Compliance of Forestry Operations in North East New South Wales with Commonwealth Requirements for Threatened Species and Ecosystems.

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PRFFACE

This report reviews the protection applied both in theory and practice to nationally threatened species and ecological communities in forestry operations in the North East NSW Regional Forest Agreement (NE RFA) area.

On public lands in north-east NSW logging is regulated by the Integrated Forestry Operations Approvals (IFOAs) (one for Upper North East and one for Lower North East) and the appended Environment Protection Licences, Threatened Species Licences and Fisheries Licences. The NSW Government is currently proposing on amalgamating all IFOAs and Licences for eastern NSW (including Eden and Southern) into a single Coastal IFOA.

For private lands the Private Native Forestry Code of Practice (PNF Code) was introduced by the NSW Government in August 2007 and sets the minimum operating standards for harvesting in private native forests. The NSW Government is currently undertaking a review of the PNF Codes.

This review provides numerous examples where logging prescriptions specified in IFOAs and the PNF Code are not compliant with Commonwealth Recovery Plans and Conservation Advices and where logging prescriptions are regularly and systematically not applied in practice. Federally listed threatened species and ecosystems are not being provided with the protection intended and often legally required. The PNF Code generally provides no real species-specific protection for threatened species, while the new Coastal IFOA is proposing reducing or removing most current species-specific protection for threatened species while significantly increasing logging intensity.

In summary this review finds:

- 1. Many Federally threatened species are not covered by Recovery Plans, have Recovery Plans that have expired or are not required to have Recovery Plans.
- 2. It is apparent that many Recovery Plans, particularly multi-species plans, fail to consider logging impacts or provide sufficient guidance on how to address forestry impacts and guide the recovery of threatened species.
- 3. While Recovery Plans are required by the NE RFA to be accounted for in logging operations, in practice Recovery Plans and Conservation Advices are generally ignored when planning and undertaking forestry operations.
- 4. One of the key requirements of numerous Recovery Plans and Conservation Advices (as well as being an ESFM principle) is to monitor the effectiveness of logging/management prescriptions and adjust them accordingly (adaptive management), yet it appears that in the past 20 years only 5 plant species have been subject to token monitoring and despite significant damage to those species there has yet been no change to prescriptions. For most prescriptions there are no performance measures and Government's apparently don't care if they are effective.
- 5. In practice Threatened species management prescriptions are often breached and yet there is little meaningful enforcement or consequences, and rarely any rehabilitation or compensatory habitat requirements.

- 6. On private lands there are numerous prescriptions for threatened species, though as there are few records of threatened species on private lands and no requirements to survey for them, they are rarely provided any protection in practice. Without surveys to trigger species-specific prescriptions they are tokenistic.
- 7. The Commonwealth Government uses the existence of an RFA as an excuse for ignoring the impacts of forestry on threatened species, irrespective of whether Recovery Plans and prescriptions are complied with or whether prescriptions are weakened or removed.
- 8. The NSW Government uses the existence of an RFA as an excuse for ignoring Federal Recovery Plans, Conservation Advices and new listings.
- 9. The proposed new Coastal IFOA removes and reduces protection for most Federally listed threatened species.
- 10. The proposed new Coastal IFOA proposes significantly increasing logging intensity, removing the need to retain most mature trees (nectar feed trees and recruitment habitat trees), reducing riparian buffers, and logging oldgrowth and rainforest in Informal Reserves and yet none of the retained prescriptions for threatened species have been increased to take this into account.

Given the abject failure of NSW's legislative processes to demonstrate that they provide meaningful or adequate protection for Commonwealth listed Threatened species, the frequency with which management intent does not comply with Recovery Plans and Conservation Advices, the demonstrated failure to often implement prescriptions, and NSW's intent to significantly increase logging intensity and reduce protection for Threatened species, the Commonwealth needs to ensure that there is a significant re-write of the Threatened species provisions of the IFOA and PNF Code to ensure that they implement the identified recovery actions and provide the protection required for nationally Threatened species and ecosystems.

NEFA's submission to the Regional Forest Agreement Review (Pugh 2018) demonstrates serious non-performance in the NE RFA area, including: failure to implement forestry codes of practice, failure to implement recovery plans for threatened species, failure to establish management plans for CAR reserves, failure to implement or enforce the ESFM framework and failure to correct proven and ongoing breaches of the RFA.

This report more comprehensively details the relevant requirements of national Recovery Plans and Conservation Advices, the NSW legislative protections for threatened species and ecosystems, and examples of compliance from the very small sample of operations inspected by NEFA over the years.

Recovery Plans are the principal measure relied upon by the Commonwealth to safeguard nationally listed threatened species. Unfortunately most threatened species are not covered by Recovery Plans, and many plans are either out of date or so vague as to be ineffective. Conservation Advices are the only federal direction offered for most threatened species and these have limited, if any, effect as they are not required to be complied with.

Clause 62 of the NE RFA states that "The Parties agree that the management prescriptions or actions identified in jointly prepared and agreed Recovery Plans or Threat Abatement Plans will be implemented as a matter of priority, including through the Integrated Forestry Operations Approval on State forest".

It is apparent that there is a comprehensive failure to incorporate nationally identified actions from Recovery Plans and Conservation Advices into NSW's legislative controls for logging operations on public lands, private lands and plantations. All the alterations made to the NSW Integrated Forestry Operations Approvals (IFOAs), and associated licences since 1998, have been aimed at reducing or removing protections for threatened species to make more areas and trees available for logging. There has not been a single change aimed at implementing a Recovery Plan requirement or improving the protection for any threatened species.

Hawke (2009) identifies "Rather than being an exemption from the Act, the establishment of RFAs (through comprehensive regional assessments) actually constitutes a form of assessment and approval for the purposes of the Act. ... RFAs should be regularly monitored and audited to ensure they continue to meet the agreed conditions of that approval", noting:

Key matters to consider when undertaking a review should be whether the following have been demonstrated:

- the state's ESFM framework is capable of adapting to new information in a timely manner this could include systems to ensure harvesting plans are consistent with recovery plans, conservation advice and action statements;
- matters of NES are consistently and uniformly incorporated into the state's ESFM framework and given appropriate consideration (consistent with information provided under the Act, such as listing advice);

The ESFM requirements under the NSW IFOAs are merely "non-licence" requirements that nobody is responsible for enforcing. As a consequence many of the basic principles of ESFM are openly and regularly flouted (Pugh 2018). The Threatened Species Licence (TSL) and Fisheries Licence (FL) issued under the IFOAs do theoretically provide some legally enforceable protection for threatened species though these are poorly applied and policed. The proposed Coastal IFOA seeks to integrate the TSL and FL into the IFOA, though in the process removes or reduces the protection for most threatened species.

Application of prescriptions in the real world is where the process can often fail. In practice poor implementation is a common occurrence in NSW. NEFA considers that this is testimony to regulatory failure in NSW. Even the small sample of convictions Justice Pepper (*Director-General, Department of Environment, Climate Change and Water v Forestry Commission of New South Wales [2011] NSWLEC 102*) reviewed led her to conclude:

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

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

The cases reviewed by Justice Pepper were just the few that the EPA has prosecuted the Forestry Corporation for and some of those for which Penalty Notices had been issued. There are a plethora of quite serious offences that the EPA have only taken token, if any, regulatory action for. Justice Pepper's conclusions were only based on a small sample of the Forestry Corporation's offences.

All the years of regulation have failed to arrest the criminal behaviour of the Forestry Corporation, failed to implement the principles of ESFM and failed to provide the protection our threatened species so desperately require. It is evident is that the EPA's token 'proactive' audits and failure to apply meaningful deterrents has allowed the Forestry Corporation's *reckless attitude towards compliance with its environmental obligations* to flourish. It is also apparent that by their interpretations the EPA are continually weakening their ability to take regulatory action. It has reached the stage that, with a few exceptions, the EPA will only take meaningful regulatory action if the Forestry Corporation voluntarily confess.

Since the inception of the NE RFA the EPA have only ever prosecuted the Forestry Corporation in 2004 for one offence after they admitted guilt for 600 cubic metres of fill from a poorly constructed road in Chichester State Forest collapsing into a creek in contravention of the Environmental Protection Licence (EPL). Before the judgment was handed down the EPL was altered to exclude the vast majority of Forestry Corporation logging operations from its ambit.

In an overtly political move the EPA decided to stop issuing Penalty Notices for breaches of the TSL after January 2016. In response to our query for the EPA to explain their position the EPA (Michael Hood 9 February 2018) responded "we determined to focus our approach on our proactive regulatory program and compliance priorities. In conjunction, we considered alternative tools such as the proactive release of information via audit reports, the issuing of official cautions, investigations and prosecutions".

NEFA considers that the EPA's decision not to issue Penalty Notices was a political decision, the removal of a significant deterrent from the Forestry Corporation, a weakening of forest regulation and an intentional disincentive for NEFA's auditing. It is extremely frustrating for us to identify significant breaches that only result in meaningless and inconsequential warning letters or "official cautions".

The EPA's political position enabled Forestry Corporation CEO Mr. Roberts to state in response to questions at Budget Estimates (6 September 2017) that they had a clean record, leading to this exchange:

Mr ROBERTS: We did not have any penalty infringement notices served on us in the last financial year.

Ms DAWN WALKER: None?

Mr ROBERTS: None.

The Hon. GREG PEARCE: Excellent management.

The Hon. RICK COLLESS: Good work. The Hon. GREG PEARCE: Great Minister.

The EPA's "proactive" audits are generally token audits limited to a small number of "compliance priorities" that are not published until years after the events. NEFA (Pugh 2018) reviewed those available for Upper North East NSW, and found just 8 available for 2015 which resulted in the EPA requiring the Forestry Corporation prepare 28 Action Plans. Eleven of the Action Plans related to 36 breaches of habitat tree prescriptions, all in a total sample area of 7.9ha covering 94 habitat trees. Given that thousands of hectares were logged that year the sampling is miniscule, though indicates a very high level of offences if extrapolated across the logged area. More worrying is that time and time again, year after year, the EPA find the same breaches and issue the same obviously useless requests for Action Plans.

Of equal concern is that the EPA rarely audit any species-specific prescriptions because they do not have the ecological expertise and they do not have the will because they are not compliance priorities.

The EPA also apparently consider Recovery Plans an irrelevant consideration. For example, in our audit of Cherry Tree State Forest NEFA (2015) documented numerous breaches of the Border Ranges Rainforest Biodiversity Management Plan, to which the EPA (Michael Hood 21 December 2016) responded "The harvesting operations were undertaken under the authority of the Upper North East region Integrated Forestry Operations Approval" - blatant breaches of the multi-species Recovery Plan were considered irrelevant because of the RFA. It is as if Clause 62 of the NE RFA does not exist, let alone any moral (or ESFM) obligation.

In spite of making Endangered Ecological Communities (EECs) a compliance priority the EPA refused to take any regulatory action what-so-ever in response to the roading and logging the Endangered Ecological Community Lowland Rainforest in Cherry Tree State Forest in response to NEFA's audit (Pugh 2015). The rainforest had been mapped for decades and it had been identified and mapped as the State EEC Lowland Rainforest in a joint mapping project by both the EPA and the Forestry Corporation in 2016. NEFA's review of that mapping identified 33 incursions into mapped Lowland Rainforest affecting 4.5 ha. Despite their own mapping the EPA (Jackie Miles, 1-12-17) said they would do nothing because they could not determine beyond reasonable doubt that it was an EEC.

Similarly the EPA refused to even consider or mention 90ha of the State EEC Grey Box-Grey Gum Wet Sclerophyll Forest the Forestry Corporation logged within the Cherry Tree compartments. This too had been mapped jointly by both the EPA and the Forestry Corporation as an EEC in 2016, though the EPA refused to even consider it on the grounds that they have a Memorandum of Understanding with the Forestry Corporation not to use their mapping of it as a 'backward looking compliance tool', this is despite NEFA identifying numerous breaches within it before the EPA mapped it.

Though the most outrageous abrogation of their duty was the EPA (Michael Hood,1 December 2017) stating that they would take no regulatory action at all for 122 breaches of habitat tree protections they identified in Cherry Tree State Forest likely "as a result of harvesting operations", because they were not able "to prove beyond reasonable doubt that each individual instance of damage or debris was as a result of those undertaking the harvesting operation" "nor could it obtain evidence that would rebut a defence that the damage was caused by some other means". It is blatantly obvious in most cases that the damage is caused by side-swiping of trunks, machinery damage to roots or trees being felled onto retained trees. This new position rules out the EPA taking further regulatory action for most breaches unless the Forestry Corporation confess (see section on Greater Gliders for discussion).

Adaptive Management is a key requirement of ESFM, most Recovery Plans and Conservation Advices, and Forestry management plans yet it is not applied in practice. From well before the RFA, and repeatedly since, NEFA have been asking for Government agencies to monitor the effectiveness of prescriptions intended to reduce environmental harm. This has been a requirement of numerous recovery plans, including the Northern Rivers Regional Biodiversity Management Plan (a national multi-species Recovery Plan), which has an action

7.1.5. Develop appropriate criteria and indicators to review the effectiveness of threatened species protection measures currently employed in public and private native forestry activities. Strengthen threatened species protection measures where they are shown to be inadequate.

The principle of monitoring a prescription and then using the results of that monitoring to improve the prescription is called adaptive management and is a basic tenet of ESFM. For example ESFM Principle 5 requires that "ESFM would utilise the concept of adaptive management and continuous improvement based on best science and expert advice and targeted research on critical gaps in knowledge, monitoring or evaluation".

It appears that in north-east NSW the impact of forestry has only been assessed for 5 plants and despite significant impacts no modification of prescriptions has yet been made. It is not believed that any other flora or fauna prescriptions have been subject to monitoring to assess their effectiveness, though this does not stop the Forestry Corporation claiming otherwise. 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.

We have come across no evidence of this, quite to the contrary we are concerned that Forestry Corporation does not learn from their mistakes. We are most concerned that neither the EPA nor Forestry Corporation have bothered to assess the effectiveness of most prescriptions over the past 20 years and improved them accordingly. Rather than applying adaptive management as a routine practice we find that Forestry Corporation use it as an occasional excuse to log somewhere they shouldn't.

There has been no strengthening of any of the Licence prescriptions included in the current licences since they were first issued 20 years ago, though there have been numerous instances of weakening and removal of prescriptions, not one of which has been based on monitoring of the effectiveness of either the old or new prescription.

The Private Native Forestry (PNF) Code has a range of record-based prescriptions for nationally listed threatened species, though there are few existing records on private lands and no survey requirements. This means that threatened species and ecosystems are usually provided with no protection what-so-ever in private forestry. If you don't look you don't find, if you don't find you don't protect. Excusing logging operations on private lands from any obligations for threatened species or ecosystems under the EPBC Act, with virtually nothing done to mitigate impacts on them, is the single biggest rort of the NE RFA. See sections on Clear Milkvine and Red Bopple Nut for examples.

NEFA made a detailed submission to the Federal Inquiry into: *The effectiveness of threatened species and ecological communities' protection in Australia*. The Inquiry (August 2013) found: Forestry and the RFA exemption

- 7.32 The committee received numerous submissions expressing concern about forestry practices in state forests, and the RFA exemption in the EPBC Act.43
- 7.33 Under section 38 of the EPBC Act, forestry operations undertaken in accordance with an RFA are not subject to the environmental assessment and approval provisions in Part 3 of the EPBC Act.
- 7.34 Submissions expressed concern that forestry operations pose a serious threat to a number of threatened species, such as koalas;44 the Leadbeater's possum;45 and tiger quolls.46 In particular, there was concern that there has been non-compliance with RFAs, as well as difficulties in enforcing RFAs.47 It was therefore suggested that the exemption in section 38 of the EPBC Act should be removed.48 The removal of section 38 would mean that Part 3 of the EPBC Act would apply to forestry operations and 'the Commonwealth would need to approve logging of threatened species habitat in advance of it occurring'.49
- 7.35 The inquiry in 2009 into the operation of the EPBC Act by this committee's predecessor, the Senate Standing Committee on Environment, Communications and the Arts, considered in great detail the interactions between RFAs and the EPBC Act. That inquiry recommended that the Hawke review:
- ...recommend proposals for reform that would ensure that RFAs, in respect of matters within the scope of Part 3 of the EPBC Act, deliver environmental protection outcomes, appeal rights, and enforcement mechanisms no weaker than if the EPBC Act directly applied.50
- 7.36 Subsequently, Chapter 10 of the Hawke report considered RFAs and the EPBC Act, and made recommendations 38 and 39 to address the issue. In summary, recommendation 38 recommended that the provisions of the EPBC Act relating to RFAs be retained, but 'be subject to rigorous independent performance auditing, reporting and sanctions for serious non-compliance'.51 Recommendation 39 proposed the Commonwealth government work with the states to improve the independence of compliance monitoring; and develop processes to make publicly available information about the number and nature of complaints about RFA operations and the results of any investigations.52
- 7.37 The government response to the Hawke review agreed with recommendation 39 and agreed in part to recommendation 38, noting the concerns raised about the operation of RFA, but stating that:

The government remains committed to RFAs as an appropriate mechanism for effective environmental protection, forest management and forest industry practices in regions covered by RFAs. The government is also committed to working with state governments to improve the review, audit and monitoring arrangements for RFAs, including their timely completion ...

. . .

These improvements will inform the consideration of RFA renewal processes. The government does not agree to the recommendation to change section 38 of the Act, as the existing mechanisms for continuous improvement contained with the RFAs can be used to achieve ecologically sustainable forestry outcomes.53

The Committee recommended (which was agreed by the Commonwealth):

Recommendation 37

7.116 The committee recommends that the Commonwealth government continues to work with state governments to improve the review, audit and monitoring arrangements for Regional Forest Agreements, with a view to ensuring that forestry operations avoid impacts on threatened species and ecological communities.

This has not been achieved.

NEFA wrote to the then Federal Minister for Sustainability, Environment, Water, Population and Communities, Tony Burke, on 16 May 2012 to highlight the inadequate protection provided for Koalas in logging operations in north-east NSW, and to request that he require a strengthening of logging prescriptions on both public and private lands to provide meaningful protection, and compliance with the NSW Recovery Plan, for the then recently listed vulnerable Koala.

Following the 2013 changes to the IFOA NSW conservation groups (Nature Conservation Council, Wilderness Society, North Coast Environment Council and NEFA) wrote (3 April 2013) to the then Federal Minister for Sustainability, Environment, Water, Population and Communities, Tony Burke, and Minister for Agriculture, Fisheries and Forestry, Joe Ludwig., "to raise a number of complaints about the fulfilment of Commonwealth responsibilities for the implementation of the North East NSW Regional Forest Agreement and the provision of adequate protection for threatened species, threatened ecosystems and heritage values", commenting:

It is our view that the Commonwealth's 'hands-off' approach to the periodic reviews of the Integrated Forestry Operations Approvals has meant that Commonwealth responsibilities for protection of CAR values and adequate protection of nationally threatened species and ecosystems are not being fulfilled. This situation requires urgent rectification given recent IFOA changes are highly likely to have a detrimental impact on nationally-listed threatened species...

We documented specific examples of non-compliance with national Recovery Plans for Hastings River Mouse, Black-breasted Button-quail and Native Jute (*Corchorus cunninghamii*), reminding the Ministers that in relation to Recovery Plans the RFA states (Cl 62):

The Parties agree that the management prescriptions or actions identified in jointly prepared and agreed Recovery Plans or Threat Abatement Plans will be implemented as a matter of priority, including through the Integrated Forestry Operations Approval on State forest.

The letter commenting:

Some of the recent reductions in protection as a result of the IFOA review are in direct contravention of National Recovery Plans. They have breached many more of the Minister's Approved Conservation Advices for species that the Commonwealth has not met its obligations to prepare recovery plans for...

The changes to the Threatened Species Licence in the north-east RFA Integrated Forestry Operations Approval directly removes or reduces specified protection for 1 nationally Critically Endangered, 8 nationally Endangered and 26 nationally Vulnerable species ...

