous state. If they burn it again they will just kill the eucalypt seedlings. The only commitment is to some unspecified monitoring – they can watch the seedlings die.

There is no commitment for any immediate action to control rampant weeds and assist recovery of dieback areas despite the need for immediate action being obvious. It is a do nothing, wait and see, response to an urgent problem. Unless NEFA can force action we suspect we will be waiting a long time.

It is apparent that the logging of the Bell Miner Associated Dieback area in Compartment 163 is in contravention of the silvicultural prescriptions of the Harvesting Plan (2.1 and 4.3), the limits to silvicultural prescriptions specified in the IFOA (1.5.3), the ESFM principles (i.e. 3.2.1.2, 3.2.1.3) required by the IFOA (2.7.1, also 4.26), and the Australian Forestry Standards aimed at maintaining forest productivity and health (4.1.4., 4.4.1., 4.4.2, 4.4.3, 4.4.4., 4.4.5., 4.5.1., 4.5.2., and 4.5.4). What is most significant is that neither Forests NSW nor DECCW apparently care.

BMAD needs to be dealt with as a serious issue. It is contrary to the most basic principles of ESFM that Forests NSW can go on logging areas affected by BMAD, particularly as there is sufficient evidence that this is likely to aggravate the problem. For Forests NSW to be allowed to practice maximum economic usage in the worst affected stands, without specific management prescriptions, a specific rehabilitation plan, and at least a pretence of scientific monitoring, is grossly irresponsible.

The reality is that in the most heavily logged areas the survival of the stands of inadequately reserved ecosystems is doubtful and that the productive capacity of these ecosystems has been dramatically diminished to the point of being unlikely to provide any timber resources for a considerable time. BMAD is now likely to worsen and expand into the healthier stands (including Dunn's White Gum), native species have been diminished and weeds promoted. Anyone buying timber sourced from such dieback areas are aiding and abetting this environmental vandalism.

6. MAINTAINING WATER QUALITY

There are two licences aimed at mitigating impacts of Forests NSW's operations on streams and water quality; the Environmental Protection Licence (EPL) and Fisheries Licence (FL). In addition to this the Forest Management Zone 8 (FMZ 8) incorporates modelled streams that are supposed to be subject to ground-truthing when preparing Harvest Plans and allocated to the appropriate FMZ.

Unfortunately we found that the EPLs are rarely applied, the FL is usually ignored and the requirement to resolve the FMZ8 zones is not undertaken.

The EPL states:

> *The objects of this licence are to require practical measures to be taken to protect the aquatic environment from water pollution caused by forestry activities and to ensure monitoring of the effectiveness of the licence conditions in achieving the relevant environmental goals.*

It is a shame that Forests NSW get away with refusing to apply this licence. This is apparently part of an agenda to open up "unmapped" drainage lines for logging and to not protect drainage depressions, which they frequently log and road anyway.

The Australian Forestry Standards require:

> *4.6 Criterion 6—Forest management shall protect soil and water resources*
> *4.6.2 The forest manager shall manage forest operations to minimise adverse changes to water quality (physical, chemical or biological) with the objective of—*
> - *minimising transport of soil from disturbed areas into waterways;*
> - *maintaining riparian zones and protective buffer strips; and*
> - *designing, constructing and maintaining temporary and permanent roads and roadway crossings of waterways to recognised standards intended to minimise degradation of water quality.*
>
> *...*
> *4.6.4 The forest manager shall manage forest operations to protect and maintain the physical, chemical and biological properties of soil and improve those properties where appropriate and reasonably practicable.*
> *The forest manager shall—*
> - *minimise the extent of land within forest harvesting areas occupied by zones of major soil disturbance;*
> - *ensure that rutting does not exceed that specified in relevant codes and equivalent instruments or operational guidelines;*
> - *promptly rehabilitate extraction tracks, temporary roads and product storage areas; and*
> - *minimise any nutrient loss.*

Forests NSW refuse to apply the necessary requirements to protect streams and mitigate impacts. It is apparent that they routinely and frequently breach the EPL and FL. The EPL are no longer applied to more than 90% of operations. Forests NSW frequently fail to protect unmapped streams and drainage depressions. They flatly refuse to assess and assign modelled streams (FMZ 8) to the appropriate FMZ classification for protection.

6.1. Compliance with the EPL and FL

Our audits did not focus on compliance with Environmental Protection Licence (EPL) and Fisheries Licence (FL) conditions, though incidental observations were made.