We asked for the Ministers to take a number of actions, including:

- 1. We request that the Commonwealth acknowledge that the IFOAs are integral to the implementation of the RFA, and to commit to ensuring all changes to the IFOAs are fully considered by the Commonwealth.
- 2. We ask the Commonwealth to use any and all powers to urgently intervene to restore adequate protection for nationally threatened species in north-east NSW, with particular reference given to the adequacy and recent downgrading of prescriptions under the IFOAs.
- 3. In order to responsibly deal with nationally threatened species we ask the Commonwealth to undertake an independent scientific review of all prescriptions applied for nationally threatened species in forestry operations in NSW on both public and private land and to recommend needed changes to the IFOAs to adequately protect them.

The response (30 May 2013) was from the Parliamentary Secretary for Agriculture, Fisheries and Forestry, Sid Sidebottom, who stated:

The Australian Government recognises its responsibilities as a party, along with the NSW Government, to the NSW RFAs. The Australian Government, through signing the three NSW RFAs, accredited the NSW forest management system as providing for continuing improvement ...

The NSW FAs relate to operational forest management in NSW. Under these circumstances, the operational issues you have highlighted fall within the direct responsibility of the NSW Government and its agencies. I urge you to make your concerns known to the NSW Government.

The Commonwealth Ministers basically refused our request to intervene, effectively telling us that the RFAs give NSW carte-blanche to change the prescriptions for threatened species as they see fit, irrespective of whether they contravene Recovery Plans. The Commonwealth claimed to have no ongoing responsibility for threatened species.

Clause 37 of the North East RFA requires that "New South Wales undertakes to notify the Commonwealth within fourteen days of any amendment or termination of a Forest Agreement or amendment, suspension or revocation of any Integrated Forestry Operations Approval which applies to either of the Upper North East and Lower North East regions. Copies of any Forest Agreements or Integrated Forestry Operations Approvals will be provided to the Commonwealth within fourteen days".

At least our complaint seems to have prompted some slight interest from the State and Commonwealth to meet their mutual obligations. The recent EPA (2018) RFA Review identifies that in contravention of Clause 37 of the RFA, it was not until "June 2013, NSW provided the Commonwealth with a bulk notification for amendments dated between December 2001 and March 2013 covering all four coastal IFOAs". There is a big difference between 14 days and 12 years.

The NSW Government has re-written its prescriptions for threatened species to be applied in logging operations on public lands as part of a new Integrated Forestry Operations Approval (IFOA). NSW is proposing on removing the requirements to survey for most nationally threatened species before logging and to reduce or remove the current protection from a raft of nationally threatened species. As documented herein, many of these changes are in direct contravention of relevant Recovery Plans and Conservation Advices. Exclusion areas established around records of a variety of nationally threatened species over the past 20 years will be opened up for logging. These

changes are intended to be applied to the new RFAs and many aspects of the RFA (such as timber modelling and wood supply agreements) are predicated upon the reduced protection being implemented.

Those Federally listed threatened species currently requiring species-specific prescriptions under the north-east NSW Threatened Species Licences are identified in Appendices 1 (fauna) and 2 (flora), along with a précis of current and proposed changes to prescriptions. In summary the changes to species-specific prescriptions for north-east NSW are:

- Of the 20 Federally Threatened animal species with species-specific protection requirements (excluding nests/roosts), the proposal is to retain current prescriptions for 4 species, reduce protections for 3 species, and remove protections for 13 species. (Appendix 1)
- Of the 171 Federally threatened plants or populations that currently require species-specific protection (exclusion buffers, management plans) the proposal is to remove protections for 120 species, reduce protection for 14, retain protections for 17, marginally increase protection for 10, and 7 are uncertain (Appendix 2).

There are a multitude of other changes to prescriptions in the new IFOA that will significantly impact upon Federally threatened species, most notably including:

- Establishing a North Coast Intensive Logging Zone from Grafton to Taree over some 140,000 ha of coastal forests where there will be no minimum basal area retention requirement, thus allowing clearfelling of extensive areas (including some 15,510ha (43%) of IFOA mapped 'high quality Koala habitat').
- Increasing logging intensity in the rest of State Forests by changing the requirement to retain 60% basal area and all trees >20cm diameter at breast height (dbh) to retaining minimum basal areas of 10-12m², effectively reducing basal area retention by some 33-50% in most cases.
- Reducing riparian buffers on headwater streams in catchments less than 20ha (around 75% of all streams on State Forests) from mostly 10m down to 5m, affecting some 22,000 kilometres of streams outside existing exclusion areas north from the Hunter River (as well as removing species-specific buffers around streams for a variety of frogs, most notably the barred frogs, and the need to implement 10m buffers on all headwater streams within 100km upstream of threatened fish).
- Setting the retention rate for hollow-bearing trees as up to 5 per hectare where they remain, removing the need to retain the next largest trees to increase retention to 5 per hectare in escarpment forests and where some threatened species occur, the need to increase retention to 8 hollow-bearing trees per hectare where there are >1 Greater Glider/ha within 3km of a Powerful Owl, and the need to retain all hollow-bearing trees within 100m of a Stephen's Banded Snake.
- Removing the requirement to protect one recruitment tree for each hollow-bearing tree
 retained (up to 5 per hectare), required to be sound and healthy mature to late-mature trees
 selected from the largest cohort.
- Remove the need to retain and protect 3 mature eucalypt nectar feed trees (of specified species) per hectare, increasing to 5 per hectare as the default prescription where Regent Honeyeater, Swift Parrot or Black-chinned Honeyeater are likely.
- Remapping stands of oldgrowth and rainforest included as Informal Reserves in the Comprehensive, Adequate and Representative Reserve System using revised targets, criteria and methodologies to make most stands available for logging.

The new Coastal IFOA only mentions recovery plans in one place, where it requires "incorporate actions specified in approved recovery plans, action statements and Saving our Species plans published by the Office of Environment and Heritage or equivalent" when the Forestry Corporation are preparing "species management plans". The only Federally threatened species identified as requiring Species Management Plans in north-east NSW are the Eastern Bristle Bird and the plants

Euphrasia arguta, Native Jute (Corchorus cunninghamii), and Milky Silkpod (Parsonsia dorrigoensis).

NSW began revising their IFOAs and associated threatened species licences in 2013 and by late 2015 the changes had mostly been decided. On 28 March 2018 NEFA (with National Parks Association) met with Josh Thomas, advisor to the Minister for the Environment and Energy, Josh Frydenberg, and later with the Deputy Secretary of Agriculture, Cindy Briscoe, and her staff. They all expressed surprise when told of the proposed changes. It is astounding that the Commonwealth is intending on signing off on "ever-greening" NSW RFAs and claim not to have been told of the intent of NSW to remove or reduce existing protections for most nationally threatened species.

This review demonstrates that for north-east NSW there is a systematic and comprehensive failure of NSW regulatory processes, both in theory and practice, to honour and implement recovery actions for threatened species identified in Commonwealth Recovery Plans and Conservation Advices. There can be no doubt that for public lands the new Coastal IFOA represents a major reduction in protection for Federally listed threatened species, meaning the already poor compliance with Recovery Plans and Conservation Advices will significantly worsen.

For private lands NSW regulatory processes give only token consideration of threatened species, with no meaningful mitigation in practice for most nationally threatened species, and therefore no meaningful compliance with Commonwealth requirements.

It is apparent that if the Commonwealth has any intent to honour its obligations for the conservation and recovery of threatened species then it needs to ensure that there is a significant re-write of the threatened species provisions of the IFOA and PNF Code to ensure that they implement the identified recovery actions and provide the required protection. The most fundamental requirement is to require that they look before they log. If they don't look they don't find and if they don't find they don't protect. Survey requirements for public land need to improved and for private lands they need to be introduced.

EPA (2018) 'NSW Regional Forest Agreements, A report on progress with implementation of the New South Wales Regional Forest Agreements' Second and third five-yearly reviews'. NSW Environment Protection Authority.

Hawke, A. (2009) The Australian Environment Act – Report of the Independent Review of the Environment Protection and Biodiversity Conservation Act 1999, Australian Government Department of the Environment, Water, Heritage and the Arts

Pugh, D. (2018) North East Forest Alliance's submission to: 'NSW Regional Forest Agreements, A report on progress with implementation of the New South Wales Regional Forest Agreements' Second and third five-yearly reviews'. https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/forestagreements/review-submissions-2018/north-east-forest-alliance.pdf.

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Claimed "Single Tree Selection" logging in Yabbra State Forest (2009).

Compliance of Forestry Operations in North East New South Wales with Commonwealth Requirements for Threatened Species and Ecosystems.

Introduction

This is a limited review of how select nationally threatened species are dealt with in theory and practice in logging operations on public and private lands in north-east NSW. Their treatment in NSW is compared to requirements of national recovery plans and conservation advices. This is only a preliminary assessment though it does highlight that national recovery plans and conservation advices are generally ignored in both theory and practice.

What NEFA finds most concerning is that the general and species-specific logging prescriptions have never been subject to independent expert review or monitoring to assess their effectiveness. They were originally developed in negotiation processes from 1996-98 between the then National Parks and Wildlife Service and State Forests of NSW. They were compromises based on opinions and resource impacts. There are no performance measures and they have never been monitored.

There have been a multitude of cuts to environmental protections since the inception of the RFA, justified on the need to increase resources to help meet WSA commitments. In 2003, in order to increase the harvestable area, "buffers on buffers" were removed by allowing trees to be dropped into, and machines to enter, exclusion areas.

Following the over-allocation of modelled available yields in 2003, in 2004 the Environment Protection Licence was amended to exclude most forest operations from its ambit, with the specific intent to allow the Forestry Corporation to log the 10m buffers required by the licence on "unmapped" streams in order to increase resources. There was no consideration of environmental impacts.

There were numerous amendments to the Threatened Species Licence from 2003 until 2011 that removed or reduced protection for threatened species and exclusion areas.

Since 2000 there have also been a number of species added to Federal Threatened species lists (such as the Greater Glider), and a number of new Recovery Plans prepared, yet there have been no changes to the Threatened Species Licence to reflect these changes.

From 2006 the Forestry Corporation began applying an unlawful version of the silvicultural prescription of Single Tree Selection (STS) involving up to 90% basal area removal, compared to STS's limit of 40% basal area removal (and retention of all trees under 20cm diameter at breast height (dbh)). In 2016 the EPA (pers. comm.) on behalf of the Environment Minister stated this intensity "is not consistent with the definition and intent of STS (Single Tree Selection) in the Integrated Forestry Operations Approval (IFOA). This dramatically increased logging intensity has increase timber yields while greatly increasing environmental impacts, particularly on fauna. This unlawful logging was then adopted as the standard logging intensity for the new logging rules and yield assessments.

Throughout the deliberations of the EPA and the Forestry Corporation on the new Coastal IFOA the emphasis has always been on removing or minimising environmental protections to ensure no reduction in timber yields. There were numerous reductions in environmental constraints that were agreed between the agencies in negotiating the Coastal IFOA, such as:

- increase logging intensity across public forests (mostly doubling tree removal), and create a 140,000ha North Coast Intensive Zone to allow Eden-style alternate coupe clearfelling,
- halve the measly 10m wide stream buffers in our vital headwaters while also allowing logging of riparian habitat protected for the past 20 years,
- reduce the retention requirements for ancient hollow-bearing trees, while removing the
 requirements to protect the next largest trees as recruitment trees to replace the hollowbearing trees as they die out,
- remove the requirement to protect a sample (i.e. variously 3-5 per hectare) of mature high nectar-producing trees so essential to provide the abundant nectar needed by a plethora of species.
- removal of the need to survey for most threatened species, the removal of most species specific prescriptions and the opening up of most exclusions for threatened species established over the past 20 years.
- remove requirements to thoroughly search for Koalas ahead of logging and protect Koala High Use Areas, while zoning 43% of the highest quality habitat for extensive clearfelling.
- allow logging dieback to run rampant through our forests.

There were a variety of issues that the agencies were not able to agree on (NRC 2016), for which the Natural Resources Commission (NRC) mostly sided with the Forestry Corporation against the EPA on the basis of resource shortfalls, including:

- reductions in the minimum area of landscape exclusions within logging areas
- reductions in the minimum numbers and size of trees to be retained for Koalas
- increases in the minimum sizes of "giant trees" to be retained
- increases in the size of patches allowed for clearfelling
- reductions in minimum basal area retention under "selective" logging

Even then the NRC (2016) claim that "it is not possible to meet the Government's commitments around both environmental values and wood supply" maintaining there would be a shortfall in commitments from north-east NSW of 7,600 to 8,600 m³/yr of HQL due to protections for Endangered Ecological Communities and Koalas. To make up this claimed shortfall the Government decided to remap stands of oldgrowth and rainforest included as Informal Reserves in the Comprehensive, Adequate and Representative Reserve System using revised targets, criteria and methodologies to make most stands available for logging.

Irrespective of definitions, those forests mapped as oldgrowth and rainforest are of immense value as the most intact stands of forests left on State Forests as they have escaped the intensive logging of the past 20 years,. The eucalypt stands have a high number of hollow-bearing trees that provide the nests and dens essential for a plethora of hollow-dependant animals and the mature trees that provide the abundant browse, nectar and seeds that are essential food resources for a multitude of species, They are irreplaceable assets of immense importance for the maintenance of populations of forest dependent species throughout State Forests. The provide important refugia and stepping stones between our national parks.

It is evident that any pretence of Ecologically Sustainable Forest Management has been abandoned with the new Coastal IFOA. There have been major reductions in protections for Federally listed threatened species without any attempt to assess the consequences.

It is particularly concerning that that the NRC's claimed resource shortfall is an artificial construction obtained by excluding hardwood plantations from their resource claims to concoct the pretence of a resource shortfall (Pugh 2018). When hardwood plantations are included there is actually a surplus and no justification for the removal of prescriptions for threatened species.

This review is of a limited number of Federally listed threatened species, it compares the requirements of Recovery Plans and Conservation Advices with NSW existing prescriptions and

proposed prescriptions. A variety of case studies of the implementation of prescriptions are presented. It is important to recognise that these case studies are based on audits of a miniscule number of logging operations, emphasising how widespread and common breaches of required protections for threatened species are.

This review partially considers NSW regulatory compliance with two multi-species Recovery Plans, and Recovery Plans and/or Conservation Advices for one Threatened Ecological Community, 17 threatened animals and 11 threatened plants, while, for some species, considering examples from NEFA Audits relating to the implementation of IFOA prescriptions in practice. The proposed Coastal IFOA changes are considered for each species.

Summary

The Border Ranges Rainforest Biodiversity Management Plan multi species recovery plan.

The Border Ranges North and South (Queensland and New South Wales) is one of Australia's 15 Biodiversity Hotspots, and is one of the most significantly affected areas in NSW by lantana invasion and Bell Miner Associated Dieback, yet neither the Forestry Corporation nor EPA believe that there is any need to manage it for its special values and believe they can totally disregard the State-Commonwealth Border Ranges Rainforest Biodiversity Management Plan, which is a multispecies recovery plan. For example at Cherry Tree State Forest, in a Conserve and Repair priority area NEFA found that contrary to Objective 4 management plans had not been prepared for rainforest, tracks had been bulldozed through rainforest, tracks had been bulldozed to mark the boundary of rainforest (often clearing into the rainforest) and that logging had been undertaken into the rainforest, and that contrary to Objective 8 the roading and logging was spreading lantana and Bell Miner Associated Dieback. In response to NEFA's specific complaints the EPA consider that this "National Recovery Plan" is simply "Not Applicable" because operations are covered by an IFOA, one conceived 11 years before the plan was released. Neither is this recovery plan considered or applied in private property logging operations. The new Coastal IFOA does not require consideration of, or compliance with, this Recovery Plan.

Spotted-tailed Quoll

The nationally Endangered Spotted-tailed Quoll is known to strongly rely upon large hollow bearing trees and logs, as well as preying upon hollow-dependent species, and is known to be affected by intensive logging, though is able to tolerate some degree of disturbance. The 2016 National Recovery Plan for Spotted-tailed Quolls includes a variety of actions, most relevantly 'Objective 4. Evaluate and manage the risk posed by silvicultural practices', including developing guidelines on minimum habitat requirements for prescriptions, implementing monitoring programs to assess the efficacy of logging prescriptions, and identifying the disturbance thresholds of female quolls. NSW has applied the same logging prescriptions for the past 20 years without ever bothering to assess their effectiveness, without any monitoring or care as to what the effect on quolls will be. NSW has never bothered to monitor the efficacy of prescriptions, they are clearly in breach of the national recovery plan. As there are no requirements for surveys on private properties it is unlikely that any mitigation measures are applied in most quoll habitat.

Koala

The Koala is listed as nationally Vulnerable, yet the Recovery Plan due to commence in 2014 has yet to be prepared. Both the Commonwealth's Conservation and Management Strategy and NSW Recovery Plan have effectively expired, though their thrust for both public and private lands is to identify and protect important habitat areas, identify improved and standardised survey methods, and monitor and review the effectiveness of mitigation measures. The national Conservation Advice

is the only currently applicable statement and includes actions such as monitoring "the effectiveness of management actions and the need to adapt them if necessary", "Identify populations of high conservation priority", "for Crown and private land investigate and/or secure inclusion in reserve tenure if possible", and "Manage any other known, potential or emerging threats such a Bell Miner Associated Dieback".

The current Koala prescriptions for public lands require the identification and exclusion from logging of Koala High Use Areas (HUAs), and the retention of 5 Koala feed trees per hectare in "intermediate use" habitat. Though in practice few areas are identified as Koala HUAs, with only some 200 hectares identified in 15 years. In 2012 the Forestry Corporation was found to not be undertaking the 'thorough' searches required, and to be in the process of logging one Koala High Use Area and intending to log 4 other Koala HUAs in Royal Camp SF. When logging resumed nearby the EPA confirmed NEFFA's complaint that another Koala HUA was logged, though they failed to investigate a subsequent complaint. When the FC attempted to resume logging in 2013 in another part of Royal Camp SF where they claimed "nil" Koalas, yet NEFA again found abundant evidence of Koala HUAs. Subsequent surveys by the EPA confirmed Royal Camp and the nearby Carwong SF as populations of high conservation priority yet the NSW Government is still intent on logging the HUAs under the new rules. The EPA briefly attempted to make the Forestry Corporation thoroughly search for Koala scats elsewhere though quickly gave up. There are no size limits on the 5 feed trees per hectare and they are rarely specifically marked for retention.

The current Koala prescription for private forestry is to protect "core" Koala habitat identified in accordance with a Koala Plan of Management, though very little has been identified since 1995. With most in Coffs Harbour LGA and even then it was subsequently approved for logging in contravention of the PNF Code. The prescriptions also require 20m buffers around high use trees and the retention of 10 primary koala food trees and 5 secondary koala food trees over 30cm dbh per hectare where a Koala is found, though as there is no survey requirements in practice NEFA has found high use trees are rarely identified and the tree retention requirements rarely triggered.

Having given up on getting the FC to thoroughly search for Koala HUAs, the EPA decided to use modelling in the new Coastal IFOA. An expert review they commissioned found that modelling wasn't accurate enough for regulation and that the priority had to be to identify existing resident populations. Undeterred the EPA commissioned DPI Forestry to prepare a model to use for regulation. NEFA compared the modelled high quality Koala habitat with recent intensive logging and found that 23,742 ha had been subject to this unlawful logging. The new Coastal IFOA proposes using a combination of Koala models to identify areas where Koala prescriptions 1 and 2 apply. In general 10 Koala feed trees per hectare >20 cm dbh are required to be retained in areas subject to prescription 1, and 5 feed trees per hectare in areas subject to prescription 2 (the EPA proposed 25 and 15 trees >25 cm dbh respectively though were over-ridden). There will be no requirement to search for Koalas ahead of logging to identify Koala High Use Areas or even to assess trees for use by Koalas when identifying feed trees to be retained.

Greater Glider

The Greater Glider is recognised as nationally vulnerable, though not in NSW. There is no Recovery Plan, just a 2016 Conservation Advice that identifies logging as the most significant threat and the need to 'Constrain impacts of hardwood production through appropriate levels of patch and hollow-bearing tree retention, appropriate rotation cycles, and retention of wildlife corridors between patches'. There has been no attempt in NSW to comply with this and, as also required by the Conservation Advice, there has been no monitoring to determine the numbers of types and hollow-bearing trees that need to be retained, or the effects of logging and burning on retained trees and glider populations. The one NSW prescription requiring increased hollow-bearing tree retention where more than one Greater Glider per hectare is recorded is considered by the Commonwealth Scientific Committee as "not adequate", and now the NSW Government is intending to remove the one specific protection for Greater Gliders, reduce hollow-bearing tree retention requirements and

remove the need to retain the recruitment trees essential to maintain hollow-bearing trees into the future.

Hastings River Mouse

The Recovery Plan for the Endangered Hastings River Mouse was adopted in 2005 by NSW thirteen years after it was started and 8 years after the draft plan was prepared. It was adopted in 2008 by the Commonwealth. It includes specific survey and habitat requirements which were initially incorporated into the Threatened Species Licence in a reduced form. In contravention of the Recovery Plan the Threatened Species Licence was amended in 2007 and in 2010 so as allow logging operations within 31 compartments in 6 State Forests to be undertaken within areas that would otherwise be required to be protected. The prescription for the Hastings River Mouse was changed in November 2011 to significantly reduce exclusion areas and survey requirements to reduce the likelihood of detecting its presence. Habitat retention requirements are proposed to be further reduced in the Coastal IFOA. There is evidence that the reduced surveys have significantly reduced the likelihood of detecting Hastings River Mouse, though there has never been any attempt to assess the effectiveness of the reduced prescription. The current and proposed prescriptions are clearly not consistent with the Recovery Plan.

Broad-toothed Rat

The Barrington Tops population of the Vulnerable Broad-toothed Rat is listed as an endangered population. The current prescription requires all "Suitable habitat for Broad-Toothed Rat" to be protected with a 20m buffer. All species-specific protection is intended to be removed. It can not be assumed that this endangered population is adequately protected by the proposed exclusions. The Conservation Advice requirement to "Undertake a targeted survey of all suitable habitat within the subspecies' range" and to undertake a monitoring program to assess management effectiveness have not been complied with.

Large-eared Pied Bat

The 2011 'National recovery plan for the large-eared pied bat Chalinolobus dwyeri' identifies that it roosts in caves and overhangs and forage in nearby high-fertility forest or woodland near watercourses, with the protection of known roosts and associated foraging habitats, with monitoring of the effectiveness of prescriptions. The current TSL requires 50 m buffers around roosts and the new Coastal IFOA generally requires 100m buffers around potential roosts, though neither require protection of associated foraging habitat. The effectiveness of the current or proposed prescriptions have never been monitored. The proposed Coastal IFOA significantly increases logging intensity and reduces headwater stream buffers which will significantly increase impacts on the foraging habitat of this species. It clearly contravenes the Recovery Plan.

Coxen's fig-parrot

The 2001–2005 Recovery Plan for the Endangered Coxen's Fig-parrot and the Commonwealth's 2016 Conservation Advice clearly identify the need to protect rainforest ecotones as potential breeding habitat for this species. This has never been provided. The NRC (2018) proposes the remapping of rainforest with a view to opening up substantial areas for logging. In their trial remapping 62% of rainforest was remapped as not being rainforest applying their new criteria. It is evident that the Recovery Plan and Conservation Advice for this species have never been complied with.

Regent Honeyeater and Swift Parrot

For the Critically Endangered Regent Honeyeater there is an outdated 1999–2003 Recovery Plan and 2015 Conservation Advice, both of which identify the loss of mature eucalypt feed trees as

significant threats and their retention as essential recovery actions. For the Endangered Swift Parrot the revised 2011 Recovery Plan requires the retention of all trees 60cm DBH or greater, together with smaller trees as recruits. The current TSL requires the retention of 10 mature eucalypt feed trees per 2 hectares where there are records of these species, though most often the default of retaining 10 mature feed trees per 2 hectares in modelled habitat is adopted in lieu of surveys. Though most commonly no attempt is made to specifically identify such trees in practice, with Hollow-bearing (H) and Recruitment (R) trees being relied upon. The new Coastal IFOA proposes removing any need to retain nectar feed trees or recruitment (R) trees as well as allowing for a significant increase in logging intensity. This is in clear contravention of Recovery Plans and Conservation Advices for both species.

Rufous Scrub Bird

For the Endangered Rufous Scrub-bird The 2014 Conservation Advice identifies that there is no need for a Recovery Plan because "the remaining populations mostly occur in protected habitat". Contrary to the Advice Rufous Scrub Bird does occur on State Forests. The current TSL requires that the all "microhabitat" within 300m of a record be protected, along with a 20m buffers. Surveys are required to be undertaken in the appropriate season when detection is most likely. As a default all microhabitat and a 20m buffer can be protected. The evidence is that the required prescriptions are rarely applied in practice and that the Forestry Corporation does not have the expertise to identify the species or its microhabitat. The new Coastal IFOA retains the prescription though allows surveys in seasons when it is unlikely to be detected.

Black-breasted Button-quail

The Vulnerable Black-breasted Button Quail is covered by a 2009 Recovery Plan that requires a new predictive model, surveys in potential habitat and the implementation of management prescriptions for forestry. Instead of developing an improved predictive model to guide surveys for this species, in 2013 the TSL was changed to remove the need for pre-logging surveys. The proposed Coastal IFOA removes all protection. The NRC (2018) proposes the remapping of rainforest with a view to opening up substantial areas for logging. In their trial remapping 62% of rainforest was remapped as not being rainforest applying their new criteria. It is evident that the Recovery Plan for this species have never been complied with in NSW.

Broad-headed Snake

For the Vulnerable Broad-headed Snake the 2014 Conservation Advice identifies that it utilises rock outcrops and hollow-bearing trees within 200m, with the need to survey for the species and retain hollow-bearing trees. The Commonwealth survey guidelines are not applied in forestry. The prescription for this species was removed from the TSL in 2013. There is no requirement to survey for this species or to protect hollow-bearing trees within 200m of rock outcrops. This species will be impacted by the Coastal IFOA's proposals to increase logging intensity, the removal of the need to restore 5 hollow-bearing trees per ha in escarpment forests and the need to retain the recruitment trees needed to replace hollow-bearing trees as they die out.

Giant Burrowing Frog

The Vulnerable Giant Burrowing Frog has no Recovery Plan, though has a 2014 Conservation Advice which requires site specific management plans, protection of breeding sites and the retention of vegetation "especially within 300 metres of known breeding sites". In 2013 the TSL was altered to remove survey requirements and replaced with tadpole monitoring where there are records. The proposed Coastal IFOA removes all protection for this species, while proposing increased logging intensity and that buffers on headwater streams be reduced from 10m to 5m - despite the Conservation Advice being that "narrow buffers along streams does not sufficiently protect the species habitat".

Green and Golden Bell Frog

The Vulnerable Green and Golden Bell Frog has no Recovery Plan. The 2014 Conservation Advice requires surveys and monitoring of management actions. The Significant Impact Guidelines identify a significant impact as constituting "the removal or degradation of terrestrial habitat within 200 metres" of known or suitable habitat and the breakage of habitat linkages, while specifying specific survey guidelines. The TSL requires buffers of 50m around records or occupied waterbodies, with significantly less survey requirements than recommended. The new IFOA proposes removing survey requirements for Green and Golden Bell Frog and the requirement for exclusion zones, thereby opening up all exclusion zones established in the past 20 years for logging. This is in total contravention of the Approved Conservation Advice.

Giant Barred Frog

There is no applicable Recovery Plan for the Giant Barred Frog, only a 2017 Conservation Advice which identifies that it moves up to 20m from streams and is impacted upon by logging. The need to protect riparian habitat from logging and monitoring of frog movements is recognised. The current TSL requires surveys and the implementation of 30m buffers on "mapped" streams (not "unmapped") within 200m of records. The prescription has been found to not be applied in practice. The new IFOA proposes removing survey requirements for Giant Barred Frog and the requirement for exclusion zones, thereby opening up all exclusion zones established in the past 20 years for logging. The intent is also to reduce exclusion zones along headwater streams in catchments less than 20ha down from mostly 10m to 5m which may have significant direct impacts on any populations in such areas and will have significant impacts water quality for any downstream populations. There has not been any monitoring to assess the effectiveness of the current prescription and there have not been any trials to assess how Giant Barred Frog will be affected by the new prescription. This is in contravention of the Conservation Advice.

Stuttering Frog

There is a 2011 Recovery Plan for the Vulnerable Stuttering Frog that identifies it uses small streams and forest well away from streams, with forestry identified as a threat and the need for monitoring and application of forestry prescriptions. The current TSL requires surveys and the implementation of 30m buffers on "mapped" streams (not "unmapped") within 200m of records. The prescription has been found to not be applied in practice. The new IFOA proposes removing survey requirements for Stuttering Frog and the requirement for exclusion zones, thereby opening up all exclusion zones established in the past 20 years for logging. The intent is also to reduce exclusion zones along headwater streams in catchments less than 20ha down from mostly 10m to 5m which may have significant direct impacts on any populations in such areas and will have significant impacts water quality for any downstream populations. There has not been any monitoring to assess the effectiveness of the current prescription and there have not been any trials to assess how Stuttering Frog will be affected by the removal of the prescription. This is in contravention of the Recovery Plan.

Fleay's Barred Frog

There is no applicable Recovery Plan for the Endangered Fleay's Barred Frog, with a 2017 Conservation Advice that identifies it uses forest well away from streams, with forestry identified as a threat and the need for monitoring and application of forestry prescriptions. The current TSL requires surveys and the implementation of 30m buffers on "mapped" streams (not "unmapped") within 200m of records. The prescription has been found to not be applied in practice. The new IFOA proposes removing survey requirements for Fleay's Barred Frog and the requirement for exclusion zones, thereby opening up all exclusion zones established in the past 20 years for

logging. The intent is also to reduce exclusion zones along headwater streams in catchments less than 20ha down from mostly 10m to 5m (which represents 75% of streams) which may have significant direct impacts on any populations in such areas and will have significant impacts water quality for any downstream populations. There has not been any monitoring to assess the effectiveness of the current prescription and there have not been any trials to assess how Fleay's Barred Frog will be affected by the removal of the prescription. This is in contravention of the Conservation Advice.

Lowland Rainforest of Subtropical Australia

A Recovery Plan is not identified as required for the Critically Endangered Lowland Rainforest of Subtropical Australia. The 2011 Conservation Advice identifies threats as *vegetation clearance* and fragmentation as threats, and actions to be avoided. In 2012 as part of the preparation of a Property Vegetation Plan, the Office of Environment and Heritage, at the request of the EPA and Forestry Corporation, reviewed rainforest mapping and deleted 2.5 ha and reassigned it as either cleared or for logging, without recognising that it qualified as the TEC Lowland Rainforest at both State and Federal levels. This was despite its being mapped as the Critically Endangered Lowland Rainforest of Subtropical Australia and as a Repair Priority under the Border Ranges Rainforest Biodiversity Management Plan. NEFA reviewed the remapping and found it was totally unjustified. though the EPA refused to investigate. It is clear that Lowland Rainforest is not provided with the protection it needs in NSW.

Big Nellie Hakea, Hakea archaeoides

The Vulnerable Big Nellie Hakea is covered by the 2010 Northern Rivers Regional Biodiversity Management Plan, which is its generic Recovery Plan, though provides little direction. It is also subject to a 2008 Conservation Advice. Forestry is a recognised threat, with monitoring and review of prescriptions as actions. It is not currently provided with any protection under the TSL, though the new Coastal IFOA proposes a 20m buffer. The current lack of any protection is clearly not in accord with this species' Recovery Plan or Conservation Advice.

Bordered Guinea Flower, Hibbertia marginata

The Vulnerable Bordered Guinea Flower is covered by the 2010 Northern Rivers Regional Biodiversity Management Plan, which is its generic Recovery Plan, though provides little direction. It is recognised as affected by Forestry. As with the Recovery Plan, the 2008 Conservation Advice requires monitoring of "the effectiveness of management actions and the need to adapt them if necessary". Under the TSL this species is subject to logging without any protection, subject to a monitoring plan. The only monitoring report for Bordered Guinea Flower (Hibbertia marginata) was not reported until 2012 and the impacts were found to be far greater than anticipated, with 28% and 36% of plants killed or removed at two locations, often by soil disturbance or being smothered by dense logging debris, with many other plants damaged, yet despite changes to the licence since then the prescription has not yet been changed. The Coastal IFOA proposes a 20m buffer, It is outrageous that this species has been allowed to be subject to indiscriminate logging for some 20 years, with monitoring only started in 2008 and significant impacts being reported in 2012.

Clear Milkvine, Marsdenia longiloba

The Vulnerable Clear Milkvine has no Recovery Plan, but is covered by a 2008 Conservation Advice which requires surveys, monitoring and an assessment and review of management actions, particularly on private land. The TSL requires protection of 90% of individuals. For PNF 20m buffers are required. During a logging operation undertaken by the Forestry Corporation on private land in 2013 NEFA identified 13 plants, of which 5 were apparently killed, one severely damaged, and 4 had logging and/or roading within what should have been their exclusion zones. Three of those killed were identified prior to road construction, and the other 2 found after. Other individuals are

likely to have been killed in the operation. The EPA waited until the time for prosecution had almost expired before issuing the Forestry Corporation with a \$5,500 fine for roading within the buffer of Clear Milkvine, though they contested the offence and refused to pay the fine, by which time it was too late for the EPA to prosecute. It is evident that because of the absence of survey requirements this species has no meaningful protection on private land in contravention of the Conservation Advice. The new Coastal IFOA proposes 20m buffers for this species.

Four-tailed Grevillea, Grevillea quadricauda

No Recovery Plan is required for the Vulnerable Four-tailed Grevillea. The 2008 Conservation Advice identifies forestry as a threat, requiring implementation and monitoring of prescriptions. The current TSL classes it as one of the 11 plants that can be logged indiscriminately subject to the undertaking of a Monitoring Program. There does not appear to have been any monitoring of this species despite the Forestry Corporation preparing a Flora Monitoring Program and identifying significant numbers in an area they intended to log in 2009, with the EPA stating "Plan has not been required to be enacted". The PNF Code requires protection of all individuals with no buffers. The new Coastal IFOA proposes to require 20m buffers. It is outrageous that this species has been allowed to be subject to indiscriminate logging for the past 20 years with no protection and no monitoring.

Milky Silkpod, Parsonsia dorrigoensis

The Endangered Milky Silkpod is covered by the 2010 Northern Rivers Regional Biodiversity Management Plan, which is its generic Recovery Plan, though provides little direction. It is also subject to a 2008 Conservation Advice. Forestry is an identified threat, with implementation, monitoring and improvement of prescriptions as actions. The current TSL class it as one of the 11 plants that can be logged indiscriminately subject to the undertaking of a Monitoring Program. Monitoring of Milky Silkpod (*Parsonsia dorrigoensis*) was not written up until 2009, up to 5 years after monitoring was complete. The monitoring covered 69 plants across 4 State Forests, finding "Logging results in a large proportion (41-64%) of plants, or at least their above-ground parts, being damaged, destroyed or removed. Although all plants damaged by logging survived, a high proportion (19-41%) of plants is destroyed or removed". The PNF Code requires protection of all individuals with no buffers. The new Coastal IFOA proposes more of the same, with a Management Plan required. It is outrageous that this species has been allowed to be subject to indiscriminate logging for the past 20 years with no protection, despite the evidence that logging has a significant impact. This contravenes both the Recovery Plan and Conservation Advice.

Narrow-leaved Melichrus, Melichrus sp. Gibberagee

The Recovery Plan relied upon for the Endangered Narrow-leaved Melichrus is the 2010 Northern Rivers Regional Biodiversity Management Plan which is its generic Recovery Plan that provides little direction. It identifies forestry as a threat, requiring "Develop appropriate criteria and indicators to review the effectiveness of threatened species protection measures". There is no approved Conservation Advice for this species. The current TSL requires 50m buffers. In 2017 NEFA identified 15 Endangered Narrow-leaf Melichrus that have had forestry operations conducted within their 50m exclusion zones, 8 had roading conducted within their buffers, often within a few metres of the plants, one had a log dump within its buffer and 6 have had logging operations extend within what should be exclusion zones, and a number of buffers were not marked as required. The PNF code requires 50m buffers. The new Coastal IFOA proposes reducing the buffer to 20m. This is apparently a political decision (all 50m buffers have been reduced to 20m) without any monitoring or review in contravention of the Recovery Plan.

Onion Cedar, Owenia cepiodora

The Border Ranges Rainforest Biodiversity Management Plan is the Recovery Plan relied upon for the Vulnerable Onion Cedar, relevantly it focuses the protection of rainforest and its buffers. The 2008 Conservation Advice focuses on monitoring and adapting management actions. In 2013 the exclusion zone required by the TSL around Onion Cedar was reduced from 50m down to 20m, without any apparent assessment. In 2015 in Cherry Tree State Forest NEFA found that a road had been constructed through the NSW TEC Lowland Rainforest within a Recovery Plan "Conserve" and "Repair" priority area, and within the 20m buffers of at least 26 Onion Cedars, in the process 2 of these (2 and 3m from track) had their tops knocked off during road construction and 2 were bulldozed over amongst logging debris, with others likely killed by the road construction. The EPA issued Forestry Corporation with 2 Penalty Notices, each with a \$1,000 fine, though took no legal action for the roading through the Lowland Rainforest and considered the Recovery Plan requirements irrelevant. The PNF Code requires 50m buffers. The proposed Coastal IFOA proposes retaining the 20mbuffers. It is significant that the EPA thought that the Recovery Plan requirements for this species were irrelevant.

Red Bopple Nut, Hicksbeachia pinnatifolia

A Recovery Plan is identified as not required for the Vulnerable Red Bopple Nut, with the 2010 Conservation Advice identifying requirements for surveys, buffers, monitoring and adaption. The TSL requires 20m buffers. The PNF Code requires 20m buffers. During a logging operation undertaken by the Forestry Corporation on private land in 2013 NEFA identified 27 Red Bopple Nuts (about half tagged) that had logging roads constructed through their require buffers, and one with logging within its exclusion zone, and one injured. Of particular concern was that NEFA identified a road proposed to be constructed though a grove of over 60 Red Bopple Nuts, after we requested the EPA stop work the route was changed, though was still constructed through exclusion zones for at least 8 Red Bopple Nuts that had been identified and tagged by FC prior to the track's construction. Even though it was a deliberate act the EPA only issued an Official Caution for violating buffers of 4 Red Bopple Nuts. The new Coastal IFOA proposes retaining 20m buffers. It is apparent that that the Conservation Advice is being systematically ignored on private lands, even by Government agencies.

Sandstone Rough-barked Apple, Angophora robur

The Vulnerable Sandstone Rough-barked Apple is covered by the 2010 Northern Rivers Regional Biodiversity Management Plan, which is its generic Recovery Plan, which identifies logging as a threat though provides little direction. It is also subject to a 2008 Conservation Advice identifying requirements for monitoring and adaption. The current TSL classes it as one of the 11 plants that can be logged indiscriminately subject to the undertaking of a Monitoring Program. The only monitoring report for Sandstone Rough-barked Apple (*Angophora robur*) was prepared in 2008 with just 35 trees assessed of which 23% suffered significant damage (5 killed). The PNF Code requires protection of all individuals with no buffers. The new Coastal IFOA proposes removing all protection for this species. The removal of protection for this species is inconsistent with the Recovery Plan and Conservation Advice, particularly given the intention to significantly increase logging intensity.

Slaty Red Gum, Eucalyptus glaucina

No Recovery Plan is proposed for the Vulnerable Slaty Red Gum, the 2008 Conservation Advice identifies forestry as a threat requires monitoring and that logging "not adversely impact on known populations". The current TSL classes it as one of the 11 plants that can be logged indiscriminately subject to the undertaking of a Monitoring Program. The only monitoring report for Slaty Red Gum (Eucalyptus glaucina) was not prepared until 2012, finding 30% of trees up to 60 cm dbhob were damaged by logging (5 logged) and 3 years after logging there was a population decline. For northern populations the PNF Code requires protection of all plants with no buffer, and for southern populations 20m buffers. The proposed Coastal IFOA proposes limiting protection to trees over 30 cm dbh with no buffers. With the intent being to significantly increase logging intensity beyond that

applied in the single trial the impacts are similarly likely to increase. Removing protection for smaller individual of this species is clearly in contravention of the Conservation Advice given that these have been found to be most significantly impacted.