At Yabbra (Pugh 2009) we documented a variety of contraventions of the EPL (Schedule 4; 17, 20C D6, D15, D19B, D20, D20J, D20R, D20S, D20T, D21, D22, D23, H70, Schedule 5; I 37) and FL (7, 7.2, 7.4, 7.5), such as;

- 3 sites where snig tracks had caused extensive soil disturbance to areas adjacent to and across unmapped drainage lines;
- failure to identify, delineate or protect unmapped streams from logging roading and burning;
- failure to delineate or protect drainage depressions from significant machinery disturbance;
- failure to identify, delineate and protect wetlands from logging roading and burning;
- inadequate drainage of a snig track; and,
- drainage off roads and tracks being diverted directly into streams.

At Yabbra Forests NSW subsequently repaired drainage on four stream crossings and one track because they were not up to pollution control requirements

PHOTOS: Left; one of the 22 trees documented as being felled next to one of the 5 drainage lines that were logged at Yabbra – these only represent the tip of the ice-berg though the regulators could not be bothered revealing their full extent. Right: Doubleduke crossing; Note the sediment in stream bed which extended a long-way downstream - the Minister failed to report this to Fisheries.

At Doubleduke (Pugh 2010b) we found two poorly constructed creek crossings without implementation of soil stabilisation measures that resulted in significant mobilisation of sediments into both streams (Breaches EPL J45, J46, J52, FL 8.4.1.(a), 8.4.2.(b), 8.4.3.(b)). Forests NSW subsequently implemented erosion mitigation works at both crossings, though Fisheries NSW were not informed of our complaint.

At Girard (Pugh 2010d) we documented a variety of contraventions of the EPL (6, 15, 22, 30, 46, 50, 51, 53, 54, 56) and FL (7, 7.1, 7.4, 7.5, 7.8, 7.9, 8.4), such as;

- one mapped drainage line had been logged and intensively disturbed;
- some unmapped drainage lines were not identified and protected;
- drainage depressions were not delineated and protected;
- debris from a log dump were pushed into a drainage line;
- stable structures were not used to cross streams;
- stream crossings were not rehabilitated; and
- large amounts of spoil were deposited in some streams.

Forests NSW identified one of these Girard breaches in April 2010, stating "*Bulldozer driver opening old road for snig track, pushed through 2 unmapped drainage lines".* Despite large amounts of fill being pushed into the drainage lines and both crossings being situated upstream (50-80m) from a

Stuttering Frog exclusion zone, Forests NSW concluded that there was no environmental harm and simply explained the licence to the operator without undertaking any remedial action. When we audited the operations in August we independently identified these breaches and observed that erosion had commenced. While logging had finished no attempt had been made to remove the spoil from the streams and undertake rehabilitation.

PHOTOS: Girard; note the extensive disturbance to stream crossing on left and the lack of rehabilitation. The large tree on right of second photo is marked as an exclusion boundary, with another marked tree bulldozed into the debris on the left.

At Girard, Forests NSW also identified 6 breaches where trees had been dropped into stream exclusions.

Sparkes (2010) identified 27 breaches of NSW environmental regulations by FNSW in the UNE, noting:

> *Ten of these involved failures to implement adequate erosion controls after logging, in the worse case 27 cross-banks had been so poorly constructed that they failed and caused significant pollution of Washpool Creek. In one case a bridge had collapsed into a 4th order stream and in another Forests NSW had failed to properly assess, and thus under-estimated, soil erodibility. DECCW directed that remediation should be undertaken for 8 of these breaches and sent warning letters in respect to 3 others. No action was taken in respect to the failure to properly assess soil erodibility.*
>
> *Five of the breaches involved logging of stream exclusions imposed to protect habitat for an array of threatened species (TSL 5.7a) and water quality, with up to 2,150m^2 being logged in the worst case. DECCW issued a Penalty Infringement Notice for one of these incursions and issued warning letters for three others.*

Despite most compartments not being subject to the EPL, at its peak there were 146 "non-compliance Incidents" with the EPL identified by regulators in the UNE in 2006/07 and 122 in 2007/08. We consider that the decline since then is due to a lack of auditing, rather than an improvement in practices.

It is apparent that Forests NSW are regularly and frequently breaching requirements of the Environmental Protection Licence.

6.2. Forest Management Zone 8

Significant areas within the compartments audited are identified as Forest Management Zone 8. FMZ 8 is meant to be an interim zoning of areas where field investigation is required to determine final Forest Management Zone classification as part of pre harvest planning processes. In the assessed cases the FMZ 8 areas represent modelled streams that are intended to be further assessed at the Harvesting Plan stage.