Square-fruited Ironbark, Eucalyptus tetrapleura

For the Vulnerable Square-fruited Ironbark is covered by the 2010 Northern Rivers Regional Biodiversity Management Plan, which is its generic Recovery Plan, which identifies logging as a threat though provides little direction. It is also subject to a 2008 Conservation Advice identifying requirements for surveying, monitoring, adaption and protecting populations in timber harvesting areas. The current TSL requires the protection of 90% of individuals with no buffers. The new Coastal IFOA proposes the removal of all protection. Contrary to the Recovery Plan and Conservation Advice there has been no monitoring to assess the effectiveness of current prescriptions to justify the removal of protection.

MULTI-SPECIES

The Border Ranges Rainforest Biodiversity Management Plan

Northern Rivers Regional Biodiversity Management Plan, National Recovery Plan for the Northern Rivers Region

The Border Ranges Rainforest Biodiversity Management (BRRBM) Plan (Department of Environment, Climate Change and Water NSW, 2010) covers the Border Ranges North and South (Queensland and New South Wales) Biodiversity Hotspot, and "constitutes the formal national recovery plan for those rainforest species which are endemic to the Hotspot region" and "identifies the actions to be taken to ensure the long-term viability of the threatened species and other biodiversity assets of the rainforest and related vegetation of the Border Ranges region".

The BRRBM Plan constitutes the regional recovery plan for species and ecological communities that occur within the Planning Area that are subject to the listings under the relevant state and Commonwealth nature conservation legislation. The Plan covers 58 fauna species, 134 flora species and 25 ecological communities associated with rainforest or related vegetation that are listed as threatened at either a national or state level.

In keeping with the contempt shown for the preparation of Recovery Plans, this multi-species approach appears to be a way of belatedly trying to cover as many species as possible. The plan is dated 2010, though covers 46 species identified in RFA ATTACHMENT 3, THREATENED FLORA, FAUNA AND ECOLOGICAL COMMUNITIES 'Table 1: Priority species for preparation of Recovery Plans (over next five years)' as requiring Recovery Plans by 2003-2005.

RFA Table 1: Priority species for preparation of Recovery Plans (over next five years) covered by the 2010 Border Ranges Rainforest Biodiversity Management Plan

Acronychia littoralis, Arthraxon hispidus, Baloghia marmorata, Bosistoa selwynii, Bosistoa transversa, Clematis fawcettii, Corchorus cunninghamii, Corokia whiteana, Cryptocarya foetida, Davidsonia jerseyana, Davidsonia johnsonii, Desmodium acanthocladum, Diospyros mabacea, Diploglottis campbellii, Elaeocarpus sedentarius, Elaeocarpus williamsianus, Endiandra floydii, Endiandra hayesii, Floydia praealta, Fontainea australis, Fontainea oraria, Hicksbeachia pinnatifolia, Isoglossa eranthemoides, Macadamia tetraphylla, Myrsine richmondensis, Ochrosia moorei, Owenia cepiodora, Plectranthus nitidus, Randia moorei, Sarcochilus fitzgeraldii, Sophora fraseri, Symplocos baeuerlenii, Syzygium hodgkinsoniae, Syzygium moorei, Tinospora tinosporoides, Tylophora woollsii, Uromyrtus australis, Coxen's

Double-eyed Fig Parrot, Eastern Bristlebird, Black-breasted Button-Quail, Red Goshawk, Fleay's Barred Frog, Giant Barred Frog, Brush-tailed Rock Wallaby, Hastings River Mouse, Mitchell's Rainforest Snail,

The Plan identifies both Conserve Priority and Repair Priority areas, noting:

The Conserve Priorities and Precincts map (see Figure 10) identifies areas that, if lost, would have the greatest impact on the biodiversity of the Planning Area. These are generally areas of existing conservation value where the focus should be on retaining the values that currently exist through mechanisms appropriate to their current tenure. National parks are not included here as they are already conserved. The Repair Priorities and Precincts map (see Figure 11) identifies areas that, if restored, would contribute the greatest biodiversity gains to the Planning Area. Repair Priorities are generally poorly conserved or over-cleared vegetation communities and are not restricted by land tenure (Turbill & Steed 2006). Areas where clusters of Conserve or Repair Priorities occur have been delineated and mapped as 'Precincts'

The Border Ranges Rainforest Biodiversity Management Plan fails to consider forestry or logging specifically despite the activity being a real threat to many species. The plan identifies a variety of key threatening processes (or legislative equivalents) that are relevant to logging:

- Clearing of native vegetation
- Eucalypt dieback associated with over-abundant psyllids and Bell Miners Manorina melanophrys
- Loss of hollow-bearing trees
- Invasion, establishment and spread of Lantana Lantana camara
- Predation by the European Red Fox Vulpes vulpes
- Predation by the feral Cat Felis catus
- Degradation of native riparian vegetation along watercourses

The Plan then focuses on objectives and outcomes aimed at redressing the threats, noting:

The objective of this Plan is to protect rainforest and related biodiversity and to provide a consistent and effective recovery program for species and communities of conservation concern. The recovery program will focus on improving the condition (connectivity and integrity) of rainforest and related vegetation communities and their component species and systems.

Objective 4 of the Plan is "To protect rainforest and related vegetation from fragmentation, modification and degradation", with relevant actions being:

- Promote the rehabilitation and management of rainforest and related vegetation on public land through plans of management, pest strategies and restoration and rehabilitation plans.
- Ensure that buffers are included in approvals for new developments or activities that occur in close proximity to rainforest or related vegetation.
- Where appropriate, ensure local provenance flora is selected for revegetation and rehabilitation projects.
- Encourage preparation of restoration plans prior to commencement of restoration activities. These should consider potential impacts on priority and threatened species present at a site.
- Identify areas that contain high densities of hollow-bearing trees as areas of high conservation value in planning instruments and land management negotiations.
- Ensure retention of existing hollow-bearing trees. Also encourage the protection of recruitment trees that will ensure hollow resources are available into the future.

Objective 5 of the Plan is "To protect rainforest and related vegetation from the impact of weeds", with relevant actions being:

- Ensure implementation takes an integrated and systematic approach to incrementally control all weeds within a defined management area and promote native species regeneration.
- Prepare site management plans and adopt best practice weed control and removal practices.
- Target weed control efforts toward priority areas (see Table 11) in intact rainforest or related vegetation, or remnants in good condition.
- Undertake staged removal and replacement of weeds with suitable native species that provide alternative resources and habitat for wildlife (e.g. food resources for frugivores).
- Identify sites for Lantana control based on priority areas and species identified in this Plan, the 'Bell Miner Associated Dieback Strategy' (Bell Miner Associated Dieback Working Group 2004), and when available, the national Lantana management plan.

Objective 8 of the Plan is "To minimise the effects of Bell Miner associated dieback on rainforest and associated wet sclerophyll forest", with relevant actions being:

- Implement Lantana removal trials within areas adjacent to rainforest that are affected by dieback.
- Develop guidelines for restoration of severe dieback-affected sites which may be implemented by land-holders and government agencies.
- Continue mapping, surveying and assessing the extent of dieback within north-east NSW and south-east Queensland.
- Implement an 'alert system' so that new outbreaks are reported to the Bell Miner Associated Dieback Working Group.
- Undertake targeted surveys and monitoring of Bell Miners, rapid census of native bird species, and assessment of vegetation condition at priority locations.

Objective 10 of the Plan is "To minimise the impacts of human interference", with relevant actions being:

- To reduce access for pest animals and weeds, discourage the construction of new roads and tracks in priority areas.
- Adopt best practice methods to control sedimentation and erosion resulting from construction and maintenance activities.

Threatened Species Licence

Since the Border Ranges Rainforest Biodiversity Management (BRRBM) Plan was adopted in 2010 there have been no changes to the NSW IFOA or associated licences. There is no mention of this Recovery Plan in any planning documents applicable to logging operations in the NSW section of the Border Ranges region. The NSW EPA consider that it is not applicable to forestry activities within the region because there is a RFA in place.

Since the BRRBM Plan was adopted in 2010 the Forestry Corporation have been logging State Forests in the Border Ranges with no consideration what-so-ever of this recovery plan. Across the Border Ranges NEFA have observed numerous contraventions of the BRRBM Plan, including:

- failure to prepare plans of management for rainforest and other informal reserves (Obj.4) (see Pugh 2018).
- refusal to prepare restoration plans for degraded forests, usually leaving the forest in a more degraded state than before logging (Obj. 4) (see <u>Audit of Yabbra SF</u> and other examples in <u>Pugh 2018b</u>)
- failure to include buffers when logging in close proximity to rainforest or related vegetation (Obj. 4), to the contrary the Forestry Corporation often clear tracks along what they consider to be rainforest edges when logging to delineate the boundary of the logging area. And in the Audit of Whian Whian (documented in the section on Lowland Rainforest), <u>Audit of Cherry Tree SF</u> and <u>Audit of Sugarloaf SF</u> found roads constructed within Lowland Rainforest.

- poor retention and protection of existing hollow-bearing trees, and poor selection and protection of recruitment trees (Obj. 4) (see section on Greater Gliders for an example from Cherry Tree SF, though also <u>Audit of Sugarloaf SF</u>).
- failure to identify, map or consider weed infested (mostly lantana) areas or areas affected by Bell Miner Associated Dieback (BMAD) in harvest planning (Obj.4, 5, 8) (see audits from Yabbra, Koreelah and Cherry Tree SFs summarised in Pugh 2018b)
- failure to consider or mitigate the likely consequences of logging on weeds or BMAD (Obj. 8) (see <u>Pugh 2018b</u>),
- construction of new roads and tracks (as well as intensive logging) in priority areas with total disregard for their dispersal of predators and weeds (Obj. 10) (see <u>Audit of Cherry Tree SF</u>)
- failure to apply minimal prescriptions for erosion mitigation and maintenance of stream quality (Obj. 10) (see <u>Audit of Yabbra SF</u>, <u>Audit of Cherry Tree SF</u>).

For example NEFA's <u>Audit of Cherry Tree State Forest</u> (December 2015) commented: As identified in the following sections NEFA maintains that the logging operations in Cherry Tree SF have been undertaken in a manner inconsistent with the above actions and thus the logging operations contravene the objectives of The Border Ranges Rainforest Biodiversity Management Plan in that:

- The endangered Lowland Rainforest in the NSW North Coast and Sydney Basin bioregions, its buffers and associated vegetation, within this priority Precinct has been significantly degraded by roading and logging, and the widespread destruction of stands with Brush Box and eucalypt emergents.
- The new tracks, opening of the overstorey, extensive destruction of rainforest understories and soil disturbance will facilitate the spread of lantana through the logging area, and consequently the spread of Bell Miner Associated Dieback, significantly reducing the habitat and resources available for numerous species (such as Blackstriped Wallaby, Red-legged Pademelon, Golden-tipped Bat, Wompoo Fruit-dove, Rosecrowned Fruit-dove, Sooty Owl, Onion Cedar, Ripple-leaf Muttonwood).
- The cutting down and extensive damage to hollow-bearing trees and recruitment trees will significantly increase loss of hollows (directly, indirectly and over time) required for many species (such as the Sooty Owl and Spotted-tailed Quoll); and
- The poor implementation of the already inadequate erosion mitigation guidelines and riparian buffers will contribute to stream degradation and impact aquatic and riparian species (such as the Giant Barred Frog, Eastern Freshwater Cod).

As evidenced by the extensive degradation of logged forests elsewhere in the "Border Ranges North and South", including the extensive spread of lantana and BMAD, NEFA does not consider that the "log and leave it" strategies of the Forestry Corporation have worked in the past or will work in this case. This recent logging will significantly compound the obvious degradation from past logging.

As always, the inept EPA is content to sit back and allow this Priority Precinct to be further degraded. In contravention of the recovery plan, the EPA approved the construction of illegal tracks through Lowland Rainforest and threatened species in this area based on shoddy assessments, ignored systemic abuses of habitat trees, ignored the aggravation of both lantana invasion and Bell Miner Associated Dieback, and could not care less about the need to rehabilitate degraded threatened species habitat.

The EPA's response (December 2017) for "National Recovery Plan" was simply "Not Applicable" with "no" for ongoing investigation, with their full consideration being "The harvesting operations were undertaken under the authority of the Upper North East region Integrated Forestry Operations Approval".

The Forestry Corporation's failure to consider the BRRBM Plan in planning is exemplified by their failure of the to identify or consider Conserve Priorities or Repair Priorities in their planning or logging, and the contempt the EPA has for any suggestion they should. NEFA's audits provide a series of case studies.

The Forestry Corporation commenced logging in compartments 27, 28, 30, 31 and 32 of Koreelah State Forest (Koreelah State Forest Audit) in March 2013, NEFA undertook audits in June and September 2013. The second visit focussed on undertaking pre-logging surveys for the threatened species Marbled Frogmouth, Yellow-bellied Glider, Alberts Lyrebird and the nationally endangered Fleay's Barred Frog in compartment 30 because both the Forestry Corporation and the EPA refused to do so - on one night we recorded Marbled Frogmouth, Yellow-bellied Glider and Fleay's Barred Frog which meant they had to apply the prescriptions for these species, resulting in increases to stream buffers by 10m throughout the compartment.

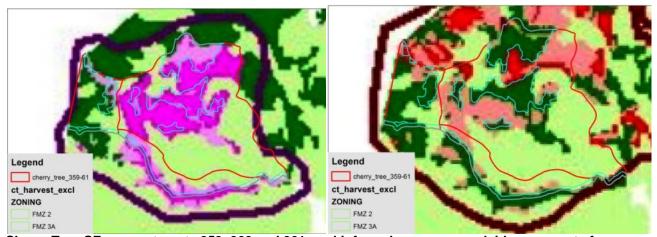
In the BRRBM Plan most of logging area in compartment 27, and significant parts of 28, 30, and 31 identified as Moderate-High Conserve Priorities and most of logging area in compartment 27, and patches of 28, 30, and 31 are identified as Moderate-Very High Repair Priorities. Yet there is no mention or consideration of the BRRBM Plan in the Harvesting Plan.

NEFA undertook a brief assessment of compartments 36, 42 and 43 of Donaldson State Forest on 11 May 2014, when being roaded for logging. NEFA identified the presence of Koalas and a variety of breaches, with most concern focussed on the likelihood of the spread of lantana and dieback (BMAD) through the logging area, particularly as there is chronic dieback at lower elevations and small pockets are already present within the logging area.

In the BRRBM Plan the whole of the Donaldson State Forest logging area in compartments 36, 42 and 43 is identified as Moderate-Very High Conserve Priorities, with most of compartment 36 identified as a High Repair Priorities, and patches of in 42 and 43 identified as Moderate-Very High Repair Priorities. Yet there is no mention or consideration of the BRRBM Plan in the Harvesting Plan. Due to NEFA's intervention logging was stopped.



EPA (2016) mapping of areas subject to >50% canopy removal in Cherry Tree State Forest. Note the extensive intensive logging in the recovery plan's Conserve and Repair Priority Areas.

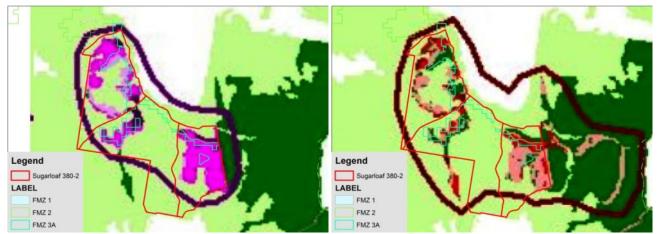


Cherry Tree SF compartments 359, 360 and 361, and informal reserves overlaid on excerpts from BRRBM Plan, LEFT is Conserve Priorities with light pink being Moderate-High and dark pink High, RIGHT: Repair Priorities with light red being Moderate-High and dark red High.

Logging of compartments 359, 360 & 361 of Cherry Tree State Forest began in January 2015 and was completed in September 2015. NEFA repeatedly raised concerns as logging was underway, though the breaches continued. Some 4.5ha of the NSW Endangered Ecological Community Lowland Rainforest and up to 90ha the Endangered Ecological Community Grey Box-Grey Gum Wet Sclerophyll Forest was subjected to roading and logging, mostly within both Conserve and Repair Priority areas, yet the EPA refused to do anything about the illegal logging, which left the EECs severely degraded. NEFA identified numerous breaches of the recovery plan (see above), concluding:

The logging operations have been undertaken within identified "Conserve" and "Repair" priority areas in a manner that contravenes the objectives and aims of "The Border Ranges Rainforest Biodiversity Management Plan", which is the formal national recovery plan covering the area (contravenes Environment Protection and Biodiversity Conservation Act 1999).

As identified above, the EPA considered this recovery plan was "*Not Applicable*" to logging being undertaken within its ambit because operations were covered by an IFOA. NEFA raised the issue again in our <u>Sugarloaf Audit</u>, and while the EPA are yet to respond they obviously haven't changed their position that recovery plans are irrelevant.



Compartments and informal reserves in Compartments 380-2 Sugarloaf State Forest overlaid on excerpts from BRRBM Plan, LEFT is Conserve Priorities with light pink being Moderate-High and dark pink High, RIGHT: Repair Priorities with light red being Moderate-High and dark red High.

The Forestry Corporation began logging compartments 380, 381 and 382 of Sugarloaf State Forest in 2016, NEFA undertook an audit in November 2016 just as logging was suspended. Compartments 380 and part 381 were logged. Most of the logging area in compartment 380 is high Conserve and Repair Priorities. NEFA identified:

The area investigated is within an area mapped as a Conserve Priority and Repair Priority precinct under the State/Commonwealth multi-species recovery plan Border Ranges Rainforest Biodiversity Management Plan though this has been ignored in the planning for these logging operations, along with requirements relating to buffering rainforest, protecting hollow-bearing and recruitment trees, and identifying and rehabilitating areas affected by lantana invasion and Bell Miner Associated Dieback.

In 2017 the Forestry Corporation started logging of compartments 58, 59 and 60 of Donaldson State Forest, which had a record of the nationally Endangered Eastern Bristlebird (Dasyornis brachypterus). The Forestry Corporation, in consultation with the EPA, prepared an Eastern Bristlebird Species Management Plan for the operation which did not even consider the BRRBM Plan. Most of logging area in compartments 58, 59 and 60 is identified in the BRRBM Plan as Moderate-High Conserve Priorities and Repair Priorities yet there is no mention or consideration of the BRRBM Plan in the Harvesting Plan. The local Githabul traditional owners intervened in 2016 to stop logging.

Proposed Coastal IFOA

The new Coastal IFOA does not require consideration of, or compliance with, this Recovery Plan.

The new IFOA only mentions recovery plans in one place, where it requires "incorporate actions specified in approved recovery plans, action statements and Saving our Species plans published by the Office of Environment and Heritage or equivalent" when the Forestry Corporation are preparing "species management plans". The only Federally threatened species identified as requiring

Species Management Plans in north-east NSW are the Eastern Bristle Bird and the plants Euphrasia arguta, Native Jute (Corchorus cunninghamii), and Milky Silkpod (Parsonsia dorrigoensis).

The Eastern Bristle Bird and Native Jute occur within the Border Ranges, though these alone will not require compliance with the BRRBM Plan for the vast majority of logging operations on public and private lands.

MAMMALS

Spotted-tailed Quoll

The Spotted-tailed Quoll (*Dasyurus maculatus*) is listed as 'Endangered' under the EPBC Act. There is a 2004 *Commonwealth Listing Advice on* Dasyurus maculatus maculatus and a 2016 <u>National</u> Recovery Plan for the Spotted-tailed Quoll *Dasyurus maculatus*.

The 2016 National Recovery Plan for the Spotted-tailed Quoll *Dasyurus maculatus* (DELWP 2016) identifies logging as a particular threat to the Spotted-tailed Quoll stating:

Timber harvesting occurs through a considerable proportion of the range of the Spottedtailed Quoll (Mansergh 1984: Jones & Rose 1996) and has been implicated in localised population declines and extinctions (Mansergh 1984). However, a number of apparently healthy quoll populations continue to exist in some commercially (selectively) logged forests (Belcher 2000; A. Glen pers. comm.), indicating that the species exhibits a level of tolerance to some habitat disturbance. The northern subspecies still occupies areas that have undergone past intensive selective logging, but does not occur is areas subjected to extensive clearing and settlement (Burnett 1993). In southern NSW and eastern Victoria. Spotted-tailed Quolls were found to avoid forest patches 0-5 years after selective logging (40-60% canopy cover retained). However, selectively logged forest that, after 16-20 years, had a regenerated shrub layer and an abundance of defective saw logs to act as potential den sites, was preferentially used relative to its availability (Belcher 2000; Belcher & Darrant 2006b). Conversely, there is some indication that even-aged regrowth forests do not support quall populations for 20-50 years after clear-fell logging (Belcher 2004). It is suggested that forestry practices (including controlled burns) that remove or reduce prey or critical habitat elements such as trees with hollows, hollow logs, a complex vegetation structure, >50% canopy cover and rock or burrow den sites, may render the habitat unsuitable, at least temporarily (Watt 1993; Belcher 2000; Glen & Dickman 2006a). In areas where rock den sites are not abundant, hollow logs and tree hollows are the preferred den sites. Given the very long time periods required to form hollows in trees and logs, intensive forestry practices could have a major impact on the availability of den sites, especially where logging is followed by burning (Andrew 2005). These practices may be particularly detrimental to a population if they coincide with the breeding season (Watt 1993). In Tasmania, only male Spotted-tailed Quolls and several non-breeding females were located in recently logged forest (C. Hawkins pers. comm.), highlighting the need to ensure that silvicultural systems are managed to maintain sufficient habitat to sustain breeding populations. A spatially explicit Population Viability Analysis modelling exercise predicted major population declines and a risk of extinction for Spotted-tailed Quolls in north-east Tasmania based on a range of projected logging regimes and the conversion of forest to plantation (M. Jones pers. comm.). This further highlights the need for adequate habitat reservation and management. Many of the arboreal mammalian prey of quolls are reliant on tree hollows for shelter and breeding and hence the abundance of these prev will be influenced by forestry practices (Gibbons & Lindenmayer 2002). Logging and fire events will also alter the abundance of some other potential prey species (Fox & McKay 1981; Lunney et al. 1987; Thompson et al. 1989).

The Recovery Plan identifies **Specific Objectives** "as necessary to guide the recovery of the Spotted-tailed Quoll", including:

Objective 1. Determine the distribution and status of Spotted-tailed Quoll populations throughout the range, and identify key threats and implement threat abatement management actions

<u>Action 1.2</u> Undertake field surveys and mapping in areas where the distribution and status of populations are poorly known. (High Priority)

<u>Action 1.3</u> Develop and implement a program to monitor Spotted-tailed Quoll population status, determine factors influencing habitat quality, identify threats and implement management actions at representative sites throughout the species' range.

Objective 4. Evaluate and manage the risk posed by silvicultural practices.

<u>Action 4.1</u> Develop guidelines on minimum habitat requirements that can be used to direct the formation of habitat retention prescriptions or other requirements in commercially harvested forests.

Performance criterion: Habitat retention guidelines produced.

<u>Action 4.2</u> Implement monitoring programs to evaluate the effectiveness of current habitat retention prescriptions at providing habitat for viable populations of Spotted-tailed Quolls in commercially harvested forests.

Performance criterion: Habitat to support viable populations of Spotted-tailed Quolls retained in commercially harvested forests.

<u>Action 4.3</u> Determine disturbance thresholds of female Spotted-tailed Quolls to refine habitat retention prescriptions or other requirements in harvested areas.

Performance criterion: Habitat retention prescriptions or other requirements refined through increased understanding of the impact of silvicultural systems on female Spotted-tailed Quolls.

Spotted-tailed quolls are known to have large home ranges (100-600ha), and have a high reliance for food on species (such as Greater Glider) dependent on large hollow-bearing trees and to utilise large hollow logs for refuge and dens. They are thus vulnerable to logging where it causes a depletion of large hollow-bearing trees and large logs, both in the short and long term.

Current Threatened Species Licence

The existing Threatened Species Licence 5.2.1 General Requirements requires searches by an adequately trained person for scats and "Latrine and den sites of the Spotted-tailed Quoll". The section '8.7.2 Field Methodology' identifies the need for "four person hours per 200 hectares of net survey area" for a range of features, including quoll scats and dens.

The existing Threatened Species licence (6.15) requirement for Spotted-tailed Quoll is:

- a) An exclusion zone of at least 12 hectares must be implemented around Spotted-tailed Quoll maternal den sites. This exclusion zone must be linked to protection zones implemented in condition 5.7.
- b) An exclusion zone of at least 3.5 hectares must be implemented around Spotted-tailed Quoll permanent den sites. This exclusion zone must be linked to protection zones implemented in condition 5.7.

While this prescription has been applied for over 20 years there does not appear to have been any attempt to assess the effectiveness of the surveys in locating *latrine and den sites* or the effectiveness of the prescription in mitigating impacts where it is applied. None of the Recovery Plan actions under 1.3 or Objective 4 'Evaluate and manage the risk posed by silvicultural *practices'* can be considered to have been complied with.

Private Native Forestry

The Private Native Forestry Code of Practice for Northern NSW requires:

Where there is a record of a spotted-tailed quoll den site, maternal den or latrine site within the area of forest operations, the following must apply:

(a) An exclusion zone with a 200-metre radius (about 12.5 hectares), centred on the location of the record, must be implemented around a spotted-tailed quoll maternal den site or latrine site. This exclusion area must be linked to riparian exclusion zones or riparian buffer zones where practicable.

- (b) An exclusion zone with a 100-metre radius (about 3.5 hectares), centred on the location of the record, must be implemented around spotted-tailed quoll permanent den sites. This exclusion zone must be linked to riparian exclusion zones or riparian buffer zones where practicable.
- (c) Areas of riparian exclusion and protection zone must not be counted towards exclusion zones for the spotted-tailed quoll.

This prescription will be of little benefit to the vast majority of Spotted-tailed Quolls as there is no requirement to look for them before logging, leaving most quolls with no protection in reality.

Proposed Coastal IFOA

The new Coastal IFOA's proposed requirements for Spotted-tailed Quoll are to establish an exclusion zone that is 12 hectares or greater around maternal den sites and latrine sites, and 3.5 hectares or greater around permanent dens.

Spotted-tailed Quoll dens (including maternal dens) and latrine sites are required to be searched for during 'broad area habitat searches' at least 100 metres in advance of the forestry operation. It is required to be undertaken by a suitably qualified person at a rate of one kilometre per hour covering 50 metres per hectare. This equates to 20 hectares per hour, though if it is assumed that scats are only visible within 3m of the 50m transect then only around 3% of any hectare is searched. The problem is that the short search distance makes it unlikely that exclusion areas will be ideally situated around features.

Spotted-tailed Quoll *exclusion zones* (established around Maternal Dens, Latrines and Permanent Dens) are identified as a 'Category 2 Environmentally Significant Area'.

It is apparent that the proposed increases in logging intensity, reduced protection for hollow-bearing trees and removal of protection for recruitment trees, are likely to have a significant effect on Spotted-tailed Quolls and their prey.

The failure to undertake a rigorous monitoring program to assess the effectiveness of current logging prescriptions, and proposed changes to them, on Spotted-tailed Quolls is in contravention of the Recovery Plan objectives and actions 1.3. 4.2 and 4.3. There needs to be the development of guidelines on minimum habitat requirements in an independent (of Forestry Corporation) scientific process in accordance with Action 4.1. and trials undertaken to quantify the effectiveness of any proposed prescriptions before they are widely applied.

KOala (combined populations of Queensland, New South Wales and the Australian Capital Territory)

The Koala (Phascolarctos cinereus) (combined populations of Queensland, New South Wales and the Australian Capital Territory) is listed as 'Vulnerable' under the EPBC Act. There is no nationally adopted Recovery Plan, with one meant to be developed and "to commence following the expiration of the National Koala Conservation and Management Strategy in 2014". There is a 2012 'Approved Conservation Advice for Phascolarctos cinereus (combined populations in Queensland, New South Wales and the Australian Capital Territory)'. There is also a 2008 NSW Recovery Plan for the Koala.

The Conservation and Management Strategy identifies:

Loss of habitat is the major threat to the koala in Queensland and New South Wales, and is the primary factor responsible for declining populations in those states....

Under the strategy it is a high priority to identify important habitat areas and protect them from clearing, through planning and legislative tools and other measures such as

covenanting. ... It is important to consider that there is a significant lag-time before successfully replanted habitat can support koalas.

Degradation of habitat can result from: some logging regimes; thinning of timber during property development; destruction of undergrowth and mid-storey shelter trees; and other disturbances, such as regular burning, excessive nutrient input or the introduction of weeds. Degraded habitats are capable of supporting fewer koalas than undisturbed habitats.

The Conservation and Management Strategy identifies as actions:

Action 1.02 Assess, develop and implement options for protecting priority Koala habitat on public lands using legislation, covenants or agreements, or by new acquisition of koala habitat

Action 1.03 Assess, develop and implement options for protecting koala habitat on private lands.

- •Develop incentive-based mechanisms for koala conservation on private lands.
- Implement incentive-based mechanisms for koala conservation on private lands.
- •Establish covenants over koala habitat via cooperation with local government, community and business.
- Action 1.04 Prioritise conservation of populations under immediate pressure.

 •Workshop of experts to identify where existing koala populations are already experiencing significant loss of habitat and to identify immediate and short-term actions to secure their status.
- Action 1.06 Develop standard monitoring/habitat assessment protocols.

 There is some inconsistency and disagreement over how koala populations should be surveyed and mapped.

•Develop consistent protocols that enable population numbers or density to be compared between the same place at different times and between different habitats.

Action 1.08 Establish or continue surveying and monitoring programs.

Monitoring fulfils two important functions: evaluating population status so that the relative need for management can be assessed; and evaluating population trends so that the efficacy of management actions can be assessed. The scale at which these are undertaken must be appropriate to the scale of management....

In relation to 'Habitat Loss, Disturbance and Modification' the Conservation Advice includes:

- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.
- Identify populations of high conservation priority.
- Investigate formal conservation arrangements, management agreements and covenants on private land, and for Crown and private land investigate and/or secure inclusion in reserve tenure if possible.
- Manage any other known, potential or emerging threats such a Bell Miner Associated Dieback or Eucalyptus rust.

The 2008 NSW Recovery plan for the koala (Phascolarctos cinereus) identifies:

Smith and Andrews (1997) found that koala activity was greater in structurally diverse forest with the majority of trees 50–80 cm diameter at breast height (dbh). White (1999) found that koalas preferentially utilise trees between 25.5–80 cm dbh, with under-utilisation of trees less than 25.5 cm dbh. Lunney et al. (2000a) found that the koalas in the Coffs Harbour area favoured trees of 50–60 cm dbh and greater than 120 cm dbh. Some groundcover vegetation and other features such as hollow logs, are also useful to provide shelter while on the ground and refuge in extreme weather conditions, particularly in western KMAs (R. Kavanagh, State Forests NSW, pers. comm.).

In the Comprehensive Regional Assessment, undertaken jointly between the Commonwealth and NSW Governments in north-east NSW, a significant threat to Koalas was identified (Environment Australia 1999) as "Logging that fails to retain stems in the 30-80 DBH size class".

The NSW Recovery Plan includes as objectives and actions:

Objective 1: Conserve koalas in their existing habitat

Specific objective 1a: Identify and conserve habitat important for koala conservation Action 1.13

DECC will work with councils to assist in the preparation of Comprehensive Koala Plans of Management under SEPP 44.

Performance criterion 1.13

Number of Koala Recovery Plans completed.

Action 1.15

Consideration will be given to having a single definition of koala habitat, instead of 'core' and 'potential' habitat and to expanding the list of koala food trees.

Performance criterion 1.15

Tree species list amended for SEPP 44 and the definition of 'koala habitat' determined and disseminated.

Action 1.19

DECC, together with DoP, will work with councils and catchment management authorities to assist them in developing koala habitat protection measures for incorporation in relevant local environmental plans (LEPs), and regional natural resource and vegetation management plans.

Performance criterion 1.19

DECC initiated discussions with relevant CMAs and councils regarding adequate incorporation of protection measures for koalas into regional natural resource and vegetation management plans, including catchment action plans and LEPs where relevant.

Action 1.20

DECC will approach DoP to jointly develop and provide specific advice to local government about the incorporation of koala protection into their new LEPs, currently under development.

Performance criterion 1.20

DECC initiated discussions with DoP regarding adequate incorporation of koala protection into LEPs. Advice to local governments re incorporating koala protection measures into revised LEPs developed jointly by DECC and DoP.

Action 1.24

DECC will approach Forests NSW (DPI) to collaborate in developing policy and practice consistent with the NSW Koala Recovery Plan; exchange information, given that koalas move across tenure boundaries; and work within the context of agreed regional forest agreements.

Performance criterion 1.24

DECC initiated discussions with DPI on the basis of this recovery plan. An agreed policy produced for exchanging information between DECC and DPI, working across boundaries and contributing to a plan that covers a landscape cross-tenure.

Specific objective 1c: Integrate koala habitat conservation into local and state government planning processes

Objective 3: Develop a better understanding of the conservation biology of koalas Action 3.6

Investigate the relative importance of different threats to koalas, how to ameliorate them and the effectiveness of mitigation measures.

Performance criterion 3.6

Research/study undertaken assessing the threats to koalas and their relative importance, the ameliorative measures for these threats and their effectiveness. Results disseminated/published in standard scientific arenas.

Regrettably both the Conservation and Management Strategy and NSW Recovery Plan have effectively expired and neither the NSW nor Commonwealth Governments have replaced them with contemporary plans. Never-the-less the relevant key requirements from both approaches can be considered to be:

- identify and protect important habitat areas (Conservation Strategy; Actions 1.02, 1.03, 1.04, 'Habitat Loss, Disturbance and Modification' actions, Recovery Plan; Objective 1)
- identify improved and standardised survey methods (Conservation Strategy; Action 1.06
- monitor and review the effectiveness of mitigation measures (Conservation Strategy; Action 1.08. 'Habitat Loss, Disturbance and Modification' actions Recovery Plan Objective 3, Action 3.6)

Current Threatened Species Licence

In 1995 State Forests proposed their own "Management Prescriptions for Logging in Coastal Forest Types: Koala (Phascolarctos cinereus)". Basically State Forests' proposed conditions were adopted with little change by the NPWS as a Threatened Species Licence condition issued as an outcome of the Interim Assessment Process in 1997 (see TSL Prescription 25a. Koala Prescription for North Coast Forest Types pp. 135-139), with removal of the intent to protect Koala High Use Areas in perpetuity.

When these requirements were transferred into the current Threatened Species Licence in 1999 there were significant changes. The need to undertake pre-logging surveys to identify high use areas was removed and replaced with surveys at the time of logging, the need to search for scats within 2m of a tree was reduced to 1m, the recognition of any area where any 2 out of 10 consecutive trees search was identified as a high use area was changed to require a trigger tree (ie sighting, >20 scats, mother and baby) and 3 out of 10 trees consecutively searched with scats, the need to exclude logging from within 50m of high use areas was reduced to 20m, the need to protect individual trees with >20 scats was removed, and the need to protect ten primary browse trees (or secondary browse species if primary are unavailable) per hectare in intermediate use areas was reduced to 5 per hectare. It is important to recognise that the new prescriptions were negotiated prior to reserve outcomes being identified, so no account of reservation adequacy was involved.

Significantly the clause relating to monitoring (TSL p139) was removed: *Monitoring:*

Koala monitoring will be conducted as part of the general monitoring procedures planned by SFNSW. Compartment monitoring may be advantageous to Districts for future planning in areas that have positive Koala records and prior management.

At the initial stage the state wide monitoring of Koala populations will require a comprehensive compilation of the location and extent of high use areas. The monitoring program will be designed to give information on the effectiveness of these prescriptions in meeting their objectives.

The survey methodology for detecting Koalas and determining high use areas (contained in these prescriptions) may be reviewed in the light of findings from the monitoring program.

For the past 19 years the Forestry Corporation have been required by their current Threatened Species Licence to undertake standardised pre-logging surveys utilising spotlighting, call playback and walked transects. In addition to this they have been required to undertake Koala Mark-up Searches in accordance with TSL 5.2.2 where they thoroughly search for Koala scats (faecal pellets) ahead of logging.

Compliance of NE NSW Forestry with Commonwealth Threatened Species Requirements

If, during pre-logging Koala surveys, the Forestry Corporation identify a Koala High Use tree (with 20+ scats, or scats from a mother and baby) they are required to undertake a systematic scat survey in the vicinity. If they find at least three consecutive trees within 100 metres along a transect line with Koala scats under them it is identified as a Koala High Use Area and must have a 20m logging exclusion zone implemented around it. Theoretically the search area is required to be expanded as more scats are found, though this rarely occurs. The Koala High Use Area is only protected for the duration of the logging operation, and they are often logged the next time.

A compartment with an identified Koala High Use Area or "where Koala scats have been detected under two of any ten consecutive trees searched" is designated as a Koala intermediate use area where "per two hectares of net logging area ten primary browse trees must be retained where available". There is no size limit on trees or requirements to retain secondary feed trees where primary feed trees are unavailable.

The identification and protection of Koala High Use Areas, and to a lesser extent the identification of Koala intermediate use areas, are key requirements to comply with the Commonwealth's National Koala Conservation and Management Strategy and the NSW Recovery Plan requirements to identify and protect important habitat areas.

Since the first Threatened Species Licence was introduced in 1997 there has been a ongoing refusal on behalf of the Forestry Corporation to thoroughly search for Koala scats. This went on for 15 years while the EPA (and their predecessors) turned a blind eye, until NEFA exposed the failure to search for Koala scats and the logging of Koala High Use areas at Royal Camp State Forest in 2012.

In July 2012 the Forestry Corporation maintained that they had undertaken the required Markup Survey (TSL 5.1., 5.2.1.) and Koala Markup Search (TSL 5.2.2) in Compartment 15 of Royal Camp State Forest and commenced logging. It was identified as an "intermediate use" area, and a Koala High Use Area had been identified in Compartment 14 the previous year (before a control burn got out of control and burned any evidence of Koala scats elsewhere in the logging area).

On NEFA's (<u>Pugh 2012</u>) initial audit of logging between 4th and 5th August 2012, not one Koala feed tree was found to be marked specifically for retention within Compartment 15, and in most areas the marked hollow-bearing and recruitment trees (which can double as Koala feed trees) were far too few and of the wrong species to satisfy this requirement. Marked trees were primarily in the vicinity of tracks and the boundary of exclusion areas, indicating that Mark-up Surveys had not been conducted throughout the logging area. Forests NSW had apparently made no effort to comply with the requirement to mark 10 primary browse trees per 2 ha.

NEFA (<u>Pugh 2012</u>) found abundant evidence of Koala use of feed trees in Compartment 15, such as distinctive scratch marks on the trunks of numerous trees, Koala faecal scats under many trees, and a sighting of a Koala when spotlighting. In our brief inspection NEFA located 4 areas that met the criteria for Koala High Use Areas. One area near log dump 20 was in the process of being logged, another near log dump 19 had been marked up for logging which was about to commence, and the two others near log dump 25 were proposed for logging in the near future. The area being logged had logging extending into it on three sides, and almost the entire area was within 300m of log dump 20 and within 100m of active logging.

NEFA (Pugh 2012) also found significant scat evidence of Koalas, including some that appeared to be from a mother and baby, in the small part of compartment 16 inspected, identifying that this indicated further Koala high use areas. Subsequent checks by both the EPA and Forestry Corporation confirmed the presence of Koala High Use Areas in all the localities we had identified.

Compliance of NE NSW Forestry with Commonwealth Threatened Species Requirements

After our complaint, and while the EPA audit was supposedly underway, the Forestry Corporation burnt off substantial parts of the logged area of Compartment 15, thereby destroying the evidence of any remaining Koala scats in those areas and any further evidence of Licence breaches.

In total, with a follow-up assessment on 9th August, we located 23 trees with >20 scats beneath them within the Koala High Use Area being logged, including three with large and small scats indicating the presence of at least one mother and young, and 22 additional trees with 1-19 Koala scats beneath them. The range of ages of scats showed long-term usage until very recently. While the Forestry Corporation had identified no Koala high use trees on our first visit, by the 9 August they had marked at least 7 high use trees with >20 scats. Given that many of the scats were clearly visible on the surface it beggars belief that anybody could have even undertaken a cursory look and not seen any.