In the 1999 Forests NSW document "Managing our forests Sustainably: Forest Management Zoning in NSW State Forests" FMZ 8 is described as:

> *An interim zoning of areas where field investigation is required to determine final Forest Management Zone classification. Field investigation will be undertaken as part of pre harvest planning.*
>
> *These areas require field validation before allocation to a specific Forest Management Zone and are:*
>
> > *...*
> > *ii Areas of modelled GIS data where field verification is required to accurately map the features.*
>
> *The correct information will be mapped onto the harvesting plan ...*
>
> *Management will be for protection under the same requirements as FMZ 3A until field investigation allows determination of final FMZ classification.*

Forest NSW's 2005 ESFM Plan for UNE reiterates: *FMZ 8 areas require field assessment to identify into which of the seven FMZ they should be placed. This is normally done at the time of assessment for harvest planning.*

Forests NSW Sustainability Reporting Supplement 2009-10 states:

> ***FMZ 8:** Land for further assessment - An interim zoning of areas where field investigation is required to determine final Forest Management Zone classification. Field investigation will be undertaken as part of pre-harvest planning. Management will be for protection under the same requirements as zone 3a until field investigation has taken place.*

FMZ 8 is meant to be an interim zoning of areas where field investigation is required to determine final Forest Management Zone classification as part of pre harvest planning processes. These are a surrogate for unmapped (i.e. not shown on 1:25,000 topographic maps) drainage lines that are meant to be refined, appropriately zoned and then protected in accordance with Environmental Protection Licence (condition D6) and Fisheries Licence (condition 7).

In these compartments, the obvious intent was for Forests NSW to assess the FMZ8 areas and unmapped streams, include the results in refined stream maps in the harvesting plans, and appropriately rezone the refined streams (presumably to FMZ3A). These are also required to be marked in the field as riparian exclusion areas.

At Yabbra (Pugh 2009) we documented 22 trees that had been unlawfully logged within riparian areas along five unmapped streams that were meant to be rezoned prior to logging and that were also required to be protected as unmapped drainage lines, and estimate that there were likely to be over 100 such trees unlawfully logged based on our small sample. No heed was taken of FMZ 8.

There was an attempt to identify unmapped streams at Girard (Pugh 2010d), though significant streams (drainage lines) were missing from the remapping in the working plan and were logged, and no attempt had been made to rezone any FMZ8. The head of a mapped stream was also logged and cleared at Girard.

In compartment 144 of Doubleduke we recently scouted a logging area and found numerous unmapped drainage lines and wetlands that had not been mapped and identified for the required management. A large stream was also incorrectly located. The harvesting Plan failed to identify and appropriately zone any unmapped streams.

In none of our audit areas has Forests NSW attempted to map and identify unmapped drainage lines or wetlands and assign them to the appropriate FMZ. At Yabbra all unmapped drainage lines and FMZ 8 areas had simply been ignored and logged. While at Girard all FMZ 8 areas had been ignored, some of the unmapped drainage lines had been mapped and protected on the ground, though Forests NSW was unsure what to do with the mapping.

This planning failure to remap FMZ 8 areas is systemic and deliberate and has the effect of counting trees in what should be exclusion areas towards satisfying retention requirements in the nett logging area. It also increases the likelihood that they will not be identified and appropriately protected during logging.

6.3. Environmental Protection Licence

The Environmental Protection Licence (EPL), together with various clauses of the Integrated Forestry Operations Approval (IFOA) and the Threatened Species Licence and Fisheries Licence, constitute the regulatory regime applied to forestry operations on public lands in north-east NSW.

The IFOA states:

> ***6. Terms of licences***
> *(1) Pursuant to section 34 of the Forestry and National Park Estate Act 1998, this approval contains the terms of the following licences:*
> *(a) a licence under the Protection of the Environment Operations Act 1997 (set out in Appendix A);*
> *(b) a licence under the Threatened Species Conservation Act 1995 (set out in Appendix B); and*
> *(c) a licence under Part 7A of the Fisheries Management Act 1994 (set out in Appendix C).*
> *(2) Any person carrying out forestry operations is taken to hold, and is bound by, licences in those terms under the relevant Acts, and the licences have effect, for all purposes (subject to the Forestry and National Park Estate Act 1998), as licences under the relevant Acts.*
> *…*
> *Note: The terms of any licence set out in this approval need not extend to all forestry operations described in clause 5 of this approval (section 34(4) of the Forestry and National Parks Estate Act 1998). See, in particular:*
> *• Conditions 1 to 3 of the terms of the licence under the Protection of the Environment Operations Act 1997 ("What the licence authorises and regulates", "Premises to which this licence applies – Scheduled Forestry Activities" and "Premises to which this licence applies – Non-Scheduled Forestry Activities");*

Licences issued in accordance with the *Protection of the Environment Operations Act 1997* are intended to "*authorise the carrying out of scheduled activities"* and to "*control the carrying out of non-scheduled activities for the purpose of regulating water pollution resulting from any such activity"*.