Logging resumed in compartment 16 on 9 August. On the 19 August NEFA inspected the eastern part of compartment 16, and located Koala scats under 20 trees, with three of these reduced to stumps in recent logging. More than 20 Koala scats were found under four trees and more than 50 under another. NEFA identified a Koala High Use Area that had been logged. Searching was limited by logging debris and ground disturbances. We thoroughly searched over 100 potential Koala feed trees and stumps for Koala faecal scats and saw no evidence that anyone else had previously searched in the long grass, leaves and bark around the bases of these trees before us (even trees marked as Koala (K) feed trees hadn't been searched). In the older logged area no Koala feed trees had been marked, though many Koala feed trees were marked in recently logged areas. Despite our findings logging continued.

On 23 September NEFA undertook an audit to the north-east of log dump 5 in compartment 16. Logging had been undertaken subsequent to our August 20 Audit Report. We searched a total of 103 preferred Koala feed trees (Grey Gums and Grey Box) for Koala scats. Scats were found under 16 trees, with two of these having >20 scats beneath them. The two high use trees had not apparently been identified before and had clearly not been subject to star searches. Our subsequent searches in this area revealed another Koala High Use Area that had logging undertaken around and within it. Of the 103 potential Koala feed trees we searched for scats only 7 had been obviously searched before.

The EPA found that 61 trees had been logged and 405m of snig tracks constructed in the koala high use exclusion zone that should have been imposed near log dump 20. In compartment 16 the EPA concluded that 7 trees were logged and 230m of snig tracks constructed within another Koala High Use Area near log dump 7, which had occurred after logging had resumed on 9 August. The EPA (2014, NSW EPA submission: Inquiry into the performance of the NSW Environment Protection Authority General Purpose Standing Committee No. 5) later identified the problem as

The EPA identified the root cause of the breaches of the licence as the Forestry Corporation's failure to undertake searches for evidence of koala in compliance with the licence. The EPA considered that if searches are inadequate or not undertaken at all, the default protection provisions in the licence become ineffective. That is, if you don't look, you don't find and if you don't find, you don't protect.

Regional Forester Craig Busby (28/8/12, see Pugh 2014) told the EPA "There are some grey areas in the licence about thoroughly doing the search. It is about what thoroughly means - our searches look under trees it doesn't say to get on your hands and knees and scrape the surface - it just says thoroughly". Craig Busby's email to CEO Nick Roberts of 7 November 2012 stated (Pugh 2014):

We are still in dispute with EPA over the interpretation of "thoroughness" of searching and techniques used and are standing our ground based upon the fact that we have not changed our techniques since the introduction of the TSL.

In February 2013 the foresters responsible for the scat-searches and marking-up in Royal Camp told the EPA that they hadn't changed the way they searched for Koala scats and would not (<u>Pugh 2014</u>).

In April 2013 Regional Forester, Craig Busby, told the EPA that they had done the required prelogging surveys and not done anything wrong, stating (Pugh 2014):

FCNSW marked up at least 300m in advance of harvesting operations right across the subject harvesting area ...Marking (including koala mark-up searches) in the vicinity of dump 20 took place around 16-18 July ...

... no triggers for star searches were found at the time of pre-harvest mark-up around log dump 20. ... The techniques for pre-harvest koala mark-up searches has been audited by the EPA many times since the introduction of the TSL. The EPA's current interpretation of the relevant TSL condition is inconsistent with historical practices.

... no features indicating a koala high use area were located in the vicinity of dump 20. ... Therefore FCNSW did not knowingly harvest within a high use area nor the associated 20m exclusion zone.

Despite the Forestry Corporation displaying no remorse or contrition, on 28 June 2013 the EPA issued FCNSW three penalty notices (with fines of \$300 each) for contravening a threatened species licence (TSL), including:

- undertaking specified forestry activities (timber harvesting) in koala high use areas -TSL 6.14(c)(i)
- undertaking specified forestry activities (timber harvesting) in koala high use exclusion zones - TSL 5.1(a)(i)
- failing to conduct a thorough search for, record and appropriately mark koala high use and intermediate use areas – TSL 5.2.1(a)(b)

The EPA informing the Forestry Corporation (Pugh 2014):

3. The EPA investigation identified significant breaches in contravention to the TSL. Specifically, EPA officers identified that:

Specified forestry activities including the felling of 61 trees in a koala high use exclusion zone and the construction and operation of snig track, an approximate length of 405m in a koala high use exclusion zone east of log dump 20, in compartment 15; and Specified forestry activities including the construction and operation of snig tracks that crossed koala high use areas east of log dump 20, in compartment 15. FCNSW staff member responsible for the compartment mark up and koala searches did not conduct koala searches in certain areas in the compartment including part of the area that was subject to specified forestry activities in a koala high use area, east of log dump 20, in compartment 15.

The penalties were taken to be inconsequential by the Forestry Corporation and they continued to deny any wrongdoing or display any contrition. On 12 July 2013 ABC North Coast reported:

But regional manager Craig Busby says the breaches were administrative, and akin to staying too long in a parking lot.

He says they involved the identification of koala droppings beneath trees.

"The environmental interest groups were excavating koala scats, so it's an indication that they were there historically," Mr Busby said.

"We know they were there historically, but largely we look for fresher scats on the surface and that's where the discrepancy is.

"So we're working with the EPA to work out what the true definition of a koala high-use area is and we'll continue to do that.

"I can understand that there's a perception in the community that (\$300) would be a light sort of fine.

"The reality is that the fines reflect the environmental outcome.

"Look in terms of the fines, they're administrative, they're like staying in a parking lot for a little bit too long, but the reality is there has been no environmental harm to koalas in that area."

While referring to Private Native Forestry, the comment by Prest (2003) is equally relevant to the Forestry Corporation:

Breaches of environmental law in the rural context are often perceived as minor or technical breaches. They are seen as neither criminal in nature nor morally reprehensible. Landholders may view environmental impacts as minor, unproven or as an unintended byproduct of economically beneficial activities. In such a context, it is inherently difficult to secure high levels of voluntary compliance, particularly where that compliance would come at an economic cost to the landholder.

At Royal Camp the Forestry Corporation had been logging for months in what was undoubtedly core Koala habitat before we stopped them. They were actively logging a Koala High Use Area, and about to log another 3 that we identified at the time. Over the preceding months there had been widespread removal of Koala feed trees, most likely within a number of Koala High Use Areas (the Forestry Corporation identified one such area to the EPA but they refused to inspect it (Pugh 2014)). The Forestry Corporation went on to log another 2 Koala High Use Areas (one of which the EPA refused to investigate). The reaction of the EPA was to treat this as a minor offence, with the only reaction amounting to a total of \$900 in fines for a single Koala HUA. All other offences (Yellow-bellied Glider, habitat trees, stream crossings etc.) were forgiven, with many of our complaints (including ones shown to the EPA) not even investigated. With such lax enforcement it is no wonder that the Forestry Corporation considered the offences inconsequential, and went on to repeat them.

In 2013 NEFA became alarmed that the Forestry Corporation was proposing to commence logging in Compartment 13 of Royal Camp SF. The Forestry Corporation's draft Harvesting Plan identified "nil" Koalas. On 4 July 2013 NEFA inspected the area because of our concern that they may again log Koala High Use Areas. On one day we located 34 trees with Koala scats about their bases. Of these trees, 11 were found to be Koala high use trees on the basis that 10 had >20 Koala scats about their bases and another because it had scats of two different sizes, indicating the presence of a mother and joey. Two Koala High Use Areas were identified.

Based on his inspections of Royal Camp State Forest for NEFA, wildlife expert David Milledge (Pugh 2014) concluded: "The level of Koala activity revealed by these searches is amongst the highest I have recorded in my experience of over 20 years conducting Koala scat surveys in coastal and escarpment forests in north-eastern NSW. This highlights the significance of Royal Camp State Forest in supporting a dense local Koala population and possibly one of the most important on public land in the region".

A subsequent inspection by the EPA (Aboud 24 July 2013) of the two Koala High Use Areas found in July in compartment 13 by NEFA confirmed their presence and located abundant additional high use tree locations. Leading the EPA to conclude:

Based upon these findings and recent findings made from investigations undertaken in compartments 14, 15 and 16 of Royal Camp State Forest, the EPA considers these areas contain koala habitat and play an important role to Koala populations in the region. The EPA consider compartment 13 to have areas that indicate koala high use that is ongoing and contemporary.

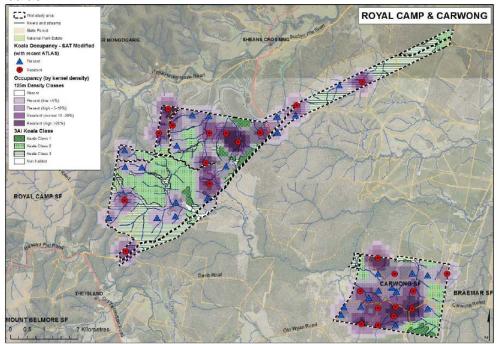
The then Minister for the Environment requested the EPA to determine the regional significance of the koala population, with the subsequent June 2014 report by Dr. Steve Phillips for the EPA finding

a resident koala population within Royal Camp that "should be considered important at all levels of assessment" due to the koala populations of the encompassing Richmond Valley LGA being found to be "endangered on the basis of international, national and state-based conservation criteria".

In August 2014 the Forestry Corporation engaged Jim Shields to search for Koalas using a sniffer dog, they detected 14 Koalas at a mean density of 0.36/ha in 11 hours of searching.

Based on Koala records, in November 2014 NEFA proposed the creation of the 2,100 ha Sandy Creek National Park, comprised of two parts, including part of Royal Camp State Forest (compartments 13-16, 1,500ha) and the whole of Carwong State Forest (600ha).

The EPA (2016) study of 4 key areas of State forests known to once have had good Koala populations again verified that Royal Camp and Carwong State Forests have significant populations of resident Koalas:



Records and potential Koala habitat (based on Plant Community Type) identified by EPA (2016) for Sandy Creek National Park proposal.

The activity results and Phillips' (2013) report both indicate that Royal Camp and Carwong state forests support extensive areas of koala occupancy and habitat utilisation, and that in compartment 13, at least 50% of the habitat is utilised and conforms to optimal utilisation of secondary habitat by a low density population. The project found that 80% of Carwong and 58% of Royal Camp State Forest is utilised, which supports Phillips' (2013) results. On this basis it can be concluded that habitat in Royal Camp and Carwong is source habitat, where reproduction exceeds mortality on average over time. (p84)

It is clear to NEFA that Royal Camp and Carwong State Forests qualify as important Koala habitat in accordance with the Commonwealth's Conservation Strategy (Actions 1.02, 1.03, 1.04, 'Habitat Loss, Disturbance and Modification' actions) and NSW's Recovery Plan (Objective 1). Though it is clear that the Government's proposed changes to the IFOA will mean that these forests will no longer meet the criteria for protection (i.e. they are only modelled as high quality habitat in one model, rather than the 2 required) and will thus be opened up for logging.

For a brief period after Royal Camp the EPA attempted to make the Forestry Corporation undertake thorough scat searches, though quickly succumbed to Forestry Corporation pressure and abandoned any meaningful attempts to enforce compliance.

As a result of our Royal Camp complaints Koalas were made a compliance priority by the EPA. The EPA (2014b) told the General Purpose Standing Committee No. 5 'Inquiry into the performance of the NSW Environment Protection Authority':

What else is being done to protect koala habitat on public land?

The EPA released the Crown Forestry Compliance Strategy on 1 July 2013. The strategy provides a comprehensive and transparent framework for the regulation of native forestry on public land, including the setting of annual Crown forestry compliance priorities by the EPA. These priorities are based on available data and intelligence, recent compliance findings and a recognition of issues important to the community. The identification and protection of koala habitat is a key compliance priority.

Koalas are identified as one of the EPA's Cross-tenure environmental compliance priorities for 2014–15 and 2015-16. For "Protecting koalas and their habitat" the action proposed was "Assess compliance with Integrated Forestry Operations Approval (IFOA) and PNF Code requirements relating to protecting koalas and their habitat", with the purpose being "Assess compliance and raise awareness of regulatory requirements around Koala protection", and the output "Publish compliance summary on EPA website".

As a consequence of Royal Camp the EPA began to audit Koala scat searches in the Lower North East, identifying that the Forestry Corporation had not undertaken thorough searches for Koala scats ahead of logging in Wang Wauk State Forest (from an assessment of just 12 trees) and Bulahdelah State Forest (from an assessment of just 9 trees). The response to the EPA's draft findings the Forestry Corporation (2013) admitted inadequate mark-up but refused to accept the need to thoroughly search for Koala scats, responding:

FCNSW cannot accept the detail and method associated with the specific allegations relating to ... retained koala feed trees. The link the EPA has made between tree marking and searching is not contained in the licence. The EPA's approach to searching for koala scats is not specified in the licence. The very nature of both the koala mark-up technique and star-search technique is subjective and inevitably different results may be expected on a particular day of searching, let alone results from surveys on different days, weeks or months.

The EPA October-November 2012 final audit report of Wang Wauk State Forest Compartment 116 found that Koala scats were still not being adequately searched for, despite the presence of a Koala High Use Area. They found a tree had been logged within a marked Koala High Use Area, noting "Given the fact that high use koala activity has been discovered within the compartment it is significant importance that compartment mark up surveys are undertaken in compliance with the licence requirements to facilitate environmental features being located and accordingly protected. For example further koala high use areas", finding:

The brief assessment undertaken by the EPA including 12 trees only. All 12 trees had evidence to suggest that a 'thorough' search, as per the licence requirement had not taken place. EPA officer observations note that all 12 trees had not had their base disturbed at all, i.e. no leaf litter displaced. Please note that the majority of the EPA assessment was undertaken at the most recently active (currently active) log dump area, which would have been indicative of the likely-hood of SFO searches.

Of the 12 trees searched, 5 trees were marked as K or R (or both) trees for retention. Of the 5 marked trees, 8 and 35 koala scats were located at the base of these trees, indicating that the SFO/FNSW personnel had been to the tree, yet hadn't disturbed the surface of leaf or grassy understorey. One search of a marked "K" tree yielded 35 koala scats in a very short space of time, which is a trigger for a koala star search. EPA officer observations noted that age of these koala scats and the likelihood of these scats being deposited prior to or shortly before the commencement of operations in these areas.

The EPAs response was simply to require an action plan:

FNSW must ensure that immediate short term actions are taken to ensure that upcoming koala searches are done in a thorough manner. An long term action plan must be developed and implemented immediately to ensure that all future koala searches are done in a thorough manner for proper identification and appropriate protection of koala high use areas.

The EPA and Forestry Corporation met in January 2013 to discuss the failure to thoroughly search for Koala scats at Royal Camp, Wang Wauk and Bulahdelah State Forests, the Forestry Corporation (2013b) later submitting:

The intermediate use condition is designed to ensure suitable habitat elements (browse trees of preferred species) are retained during harvesting operations to mitigate both the immediate and longer-term impact of harvesting operations.

The high-use condition is intended to protect individual koalas and their current feed trees from the immediate impact of harvesting operations.

• • •

The mark-up survey approach was developed from the ... sampling method required in previous licences of 1km/100 ha Koala scat search transects, which included specific requirements for searching based on tree size, quality and a 1 minute minimum search thresholds undertaken during pre-harvest surveys, for two reasons:

Firstly, it was noted that as many, or more, star-searches were triggered during general mark-up survey as from the pre-harvest surveys and, secondly, by the time harvesting commenced, the location or boundaries of the high-use areas were often quite different to those established at the pre-harvest survey stage.

...

The survey methods for both mark-up surveys and star-searches are loose and not well suited to a targeted audit/enforcement approach, nor to a variable approach where search effort is scaled up in those areas with a greater likelihood of koalas being present. Different, experienced and qualified searchers can legitimately choose different trees to search under and/or different parts of the base and crown of a tree to search under and therefore will produce different results. Searches undertaken at different times under the same tree can also produce different results. Under dry conditions and/or in dry locations, scats can last for months; in wet conditions they can last days. Different understorey conditions and growth habits of different tree species/individual trees can markedly influence detectability of koala scats.

Medium term - In order to deliver an improved outcome for Koalas, at reduced cost and that is auditable and enforceable, FCNSW proposes the licence should move to a landscape approach for koalas. A new landscape prescription could better specify primary browse tree retention requirements based on current information, apply them to all compartments where primary browse species occur, rather than to just those compartments with records, and maintain a proportion of potential habitat unharvested area in each compartment. FCNSW will work towards developing and drafting a landscape prescription suitable for discussion with the EPA over the coming weeks.

In 2013 the Forestry Corporation (2013b) identified the problem with having no size limit for the retention of trees in "intermediate use" areas and proposed a "short-term" interim change to the TSL which was never implemented:

... a preference for mixed species forests with a high proportion of preferred browse trees, and trees between 30-80 cm dbh. Tree size preference has been linked to climbing efficiency, tree vigour/nutritional value or even lack of competition with Greater Gliders in areas with few large, old trees.

- - -

The intermediate-use condition, which FCNSW considers could be the most relevant and practical protection measure, has a flawed definition of 'primary browse trees', with no minimum tree size limit, quality requirements or protection requirements.

...

Short-term – in compartments in which the intermediate use prescription is triggered, FCNSW will apply a higher standard to identification and management of primary browse trees. That is, FCNSW will add to the end of the intermediate use prescription 'primary browse trees should have as many of the following characteristics as possible; >30 cm dbh, mature and have a healthy crown. Retained primary browse trees must be protected from damage to the greatest extent practicable. When locating and marking these trees, the thorough search for evidence of koala scats must include disturbance of the grass and/or leaf-litter layer, where visibility for the detection of koala scats is compromised.

While the EPA failed to implement the short term measure suggested by the Forestry Corporation (for no apparent reason) they quickly became strong advocates for the Forestry Corporation's landscape approach for koalas.

After their initial flurry with Wang Wauk and Bulahdelah State Forests the EPA don't appear to have attempted any further compliance action. We have consistently found in our audits that since then the Forestry Corporation are routinely failing to thoroughly search for Koalas elsewhere (i.e. Whian Whian, Richmond Range SF, Cherry Tree SF, Sugarloaf SF - see NEFA audits). The EPA dismiss all our complaints, often without even investigating them.

The EPA seem to have totally given up in 2015, For example a review of the 8 proactive audits undertaken by the EPA in the UNE in 2015 found the EPA didn't identify any breaches for not undertaking Koala scat searches, though they started the year documenting that across 3 operations they inspected 3.32 ha and saw no evidence of Koala scat searches, with the 21 Tallowwood assessed showing no signs of being searched. After May 2015 the EPA stopped identifying the area assessed for Koala searches and stopped identifying whether individual feed trees had evidence of searching, simply saying that they were not able to determine whether searches had been undertaken or not.

In NEFA's review <u>Clearing Koalas Away</u> (Pugh 2017) of DPI's Koala Habitat model an analysis of State Forests Biodata (from Wildlife Atlas) over the years 1997-2016, limited to high quality and very high quality habitat as mapped by DPI, reveals an average of 9.6 Koala observations, the hearing of an average of 3.6 calls and finding of 74.6 trees with Koala scats under them each year, despite requirements for extensive surveys. This is an extremely low strike rate for what is meant to be some of the best habitat left for Koalas in New South Wales.

In NEFA's review <u>Clearing Koalas Away</u> (Pugh 2017) of 22,586 ha of north-east NSW's public lands that were then currently being logged we found:

A total of 103 State Forest compartments covering 22,586 ha of public land have been identified as actively being logged as at June 2017 within the area of north east NSW covered by the Koala habitat model (Appendix 1).

A total of 4,663ha of modelled high quality (including very high quality) Koala habitat and 4,530ha of moderate quality habitat occurs within areas currently being logged (Appendix 1). The Office of Environment and Heritage's Wildlife Atlas identifies a total of 357 Koala records occurring within 34 of the compartments. The Forestry Corporation's Harvesting Plans identify that a total of 2 Koala High Use Areas totalling 1.2ha have been identified for protection and 11 compartments have been classed as Intermediate habitat which (theoretically) requires increased tree retention. The Harvesting Plans also identify that 22 compartments are (in part) being logged at a higher intensity than allowed by the Integrated Forestry Operations Approval (IFOA).