Under the PEO Act scheduled forestry operations (as applicable to this region's native forests) are those involving construction of new access roads and logging being undertaken where at least 20% of the compartment has a slope greater than 18 degrees and where at least 30 timber stems (at

least 40 centimetres in diameter at breast height) are removed from each hectare of the net harvestable area of the compartment. Forests NSW apparently assume that they only need licences for scheduled forestry operations.

It is a defence against prosecution for polluting waterways if *" the conditions to which that licence was subject relating to the pollution of waters were not contravened".* It is assumed that Forests NSW are relying upon their requirement for contractors to abide by the licence conditions of the EPL (PEO Act Sec 122) as a defence against prosecution for not being covered by a licence for non-scheduled activities.

The EPL states that *"This licence also controls the carrying out of the non-scheduled forestry activities",* though it appears that Forests NSW are required to first identify which compartments are non-scheduled for the licence to apply. If they don't identify them the licence does not apply, even though the intent appears to be that it should. This needs further investigation.

Irrespective of legal interpretations the licence is obviously intended to apply to most forestry operations. The application of the EPL is a fundamental requirement for progressing towards Ecologically Sustainable Forest Management. The EPL (4.1) states:

> *The objects of this licence are to require practical measures to be taken to protect the aquatic environment from water pollution caused by forestry activities and to ensure monitoring of the effectiveness of the licence conditions in achieving the relevant environmental goals.*
>
> *In formulating this licence, the environmental goals that have been adopted by the EPA for all forests in NSW are the protection of aquatic ecosystems and primary contact recreation.*
>
> *These goals are defined in the "Australian Water Quality Guidelines for Fresh and Marine Waters" (Australian and New Zealand Environment and Conservation Council, 1992). The goals were identified as applying to all forested catchments in Australia by the Joint Australian and New Zealand Environment and Conservation Council - Ministerial Council for Forestry, Fisheries and Aquaculture National Forest Policy Statement Implementation Sub-Committee.*
>
> *For areas where the quality of water extracted for agricultural water supply or for drinking water supply may be affected by forestry activities upstream, the EPA has adopted the criteria and indicators used in these environmental values as additional goals for protection.*

Forests NSW refuse to "turn on" Environmental Protection Licences (EPLs) in over 90% of compartments in the Upper North East forestry region. For example in 2006/7 there were 221 forestry operations in the UNE region, the EPL applied to 23 of these, leaving 198 operations where logging occurred without EPL coverage, similarly the EPL is identified as "not applicable" for 107 logging operations, and applicable for only 8, in Forests NSW's November 2010 IFOA Report (it is not identified for 19 others).

In the absence of any other explanation, it appears Forests NSW refuse to obtain licences in most cases because it stops independent regulation of this aspect of their activities. While this is contrary to the intent of the IFOA, Forests NSW attempt to get around it by including the requirement to implement EPL conditions in their harvesting plans – though the licence does not apply. This transfers responsibility to implement the EPL conditions onto the contractor undertaking the works as they are legally bound to adhere to the Harvesting Plan. The standard clause included in Harvesting Plans states:

> *This operation is a non-scheduled operation under the Environment Protection Licence issued under section 55 of the Protection of the Environment Operations Act 1997. Roading and harvesting operations are not licenced. All EPL conditions will apply to harvesting and roading operations.*

While the contractors are required by the Harvesting Plan to implement the EPL conditions there is no licence to this effect. There is no independent arbiter and it appears that Forests NSWs policing of conditions is token. It is hard to fathom why Forests NSW accept the application of the conditions of the licence but not their legal enforceability.

The procedures are in place but are not applied. This refusal to "turn on" licences for most operations absolves Forests NSW from any legal requirement to implement the required erosion control measures, along with many measures to protect streams (except where required by the Fisheries Licence). Best practice in regard to erosion and stream protection is no longer a strict requirement. With no licence it also removes DECCWs regulatory role.

For example, in response to a variety of our complaints regarding failure to implement conditions of the EPL in Yabbra SF (Pugh 2009), DECCW (Smith 19 May 2010) replied:

> *Forests NSW did not seek, and were not required to seek, Environmental Protection Licence coverage for harvesting and burning operations in compartment 162 and 163 of Yabbra State Forest. As such, operations within protection zones of unmapped drainage lines are not regulated under the Environment Protection Licence.*

In this case the EPL required Forests NSW to implement 5m wide filter strips on unmapped drainage lines, 5m wide protection zones on the filter strips and 10m operational zones on protection zones. Under the EPL trees are not allowed to be felled in either filter strips or protection zones and machinery use is limited in protection and operational zones. Post-logging burning is required to be excluded. These were logged, entered by machinery and burnt.

The refusal to "turn on" the EPL is part of a broader agenda. Forests NSW's current proposal, as detailed in their "Management of Filter Strips on Unmapped Drainage Lines", is to reduce stream protection by allowing logging in filter strips and protection zones on unmapped drainage lines.

This avoidance of compliance with the Environmental Protection Licence by Forests NSW is not in accordance with the Integrated Forestry Operations Approval and the principles of ESFM. As intended, the EPL should be applied to all operations in an open and accountable manner, and be under independent regulation. There is no public accountability for contractors. Forests NSW should be required to apply for EPL licences for all forestry operations.

7. OTHER ISSUES

There are many aspects of forest management and reporting that are deserving of further investigation. A number of other significant issues are highlighted in this section. Though there are many more.

7.1. Forest biomass and carbon pool

Solving the climate change problem facing Australia and the world requires that emissions of greenhouse gases be reduced and that the storage of carbon in vegetation be increased, so as to enable atmospheric concentrations of greenhouse gasses to be stabilized at a level that avoids the most dangerous climate changes.

The need for reducing emissions from deforestation and forest degradation is now recognized by the international community as an essential part of solution to addressing carbon emissions. Since the 2007 United Nations Climate Change Conference in Bali international negotiations have focused on the role of natural forests in storing carbon.

The Australian Forestry Standards require:

> *4.7 Criterion 7—Forest management shall maintain forests' contribution to carbon cycles*
> *NOTE 1: The intent of the criterion is to maintain the capacity of forests to act as a net carbon sink and to minimise the emission of greenhouse gases resulting from forest activities by good management of the forest ecosystem biomass and carbon pool (including standing vegetation, coarse woody debris, peat and soil carbon).*
> *…*
> *4.7.1 The forest manager shall acknowledge the forests' capacity to act as a net carbon sink and demonstrate a commitment to minimising greenhouse gas emissions.*

One of the requirements of the UNE Forest Agreement (2.11.2) is annual reporting on carbon storage in forests:

> *5.1a: Total forest ecosystem biomass and carbon pool, and if appropriate, by forest type, age class, and successional stages*
> *…*
> *5.1c Contribution of forest products to the global carbon budget.*

In Appendix 9 to the Agreement 5.1a is elaborated upon:

> ***Rationale***
> *Forests can undergo significant changes of carbon storage associated with natural mortality, thinning, fire, harvesting and regrowth. This indicator is compatible with the National Carbon Accounting System which will meet Australia's obligations to track changes in national Carbon stocks under the Kyoto Protocol.*
> ***Indicative target***
> *Maintenance of the total carbon stored in the forest.*
> ***Data requirements and Monitoring methodology***
> *Data on wood loss by natural mortality, thinning, fire and harvesting can be balanced against regrowth data to indicate positive or negative changes to carbon across the region.*
> *Partial reporting of this indicator can be derived from wood volume and age class data in Indicators 1.1.a and 1.1.b, provided that appropriate biometric relationships have been established. SFNSW will develop these biometric relationships based on FRAMES and will provide these to other agencies.*
> ***Reporting***

Changes in Carbon held in above-ground wood volumes will be reported once biometric relationships are established. This must be interpreted as a surrogate for total forest contribution to global carbon.

The NSW&CoA (2009) five year RFA review states:

This criterion addresses the contribution to the global carbon pool of carbon from forest and forest products and contributes to Australia's obligations under the Kyoto Protocol.

...

The Kyoto Protocol requires Australia to track changes in national carbon stocks from deforestation, reforestation and afforestation activities initiated since 1990. This indicator monitors any increases or decreases in the amount of carbon stored within forest areas, forest age class and successional stage. It provides information on the changing structure of forests, eg regeneration, maturity.

...

Carbon sequestered in Forests NSW hardwood and softwood plantations is calculated for the net stocked area only. All environmental exclusions and retained native vegetation are excluded from the calculations, providing a more accurate estimation of the amount of sequestered carbon.

The amount of carbon sequestered is dependant on the area of plantation. This area changes each year because of harvesting and new plantings.