Despite the clear intent of the IFOA to limit STS to 40% basal area removal, the harvesting plans (Appendix 1) make it clear that the Forestry Intends to practice what it calls "heavy" or "regeneration" STS in parts of 22 compartments that are currently being logged. Of the 10

logging areas (Appendix 1) comprised of more than 50% high quality Koala habitat, 8 are to be subject to intensive logging, with Harvesting Plans identifying maximum intensities of 69-85% basal area removal, with AGS practiced in two. The remaining 5 areas identified for intensive logging have 17-26% of their areas comprised of high quality Koala habitat. In total 13 of the 20 areas with >17% high quality Koala habitat are being targeted for "unlawful" logging. This intensive logging is effectively clearing (see Appendix 2).

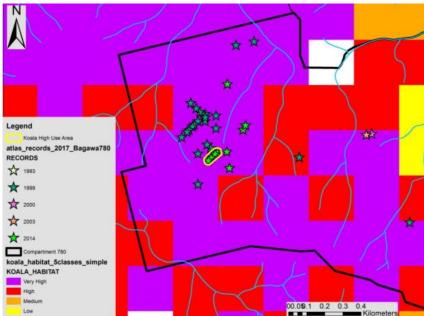
Distribution of High Quality (including very high) modelled Koala habitat across State Forest Compartments being logged as at June 2017 in North East NSW.

Area of HQ habitat in cmpt. (ha)	Number of cmpts	Total HQ habitat (ha)	Cmpts with Koala records	Identified Koala HUAs	Cmpts identified as Intermediate Habitat	Cmpts with Intensive logging
> 100 ha	17	2492	10	0.5 ha	2	11
50 - 99 ha	16	1183	7		2	5
25 - 49 ha	21	794	13	0.7 ha	4	6
1 - 24 ha	19	200	1		2	0
other	30	0	3		1	0
TOTALS	103	4669	34	1.2 ha	11	22

Also finding:

In current logging operations there are 2 Koala High Use Areas: one 0.5ha in size in very high quality habitat in Bagawa SF (cmpt. 780), and one 0.7ha in size in moderate quality habitat in Wang Waulk SF (cmpt. 118). So of the 4,669ha of high quality habitat in compartments currently being logged only 0.5ha is identified in harvesting plans to be protected.

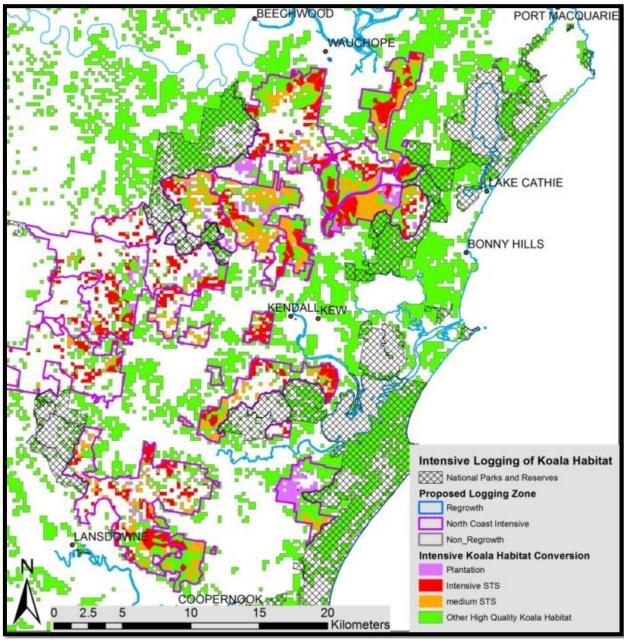
The reason that so little is protected is twofold, firstly because the EPA have set unrealistically high scat detection thresholds and miniscule buffers in the licence, and secondarily because the Forestry Corporation refuse to undertake the legally required "thorough" searches necessary to find sufficient scats to trigger protection. The EPA know that the Forestry Corporation are not undertaking thorough, if any, searches though refuse to take action.



Bagawa SF Compartment 780, showing Koala habitat classes, records and the miniscule protected Koala High Use Area. And this is one of the best examples of current Koala protection. Note that the

rows of 1999 records indicate where the Koala High Use Area would have been located in the previous logging, which is now available to be logged despite its obvious significance due to still being part of a Koala's home range 18 years later.

It is apparent that very few Koala High Use Areas have been identified. The Natural Resources Commission (2016) identify that "Around 200 hectares of koala high use area has been protected over the past 15 years and tree retention requirements have been triggered on around 33 percent of compartments (130,000 hectares)". NEFA accepts that the relatively low identification of Koala High Use Areas partially reflects the collapse of Koala populations on the north coast, though considers it also reflects the ongoing refusal by the Forestry Corporation to thoroughly search for Koala scats ahead of logging.



Example of high (including very high) quality Koala habitat subject to intensive ("regeneration" and "heavy") and medium STS south of Port Macquarie over the past decade. It is no wonder that Koalas are rapidly declining in the area when it is considered that much of the high quality habitat outside State Forests has also been subject to intensive logging - including many areas incorporated into national parks in 1998 and 2003.

Compliance of NE NSW Forestry with Commonwealth Threatened Species Requirements

Single Tree Selection (STS) is the predominant logging regime applied in north east NSW's public forests, under this regime basal area removal is limited by the IFOA to 40%, yet starting in 2006 the Forestry Corporation began unlawfully practicing "medium:, "heavy" and "regeneration" STS . An examination of current harvesting plans indicate that there is no clear definition of the various STS intensities, with "regeneration" STS involving average basal area removals ranging from 62-86% (average 75%), "heavy" STS from 50-85% (average 68%) and "medium" STS from 30-60%.(average 47%). It is however obvious that all the new STS regimes of "regeneration", "heavy" and "medium" are normally in excess of the IFOA definitions of STS as involving less than 40% basal area removal. From mapped logging intensities provided by the Forestry Corporation, NEFA's review *Clearing Koalas Away* (Pugh 2017) found:

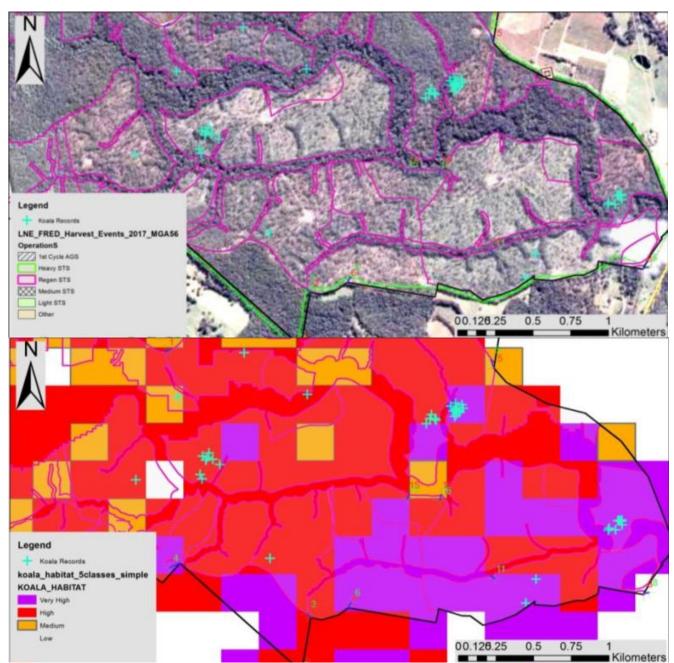
A comparison of the mapped treated areas with modelled Koala habitat displays the same trend as other data, with the highest quality habitat subjected to the most intensive logging and conversion to quasi plantations. The "regeneration" and "heavy" STS treated areas are comprised of 39% high quality Koala habitat, with 244 koala records within treated areas. The "medium" STS treated areas are comprised of 28% high quality Koala habitat with 473 Koala records. While the patch clearfelling regime of Australian Group Selection is not allowed in Koala Intermediate Habitat because of its impacts. it is telling that 64% of the AGS treated areas are high quality Koala habitat.

Despite this being a blatant rorting of the intent of Single Tree Selection the EPA refuse to do anything about it because they claim it is the Minister's responsibility to enforce the IFOA. The Minister for the Environment acknowledged, through a letter written by the Environment Protection Authority (EPA 2016b) on his behalf, that this type of harvesting as "practiced by the FCNSW, is not consistent with the definition and intent of STS (Single Tree Selection) in the Integrated Forestry Operations Approval (IFOA) as well as FCNSW's own silvicultural guidelines."

As identified in Clearing Koalas Away (NEFA 2017):

Since 2006 in the Lower North East region. the Forestry Corporation have subjected 74,906 ha to the unlawful logging practices of 'medium', 'heavy' and 'regeneration' Single Tree Selection involving 41-100% basal area removal. This is comprised of 23,742 ha (32%) of high quality Koala habitat and 717 Koala records.

Regrettably it is clear that both the Conservation and Management Strategy and NSW Recovery Plan requirements relating to identifying and protecting important habitat areas, identifying improved and standardised survey methods, and monitoring and reviewing the effectiveness of mitigation measures, are not being complied with on public lands.



Example of "regeneration" STS of high quality Koala Habitat in Cairncross SF, undertaken in 2012-13. There are 40 Koala records in this limited area dating back to 1980, with numerous records in 2011, 2012 and 2013 as it was being cleared. It is astounding that such obviously important Koala habitat was allowed to be virtually clearfelled. Even if no Koala High Use Areas were identified, the area qualified as an Intermediate Use area, with the intensive logging clearly illustrating the ineffectiveness of the current prescription.

Private Native Forestry

The NSW Recovery Plan places significant emphasis on protecting Koala habitat on private land through SEPP 44 and Local Environment Plans (i.e. *Actions 1.13, 1.15, 1.19, 1.20*).

State Environmental Planning Policy No. 44 (Koala Habitat Protection) came into effect in 1995 with the aim to "encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline:

Compliance of NE NSW Forestry with Commonwealth Threatened Species Requirements

- by requiring the preparation of plans of management before development consent can be granted in relation to areas of core koala habitat, and
- by encouraging the identification of areas of core koala habitat, and
- by encouraging the inclusion of areas of core koala habitat in environment protection zones".

SEPP 44 identifies two classes of habitat:

"core koala habitat" means an area of land with a resident population of koalas, evidenced by attributes such as breeding females (that is, females with young) and recent sightings of and historical records of a population.

"potential koala habitat" means areas of native vegetation where the trees of the types listed in Schedule 2 constitute at least 15% of the total number of trees in the upper or lower strata of the tree component.

Under the provisions of SEPP 44 local councils cannot approve development on lands greater than 1ha without an investigation of potential and core koala habitat. To this end SEPP 44 requires councils to address koala conservation through either Individual Koala Plans of Management (IKPoM) for a specific site/development, or Comprehensive Koala Plans of Management (CKPoM) that will apply to part or the whole of a Local Government Area.

SEPP 44 encourages Councils to systematically identify areas of 'core koala habitat, stating that councils "should" conduct koala surveys, and take the results regarding core koala habitat into account when making environmental protection zones and development control plans.

In the 22 years since SEPP 44 came into force four CKPoM plans have been adopted and approved by the Department of Planning and Environment, with the two most recent only for parts of Local Government Areas. Of these, only the Coffs Harbour KPoM identifies 'core koala habitat' across the LGA. with the Kempsey plan only identifying it in two small areas. Elsewhere various classes of Koala habitat has been identified.

In 2007 the NSW Government finally gazetted a set of weakened mandatory rules to control logging on private land in NSW as a Regulation under the Native Vegetation Act 2003, with four Codes of Practice for separate geographic regions. The regulation came into effect on 1st August 2007.

For koalas, the specific provisions for the PNF Code of Practice are:

- (a) Forest operations are not permitted within any area identified as 'core koala habitat' within the meaning of State Environmental Planning Policy No. 44 Koala Habitat Protection
- (b) Any tree containing a koala, or any tree beneath which 20 or more koala faecal pellets (scats) are found (or one or more koala faecal pellets in Koala Management Area 5) must be retained, and an exclusion zone of 20 metres (50 metres in Koala Management Area 5) must be implemented around each retained tree.
- (c) Where there is a record of a koala within an area of forest operations or within 500 metres of an area of forest operations or a koala faecal pellet (scat) is found beneath the canopy of any primary or secondary koala food tree (see Table I below), the following must apply:
 - (i) A minimum of 10 primary koala food trees and 5 secondary koala food trees must be retained per hectare of net harvesting area (not including other exclusion or buffer zones), where available.
 - (ii) These trees should preferably be spread evenly across the net harvesting area, have leafy, broad crowns and be in a range of size classes with a minimum of 30 centimetres diameter at breast height over bark.
 - (iii) Damage to retained trees must be minimised by directional felling techniques.

(iv) Post-harvest burns must minimise damage to the trunks and foliage of retained trees.

The protection provided to 'core koala habitat' is next to useless as of the four Comprehensive Koala Plans of Management approved over the past 22 years, the Coffs Harbour CKPoM is the only one to identify core Koala habitat across the LGA and the Kempsey CKPoM only identifies two very small areas.

In 2011 the North Coast Environment Council identified that since 2007 the Private Native Forestry (PNF) Division of the NSW Department of Environment, Climate Change and Water (DECCW) had approved 60 separate logging applications covering almost 2000 hectares of the 19,000 ha identified core koala habitat in the Coffs Harbour Local Government Area contrary to SEPP 44. It is probable that before then logging was being undertaken in core Koala habitat using the PNF exemption.

The Sydney Morning Herald (4 January 2011) reported:

The department does not dispute the council's figures, but said the Coffs Harbour koala plan of management, which identifies the vulnerable species' local habitats, is not officially gazetted.

Because of this, the prohibition on logging that normally applies to important koala habitats under state environmental planning policies could not be enforced in that council area, the department's director of landscapes and ecosystems conservation, Tom Grosskopf, said.

"We're helping them to get their plan updated and get it going," he said.

But local environmentalists are appalled and have accused the department of playing word games. The environment council's vice-president, Susie Russell, said the department knew full well where the region's key koala areas were. It had been integral in mapping the habitats, but was ignoring the results and approving their destruction.

The callous disregard of the Government agencies for Koalas is exemplified by the fact that it was NPWS (later incorporated into DECCW) who in 1999 identified core Koala habitat in the Coffs LGA in accordance with SEPP 44, then it was DECCW that in 2007 finalised the PNF Code of Practice that specifically excluded core koala habitat from logging, and it was DECCW that in 2007 began systematically approving logging of core Koala habitat in the Coffs Harbour LGA in contravention of the PNF Code, with 2,000 of the 19,000 ha of identified core Koala habitat approved for PNF by 2010.

It is clear that the Recovery Plan's objective to *Conserve koalas in their existing habitat* by identifying and protecting 'core Koala habitat' in accordance with SEPP 44 and LEP zoning has been a failure.

NEFA (Pugh 2014) became involved with logging by the Forestry Corporation of a private property at Whian Whian (adjacent to the Nightcap National Park) when neighbours tried to have their concerns regarding Koalas addressed. Discussions with Forestry Corporation on 14 September 2013 revealed that they had found two Koala High Use Trees on the property and were thus applying the Private Native Forestry Code of Practice requirement to retain 10 primary koala food trees and 5 secondary koala food trees per hectare.

Concerns that this property is of exceptional value for Koalas and that Koala's were not being adequately protected were heightened when a brief assessment by NEFA of trees in the vicinity of the boundary located 5 Koala high use trees, none of which had apparently previously been searched. One of the Koala high use trees found had not been previously searched despite having a new road constructed right next to its base.

Compliance of NE NSW Forestry with Commonwealth Threatened Species Requirements

When NEFA (Pugh 2014) learned that the Forestry Corporation were proposing to construct a new road we surveyed the marked route and identified that it passed through, and within 20m of, 8 Koala high use trees (>20 scats), over 60 vulnerable Red Bopple Nut *Hicksbeachia pinnatifolia*, and 3 NSW Endangered Clear Milkvine *Marsdenia longiloba*. NEFA wrote to the EPA on the 22 September 2013 to request the immediate and urgent imposition of a Stop Work Order in accordance with Section 37 of the Native Vegetation Act 2003.

The EPA sent a team in to oversee the Forestry Corporation, though refused to stop work. They EPA did not bother to check NEFA's records, yet spent 2 days wandering around the proposed route with the Forestry Corporation while they identified a new route.

Three days after our request for a Stop Work Order the new track was constructed. Subsequent inspections by NEFA (with botanists) found that the track had been illegally constructed through what should have been 20m exclusion zones for 3 Koala high use trees, 7 NSW Endangered Clear Milkvine, 12 vulnerable Arrow-head Vines, and 8 vulnerable Red Bopple Nuts, most of which had been identified and tagged with pink tape (by either NEFA or the Forestry Corporation) prior to track construction. One of the Koala high use trees that had been identified by the Forestry Corporation in the presence of the EPA had the track constructed within 15m and debris within 12m without its exclusion boundary being marked, one 3.2m from the track had been checked by the Forestry Corporation in the presence of the EPA but had not been identified despite subsequent inspections showing abundant scats, and one had been identified by NEFA but could not be subsequently verified due to scats being removed. Two Clear Milkvine were killed, one injured and 3 are missing. One Arrow-head Vine later died.

Over the course of events NEFA (Pugh 2014) found and reported a total of 16 Koala high use trees with 20 or more Koala scats beneath them. The Community Surveys of the weekend of 27-29 September found an additional 10 Koala high use trees with limited searching, bringing the total to 26 such trees in an area where the Forestry Corporation had only identified 2. A total of 8 Koala high use trees (and numerous threatened plants) were found to have had roads and tracks constructed within 20m of them.

This large number of high use trees proves that there is an active breeding Koala colony on the property, with evidence of males, females and young, that largely escaped the attention of the Forestry Corporation. There can be no doubt that the property constituted high quality core Koala Habitat but the EPA didn't care.

There was a 2 year window of opportunity for the EPA to legally pursue this matter, and they used most of this time up before they issued the Forestry Corporation with two Penalty Notices (each with a fine of \$5,500) on the 11 September 2015 for constructing their track through what should have been 20m exclusion zones for a Koala High Use Tree and the Endangered vine Clear Milkvine.

They were issued an Official Caution for violating buffers of 4 Red Bopple Nuts, with violations of 6 Arrow-head Vine buffers noted. This is half the breaches documented by NEFA.

The Forestry Corporation stated they intended to vigorously dispute the fines on the grounds that their intent "was discussed with EPA staff on site during the operation". In other words, the EPA knew they were going to construct the illegal road and, at best, did nothing to stop them.

Given that the EPA had almost used up their 2 years for legal action, the Forestry Corporation simply bided their time before telling the EPA that they would not pay the fines and would rather dispute them in court. By then, the EPA claim, it was too late to defend the fines in court. Given the EPA's complicity in the construction of the illegal road it is no wonder they waited so long to take action so that they could avoid court.

Following complaints from locals NEFA (2017) decided to undertake an initial assessment on 9th September 2017 of a private property near Mount Warning from the Crown Road Reserve that runs through it. No threatened species had previously been identified on the property. From our brief inspection NEFA identified 2 Koala High Use Trees (one of which had a road constructed up to its base) and detected the presence of two Marbled Frogmouths and one Masked Owl. We also identified a systematic failure to implement erosion mitigation prescriptions and illegal logging in an Environmental Zone,

The EPA (Bryce Gorham 14 February 2018) confirmed the presence of the Koala High Use Trees, though refused to require Koala surveys elsewhere on the property.

Regrettably it is clear that both the Conservation and Management Strategy and NSW Recovery Plan requirements relating to identifying and protecting important habitat areas, identifying improved and standardised survey methods, and monitoring and reviewing the effectiveness of mitigation measures, are not being complied with on private lands.

Proposed Coastal IFOA

For the new Coastal IFOA the Forestry Corporation and the Environment Protection Authority (EPA) have decided to remove the need to look for Koalas before logging and to remove the requirement to identify and protect Koala High Use Areas.

In their attempts to model Koala habitat the EPA (2016) reviewed a number of methodologies based vegetation and modelling. The EPA (2016) assessed predictive mapping based on floristic (Plant Community Type) mapping (3Ai-PCT), Forestry Corporation Research Note 17 forest type mapping (RN 17) and predictive modelling, finding that none were sufficiently reliable, primarily because "the variability of canopy species present within vegetation types is too great for determining percentage occurrence of feed trees and therefore habitat class at the level of detail required (1:5000 metres) for management in state forests".

The EPA's (2016) pilot project was subject to peer review by Andrew Smith, Steve Phillips and Rod Kavanagh, leading the EPA to identify:

In reviewing the findings of this project, the expert panel concluded that future work should be directed at determining the known, existing koala distribution and resident population. They recommended that a koala habitat map using the methods assessed can only be used to distinguish suitable habitat from unsuitable habitat. Any landscape scale protection provision attached to such a map would need to be both highly protective and follow precautionary conservation measures to protect both resident koala populations and manage unoccupied habitat to sustain the population into the future.