The RFA reviews only consider sequestration of carbon in plantations, they make no attempt to identify or measure changes in the native forest carbon pool due to emissions from logging and burning.

Native forests play a significant role in the storage of carbon and the sequestration of carbon dioxide from the atmosphere. Old growth forests are the most significant carbon storehouses, with most carbon stored in the oldest and biggest trees (Roxburgh *et.al.* 2006, Mackey *et. al.* 2008). Old-growth forests also remove carbon dioxide from the atmosphere and sequester it in live woody tissues and slowly decomposing organic matter in litter and soil. (Zhou *et. al.* 2006, Luyssaert *et. al.* 2008)

Mackey et. al. (2008) found;

Our analyses showed that the stock of carbon for intact natural forests in south-eastern Australia was about 640 t C ha-1 of total carbon (biomass plus soil, with a standard deviation of 383), with 360 t C ha-1 of biomass carbon (living plus dead biomass, with a standard deviation of 277). The average net primary productivity (NPP) of these natural forests was 12 t C ha-1 yr-1 (with a standard deviation of 1.8).

Average Carbon Carrying Capacity of the Eucalypt Forests of South-eastern Australia. (from Mackey *et. al.* 2008)

Carbon component	**Soil**	**Living biomass**	**Total biomass**	**Total carbon**
Carbon stock ha^{-1} (t C ha^{-1})	**280 (161)**	**289 (226)**	**360 (277)**	**640 (383)**

Carbon stock per hectare is represented as a mean and standard deviation (in parentheses), which represents the variation in modelled estimates across the region

Logging significantly reduces the volume of carbon stored in forests. In regards to logging Mackey et. al. (2008) note:

The carbon stock of forests subject to commercial logging, and of monoculture plantations in particular, will always be significantly less on average (~40 to 60 per cent depending on the intensity of land use and forest type) than the carbon stock of natural, undisturbed forests.

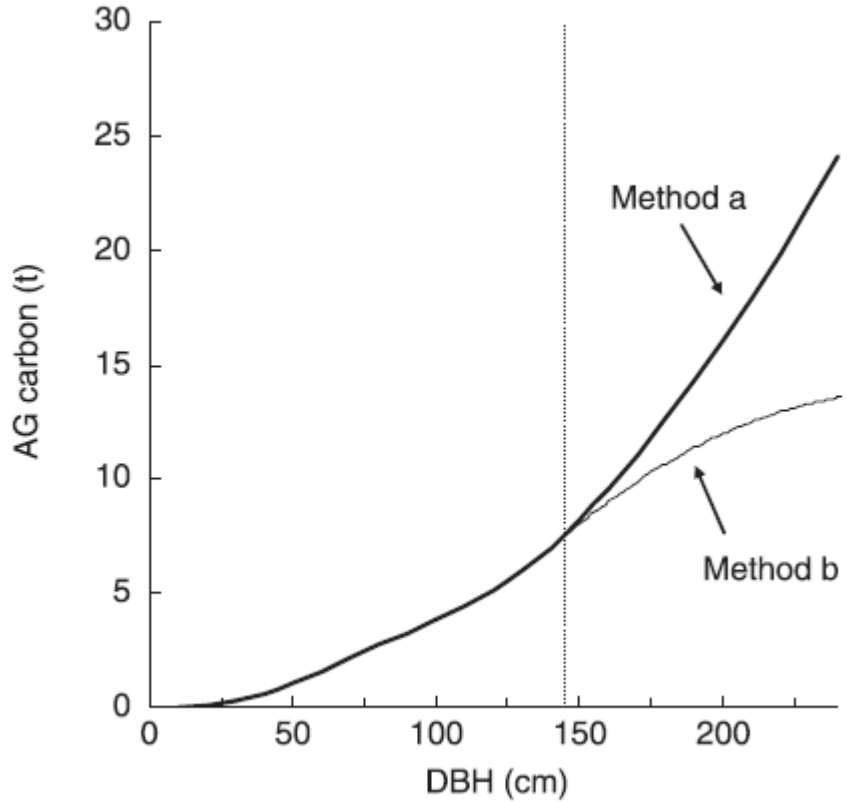
...

The majority of biomass carbon in natural forests resides in the woody biomass of large old trees. Commercial logging changes the age structure of forests so that the average age of trees is much younger. The result is a significant (more than 40 per cent) reduction in the long-term average standing stock of biomass carbon compared with an unlogged forest. ..

It is important to recognise the outstanding contribution of big old trees to storage of carbon in forests. For example Roxburgh *et.al.* (2006) found:

In mature forests, large diameter trees greater than 100 cm d.b.h. comprised 18% of all trees greater than 20 cm d.b.h. and contained 54% of the total above-ground carbon in living vegetation. ... The influence of large trees on carbon stock therefore increases with their increasing size and abundance.

Above-ground biomass/carbon relationship to tree diameter at breast height. From Roxburgh *et.al.* (2006). Method A assumes minimal internal tree decomposition. Method B allows for internal decay.



In Australian forests Roxburgh *et.al.* (2006) found that following logging:

Model simulations predicted the recovery of an average site to take 53 years to reach 75% carrying capacity, and 152 years to reach 90% carrying capacity.

This is compatible with the findings of Harmon et. al. (1990) in America, who found that during simulated harvesting carbon storage is reduced by 49-62% and does not approach old growth storage capacity for at least 200 years (even when storage in wooden buildings is accounted for).

It is outrageous that the reporting on *MIG Indicator 5.1.a* only considers the sequestration of carbon in plantations and ignores the carbon budget of native forests. Even though this is the requirement, the need is simply ignored. It has been shown that it can be done, the State and Commonwealth Governments just refuse to account for native forests because they do not want to.

Mackey et. al. (2008) state:

Conventional approaches to estimating biomass carbon stocks are based on stand-level commercial forestry inventory techniques. These data are not, however, suitable for calculating the carbon carrying capacity of natural forests.

Roxburgh *et.al.* (2006) and Mackey *et. al.* (2008) advocate an approach to assessing the carbon stocks of native forests based on the Carbon Carrying Capacity of oldgrowth forest. Mackey et. al. (2008) consider that for reliable carbon accounts two kinds of baseline are needed;

1) the current stock of carbon stored in forests; and 2) the natural carbon carrying capacity of a forest (the amount of carbon that can be stored in a forest in the absence of human land-use activity). The difference between the two is called the carbon sequestration potential—the maximum amount of carbon that can be stored if a forest is allowed to grow given prevailing climatic conditions and natural disturbance regimes

Reporting on carbon storage in forests by forest type, age class, and successional stages is a key requirement of the Regional Forest Agreements and essential for Australia to satisfy its international obligations. Despite this the State and Commonwealth Governments refuse to consider carbon storage and sequestration in native forests and instead only consider carbon sequestration in plantations.

This is a deliberate failing as the Governments do not want to admit that logging reduces the carbon stored in native forests and account for this loss. Forests recovering from logging will sequester carbon though it is likely that logging rates would need to be significantly reduced to achieve a nett balance between release and uptake of CO2. There is no excuse for failing to identify the break even point.

With the urgent need to sequester carbon from the atmosphere we should be managing our forests as carbon sinks. As Mackey *et. al.* (2008) conclude;

The remaining intact natural forests constitute a significant standing stock of carbon that should be protected from carbon-emitting land-use activities. There is substantial potential for carbon sequestration in forest areas that have been logged commercially, if allowed to regrow undisturbed by further intensive human landuse activities

7.2. World Heritage

The World Heritage listed Gondwana Rainforests of Australia (formerly Central Eastern Rainforest Reserves (Australia)CERRA) is located on the central east coast of Australia, generally occurring in disjunct reserves scattered along the Great Escarpment from near Newcastle in the state of New South Wales to near Brisbane in the state of Queensland. They have primarily been recognised for their unique array of rainforests, exceptional biodiversity, and ancient species.

A number of protected rainforest areas in NSW were inscribed on the World Heritage List in 1986 as the Subtropical and Temperate Rainforests of Eastern Australia for their outstanding natural universal values.

In 1993 the North East Forest Alliance proposed that the Subtropical and Temperate Rainforests of Eastern Australia be expanded and renamed as the Central Great Escarpment Forests of Australia (CGEFA). The proposal included significant additional rainforest areas and seven identified wilderness areas situated along the Great Escarpment; Washpool, Bindery, Guy Fawkes River, New England, Macleay Gorges, Werrikimbe, and Barrington.

In 1994 the renamed Central Eastern Rainforest Reserves (Australia) (CERRA) was expanded to include significant rainforest areas in south-east Queensland and some additional disjunct flora reserves in New South Wales as well as Oxley Wild Rivers NP.

The Scoping Agreement for New South Wales Regional Forest Agreements between the Commonwealth of Australia, and the State of New South Wales states:

> *1. The Governments recognise each other's statutory, international and policy responsibilities in regard to forests. For the purposes of each Regional Forest Agreement (RFA), both Governments agree to undertake jointly the following regional assessments:*
> *...*
> *(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.*

In 1998 Australia established a 'World Heritage Expert Panel' to identify places of possible outstanding universal values in forested areas as part of its Regional Forest Agreement process. 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.

The panel identified that:

- 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.

In 1999 the NSW Government removed large areas of rainforests and eucalypt forests on public lands from potential timber production and added them to the reserve system as part of the Regional Forest Agreement process. This includes many areas adjoining, surrounding and linking the existing World Heritage areas. 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.

Immediately after signing the RFA the Governments apparently abandoned any intent to assess the eucalypt values of north-east NSW, or the supporting value of "passive marginal swells", and instead decided to only consider the existing value of "rainforest" and the supporting value of "Aboriginal ceremonial sites". The November 2000 "Strategic Overview for Management" states:

Recent additions have been made to the reserve system in NSW and Queensland, including some significant additions to existing reserves included in CERRA. These include many suitable areas identified by the IUCN in 1993 and improve the integrity and decrease the fragmentation for the property. There are also some other significant areas of rainforest that have been reserved. Other reserves may also warrant consideration, following the recommendations of the Comprehensive Regional Assessment (CRA) World Heritage Expert Panel. Potential additions also exist in the increasing number of protected areas on private lands (subject to conservation agreements) and reserves managed by local government authorities.

The CRA World Heritage Expert Panel also identified the potential for the forests of north-east NSW and south-east Queensland, including CERRA, to contain outstanding universal cultural values, in relation to its use by and significance to local Aboriginal peoples. The indigenous cultural values of CERRA are poorly known.

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*". NEFA understands that even then the assessment was limited to minor additions so as not to have to undertake a renomination.

Hunter's (2004) review of natural values of the area again highlighted the eucalypt and passive marginal swell themes as associative natural values:

There are very high natural values present for a range of natural values in addition to those for which the property was listed. These associative natural values include:

- *Attributes associated with Criterion (iii). These relate to outstanding ecosystems (relict palaeovegetation) and areas of outstanding beauty and aesthetic importance.*
- *Attributes associated with passive continental margins. This includes most of the landforms underlying the property.*
- *Attributes associated with the Eucalyptus-dominated vegetation theme. The property straddles one of the most eucalypt species rich regions and includes many of the attributes related to the theme.*

DECCW (2010) note:

In the UNE and LNE regions, a consultant's report commissioned by the then Commonwealth Department of Environment and Heritage (DEH) and completed in mid-2005, identified potential sites of national significance in the broader CERRA region based on the following themes: Aboriginal earthen ceremonial initiation sites ('bora rings'), stone arrangements, Dreaming/creation places, working together and resistance.

The combined 5 and 10 year review of the NSW Forest Agreements and IFOA (DECCW 2010) identify that objective criteria to identify and score protected areas for inclusion were developed by the CERRA Technical and Scientific Advisory Committee (TSAC), though were again apparently limited to the rainforest theme:

In 2005, TSAC provided a ranked list of potential sites to the CERRA Ministerial Council as the recommended starting point to expand CERRA on its current rainforest theme. These sites will more than double the existing area and include those that form part of existing parks in CERRA, those that have been previously recommended by the International Union of Conservation of Nature (IUCN) and those that scored highly when assessed against criteria linked to CERRA's World Heritage values. DECCW provided assistance in refining and applying these criteria to potential reserves.

The Commonwealth Minister has declined to coordinate a process to develop a nomination to extend CERRA, until he receives a formal approach from both relevant NSW and Queensland State Ministers. As at the end of the five-year review period, DECCW was reviewing the TSAC list (to ensure that regional issues and management implications were considered) and working with the NSW Department of Premier and Cabinet in determining statewide priorities consistent with Government priorities.

…

Other themes, such as eucalypt dominant vegetation or cultural-related issues, may be considered after the current nominations are finalised over the next few years. Any future sites or new criteria for existing sites proposed for World Heritage listing would require considerable research and data collection, including the development of a comprehensive nomination document describing how the sites meet World Heritage criteria.

Note that while the 5 year review was expanded to also become the 10 year review, this entry (along with many others) was apparently not updated.

In 2007 the name was changed to Gondwana Rainforests of Australia.

Contrary to the 'Scoping Agreement', identification of World Heritage values were not specifically considered in the CRA process and their consideration was limited to future actions in the RFA. The NSW Forest Agreement identified that that extensions to the CERRA property based on the existing rainforest theme would be completed by April 2001, and the documentation of the themes of eucalypts, passive marginal swells, and Aboriginal sites by April 2002. Though work on the renomination did not even start until 2003 and appears to have made little progress to even expand on the rainforest theme since.

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