Despite the conclusion from an EPA (2016) study that modelling is too inaccurate for regulation at the scale of individual logging operations, the EPA are intent on using the DPI Forestry Koala habitat model (Law et. al. 2017) for regulation. OEH (2016) claim their Koala Likelihood model and the DPI Forestry model (Law et. al. 2017) "are quite different from each other" and recommend that it could be used in conjunction with the DPI Forestry model. Though the basic assumption that the maps are somehow different is flawed as they are both based on the same Koala record set, with the DPI utilising a reduced data set and DPI Forestry using the same data set and a limited number of environmental variables to extrapolate likely Koala habitat. Both models suffer from the problem of only being based on the same non-systematic data collected using very different methodologies and survey effort (and thus likelihood of detection) and incomplete coverage. Both models closely reflect Koala records.

Both models were used to classify high and moderate Koala habitat. The decision was made to use the intersections of the models to regulate Koala protection measures. The OEH model is termed the "OEH likelihood" model and the DPI Forestry model the "DoI habitat" model.

Because of differences between the EPA and Forestry Corporation the Natural Resources Commission (2016) was directed to resolve a prescription based on a "modest increase in tree retention rates aim to minimise impacts on wood supply to best possible extent while recognising Government's policy initiatives and targeted investment in Koalas as an iconic species (no net change to wood supply)".

The EPA (NRC 2016) proposed a retention rate of 25 trees per hectare in High/high quality habitat, 20 trees per hectare in High/moderate quality habitat, and 15 trees per hectare in Moderate/moderate quality habitat. The NRC over-rode the EPA to support a retention rate proposed by the Forestry Corporation specifying "10 healthy trees per hectare with cell based application in High/high quality habitat, 5 trees per hectare with compartment wide application in High/moderate or moderate/moderate cells over 25 percent or more of compartment".

Under the prescriptions Koala browse trees are required to be greater than 20 cm DBH (30cm DBH outside the north coast). The EPA (NRC 2016) proposed that "In addition to tree clumps retain trees with minimum 25 centimetre diameter DBHOB, prioritising primary browse species, then secondary browse species:". The NRC over-rode the EPA to support the Forestry Corporation, deciding "In addition to tree clumps retain trees with minimum 20 centimetre diameter DBHOB, retaining trees where available with 50 percent primary browse species"

The NRC proposed tree retention rates based on intersections of both models:

	OEH Likelihood High (greater than 0.2)	OEH Likelihood Moderate (between 0.075 and 0.2)
DoI model - High Less than 500 metres:	10 healthy feed trees per hectare at least 20	5 healthy feed trees per hectare at least 20 centimetres DBHOB
0.6 and above Greater than 500 metres: 0.65 and above	centimetres diameter at breast height over bark	for NHA in a compartment (if mapped cells cover 25 percent or more of the NHA of a compartment)
DoI model - Moderate Less than 500 metres: 0.45 - 0.59 Greater than 500 metres: 0.45 - 0.64	5 healthy feed trees per hectare at least 20 centimetres DBHOB for NHA in a compartment (if mapped cells cover 25 percent or more of the	5 healthy feed trees per hectare at least 20 centimetres DBHOB for NHA in a compartment (if mapped cells cover 25 percent or more of the NHA of a compartment)
	NHA of a compartment)	,

The NRC also proposed "Retain 10 healthy browse trees per hectare in areas not yet modelled".

The NRC claimed that their "proposed settings will likely have a negative impact on timber supply, potentially reducing average annual supply volume by 3,500 cubic metres (9 percent reduction in harvestable Koala browse tree species). Supply Zones 2 and 3 would experience the greatest reduction in volume (1,400-1,800 cubic metres per year and 900-1,200 cubic metres per year)". They admit that this is conjecture, though it does seem somewhat inflated.

The EPA (2018) identify that Koala browse prescription 1 applies:

 where the compartment is of a high koala likelihood class and the koala habitat model cell is a high koala habitat class;

- where the compartment is of a high koala likelihood class and there is no data in relation to koala habitat class;
- where there is insufficient data in relation to **koala likelihood class** in a **compartment** and the koala **habitat** model cell is a high **koala habitat class**; and
- where there is insufficient data in relation to **koala likelihood class** in a **compartment** and there is no data in relation to **koala habitat class**.

This methodology for applying the models is very simplistic and appears intended to reduce the identification of high quality habitat requiring higher tree retention rates. For example, Royal Camp and Carwong State Forests which have been identified by the EPA to be source Koala habitat with Koala occupancy of 58% and 80% respectively, are ranked as being very high on the OEH Likelihood Map, but only Moderate on the DPI Forestry map. So these important Koala habitats will only qualify for Koala Prescription 2 and the retention of 5 browse trees per ha.

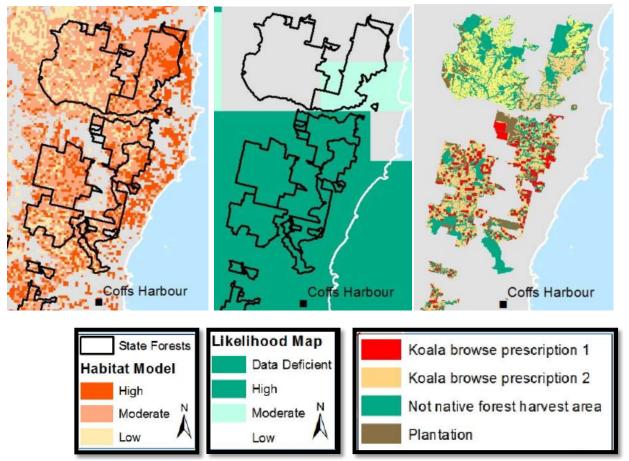
It would seem inappropriate to downgrade known Koala habitat, with very high Koala likelihood identified by OEH, on the grounds that DPI Forestry only rank it as medium quality Koala habitat.. Similarly it would seem to be inappropriate to use broad modelling with 2,500 ha grids based on a subset of data to clip more refined habitat modelling with 6.2 ha grids These appear to be attempts to reduce the areas where the inadequate *Koala browse prescription 1* applies.

The remaining "high" modelled habitat is assigned to where it corresponds with moderate habitat in the other model, or where both models identify moderate habitat. The document 'Koala North – Creation of map of koala browse tree prescriptions' identifies that Koala browse prescription 2 applies to the whole compartment:

where the compartment is of a high koala likelihood class and 25 percent or more of the base net area of the compartment is a moderate koala habitat class, or where the compartment is of a moderate koala likelihood class and 25 percent or more of the base net area of the compartment is a moderate or high koala habitat class, or there is no data on habitat class. or where there is insufficient data about **koala likelihood class** in a **compartment** and there is a moderate **koala habitat class**.

The remnants of the DPI Forestry modelled "high" habitat (browse prescription 1) and the compartments with "moderate" (browse prescription 2) classes are then used to set browse tree retention rates (Condition 72):

- a minimum of 10 Koala browse trees in each hectare of net harvest area where Koala browse prescription 1 applies;
- a minimum of five Koala browse trees in each hectare of net harvest area where Koala browse prescription 2 applies;



Example of conversion of DPI Forestry Koala habitat model to prescriptions. Basically the Likelihood (low and moderate) and plantation maps are used to remove areas of modelled "high" quality habitat and the remainder is identified as Koala browse prescription 1.

The outcome of the process is 36,152ha of areas subject to browse prescription 1 and 212,073ha subject to browse prescription 2. The data available to us for where the unlawful logging intensities of moderate, heavy and regeneration Single Tree Selection (40-90% basal area removal) have been applied is limited to the Lower North East region up until early 2017, comparison with the proposed prescriptions identifies that this logging has occurred in 8,147ha (23%) of browse prescription 1 and 38,547ha (18%) of browse prescription 2. A total of 15,510ha (43%) of browse prescription 1 is within the proposed North Coast Intensive Zone.

The Forestry Corporation are then required to divide the loggable area up into patches up to 15 ha in size and average the tree retention across the area. For example if an area contains 5ha of Koala browse prescription 1 and 10ha of Koala browse prescription 2 then the requirement is to retain a total of 100 browse trees (an average of 6.7 browse trees over 20cm DBH per hectare) anywhere across the 15 hectares. Contrary to the NRC recommendation that the 10trees/ha be within the Koala browse prescription 1 area there is no requirement for any to be located within it.

In abandoning any measures to ascertain whether Koalas are present in an area, the EPA have deliberately abandoned any measures to identify and protect resident Koala populations and will instead often provide their limited protection to uninhabited and unsuitable habitat while allowing logging of the best habitat left.

For the licence primary browse trees are taken to be Tallowwood (*E. microcorys*), Swamp Mahogany (*E. robusta*) and Red Gums (*E. tereticornis*, *glaucina*, *seeana* + hybrids). Primary browse species are required to be prioritised for retention up to at least 50% of the retained Koala browse trees (where available). Secondary browse trees are taken to be Grey Gums (*E. biturbinata*,

propinqua, punctata, canaliculata), Grey Box (*E. moluccana*, largeana), Peppermints (*E. radiata*, acaciaformis), Sydney Blue Gum (*E. saligna*), Ribbon Gum (*E. nobilis*, viminalis), Messmate (*E. obliqua*), Snow Gum (*E. pauciflora*), Mountain Gum (*E. dalrympleana*), and New England Blackbutt (*E. andrewsii*, campanulata).

The DPE 'Explanation of Intended Effect State Environmental Planning Policy No 44 –Koala Habitat Protection' (2016) identifies a list of 65 browse trees, which include a number of north coast species not on the EPA's list. It is well known that Koalas have local preferences for certain species of eucalypts (Hindell and Lee 1987, Phillips 1990, Lunney et. al. 1999, Moore and Foley 2000, Phillips et. al. 2000, Smith 2004, Moore et. al. 2004b, DeGabriel et. al. 2010, Gow-Carey 2012, Davies et. al. 2014,). Koalas have been recorded feeding extensively on species not on EPA's list (i.e. Brush Box, Forest Oak) at some sites (Lunney et. al. 1992, Moore and Foley 2000, Smith 2004).

In the Coffs Harbour area Lunney et. al. (1999) identify:

Tallowwood Eucalyptus microcorys was identified as the tree species most preferred by koalas in the Coffs Harbour LGA. ... Tallowwood, however, was not the only tree species contributing to the distribution of koalas and to activity levels at survey sites in the LGA. A number of studies have shown that core koala habitat generally contains a primary tree species supported by 2 or 3 secondary species ... Other tree species identified as preferred trees were Swamp Mahogany E. robusta, Broad-leaved Paperbark Melaleuca quinquenervia, Flooded Gum E. grandis and Blackbutt E. pilularis.

The importance of Forest Oak for Koalas near Coffs Harbour led Smith (2004) to state:

While koalas are occasionally known to feed on non-eucalypt species (Moore and Foley 2000) the presence of Allocasuarina in more scats than all other eucalypts with the exception of tallowwood is exceptional and may indicate an important dietary preference that should be taken into account in conservation planning.

It is evident that the EPA list of feed species fails to include numerous browse species. This means that where there are less than 5 or 10 browse trees per hectare, alternative unlisted browse trees are allowed to be logged rather than retained.

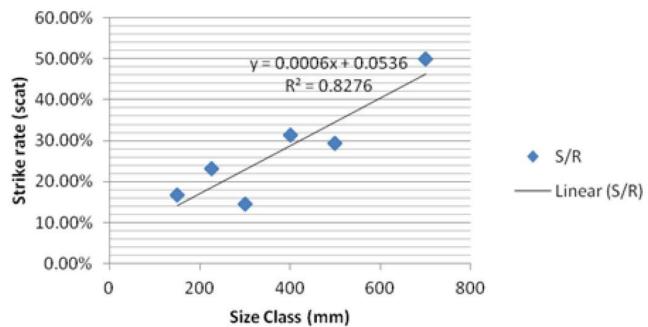


Figure 4 from EPA 2016: Size class of small-fruited grey gum versus scat strike rate, one of a number of examples. This shows that there is a one in five chance of a 20cm DBH small-fruited grey gum being utilised by a Koala compared to a one in two likelihood of a 70cm DBH tree being utilised - with the larger tree also likely to provide significantly more important resources.

Koala browse trees are required to be greater than 20 cm DBH (30cm DBH outside the north coast). Many studies have identified Koalas preference for larger trees (Hindell and Lee 1987, Lunney *et. al.* 1991, Sullivan *et. al.* 2002, Moore *et. al.* 2004b, Smith 2004, Moore and Foley 2005, EPA 2016). Tree size has been found to be the most significant variable after tree species in a number of studies. While the setting of a minimum size limit of 20cm is an improvement on the current situation, this limit intentionally ignores the increasing importance of larger trees for Koalas. Given that the EPA (2016) clearly identified that Koala use of trees increased linearly with tree size it is astounding that this is not reflected in the prescription, with a requirement that those trees most likely to be utilised be preferentially selected for retention.

Within areas covered by the browse prescriptions trees are required to be visually assessed prior to logging for Koalas and if one is seen a 25m buffer is required to be applied until it leaves the tree. This is a return to the prescription that existed prior to the Endangered Fauna (Interim Protection) Act 1991: "About the only thing done in a logging operation when a koala is located is to not fall the tree, at that time. It may be felled later (next day) if the koala has moved" (Ernie Chiswell, Coffs Harbour District Forester, 29.11.1989). Presumably if a Koala is seen in a tree outside the browse prescription area then the tree can be cut down. Surely if a Koala is observed in a tree there is a high likelihood that it is either a feed or roost tree and should be protected, wherever it is.

If evidence (observation, scat, call, tracks or scratching) of a Koala is detected <u>during a harvesting operation</u> (outside the browse prescription areas) then Koala browse prescription 2 applies to the operational area. There is something wrong where locating such evidence before logging legally has no effect.

The EPA maintain that previously identified Koala High Use Areas will be protected under the new system, though we have been requesting such records for years and the Forestry Corporation have been adamant that they don't record them in a central data-base for the Upper North East, and they seem only partial for the Lower North East. Though the EPA (2018) claim that "very few" have been identified, only about 14ha per year, and many of these have since been logged.

Despite north-coast Koala populations crashing by 50% over the past 15-20 years, in part due to the loss of mature feed trees through logging, the Forestry Corporation and EPA are removing the need to identify and protect Koala High Use Areas while targeting the best habitat for the most aggressive logging and conversion into quasi-plantations. This is clearly not compliant with the Commonwealth Conservation and Management Strategy and NSW Recovery Plan requirements.

Davies, N., Galina, G., Seabrook, L., McAlpine, C., Baxter, G., Lunney, D. and Bradley, A. (2014) Climate-driven changes in diet composition and physiological stress in an arboreal folivore at the semi-arid edge of its distribution. Biological Conservation, 172. pp. 80-88.

DeGabriel, J.L., Moore, B.D., Marsh, K.J. and Foley, W.J. (2010) The effect of plant secondary metabolites on the interplay between the internal and external environments of marsupial folivores. Chemoecology 20: 97–108, DOI 10.1007/s00049-009-0037-3

EPA (2016) Koala Habitat Mapping Pilot: NSW state forest Report. Environment Protection Authority

Forestry Corporation of NSW (2013) Comments on Draft EPA Audit Findings Tuggolo SF Compartment 437, Riamukka SF Compartments 144, 145, 146, Wang Wauk SF Compartment 116, Bulahdelah SF Compartments 149, 151 and Lansdowne SF Compartment 174. Forestry Corporation of NSW – Central Region, response to EPA audits.

Forestry Corporation (2013b) Comments on Koala Mark-up surveys. Unpublished letter to EPA.

Gow-Carey, Heather (2012) Conservation of Forest Habitats: Examining tree species preferences and habitat quality of a low-density koala population, South East NSW, Bachelor of Science (Honours), School of Earth & Environmental Science, University of Wollongong. http://ro.uow.edu.au/thsci/27

Law, B, Caccamo, G, Wimmer, J, Truskinger, A, McConville, A, Brassil, T, Stanton, M and Gonsalves, L. (2017) A predictive habitat model for Koalas *Phascolarctos cinereus* in north-east New South Wales: Assessment and field validation. NSW Department of Industry—Lands and Forestry.

Compliance of NE NSW Forestry with Commonwealth Threatened Species Requirements

Lunney, D., Moon, C. and Ferrier, S. (1991) An ecological assessment of the Koala population, Koala habitat and Koala movement corridors of North Bonville, Coffs Harbour. National Parks and Wildlife Service, unpublished report.

Lunney, D., Moon, C. and Ferrier, S. (1992) Conservation and Management Proposals for Koalas in Coffs Harbour. National Parks and Wildlife Service, unpublished report.

Moore, B. D., and W. J. Foley. 2000. A review of feeding and diet selection in koalas (Phascolarctos cinereus). Aus-tralian Journal of Zoology 48:317-333.

Moore, B. D., Wallis, I. R., Wood, J. and Foley, W. J. (2004b) Foliar nutrition, site quality and temperature affect foliar chemistry of tallowwood (*Eucalyptus microcorys*). Ecological Monographs, 74(4), 2004, pp. 553-568

Moore, B.D. and Foley, W.J. 2005. Tree use by koalas in a chemically complex landscape. *Nature* 435, 488–490.

Natural Resources Commission (2016) Advice on Coastal Integrated Forestry Operations Approval Remake.

NEFA (2017) NEFA Audit of Hewittville Property. Unpublished report.

Pugh, D. (2014) Final Audit of Whian Whian Private Property. North East Forest Alliance, http://www.nefa.org.au/audits

Phillips, B. (1990). 'Koalas: the Little Australians We'd All Hate to Lose.' (Australian National Parks & Wildlife Service: Sydney.)

Phillips S, Callaghan J and Thompson V 2000, The tree species preferences of Koalas (Phascolarctos cinereus) inhabiting forest and woodland communities on Quaternary deposits in the Port Stephens area, New South Wales, *Wildlife Research*, 27, pp.1–10.

Smith, A.P. 2004. Koala conservation and habitat requirements in a timber production forest in northeast New South Wales. In *Conservation of Australia's Forest Fauna* (2nd ed.), pp. 591-611. Mosman, New South Wales: Royal Zoological Society of New South Wales.

Sullivan, B. J., Baxter, G. S., and Lisle, A. T. (2002). Low-density koala (*Phascolarctos cinereus*) populations in the mulgalands of south-west Queensland. I. Faecal pellet sampling protocol. *Wildlife Research* **29**, 455–462. doi:10.1071/WR00110

Greater Glider

Greater Glider (*Petauroides volans*) is listed as 'Vulnerable' under the EPBC Act. It is not recognised as threatened in NSW. There is no Recovery Plan, just a 2016 '*Conservation Advice* Petauroides volans *greater glider*'.

The Conservation Advice notes:

During the day it shelters in tree hollows, with a particular selection for large hollows in large, old trees (Henry 1984; Kehl & Borsboom 1984; Lindenmayer et al., 1991; Smith et al., 2007; Goldingay 2012). In Grafton/Casino, Urbenville and the Urunga/Coffs Harbour Forestry Management Areas (FMAs) in northern New South Wales (NSW), the abundance of greater gliders on survey sites was significantly greater on sites with a higher abundance of tree hollows (Andrews et al., 1994; Smith et al., 1994, 1995). In the Grafton/Casino FMA, the greater glider was absent from surveyed sites with fewer than six tree hollows per hectare (Smith et al., 1994). In southern Queensland, greater gliders require at least 2–4 live den trees for every 2 ha of suitable forest habitat (Eyre 2002).

...

The greater glider is considered to be particularly sensitive to forest clearance (Tyndale-Biscoe & Smith 1969a) and to intensive logging (Kavanagh & Bamkin 1995; Kavanagh & Webb 1998; Kavanagh & Wheeler 2004; Kavanagh et al., 2005), although responses vary according to landscape context and the extent of tree removal and retention (Kavanagh 2000; Taylor et al., 2007)...

The Conservation Advice identifies "Timber production" as a severe threat, stating:

Prime habitat coincides largely with areas suitable for logging; the species is highly dependent on forest connectivity and large mature trees. Glider populations could be maintained post-logging if 40% of the original tree basal area is left (Kavanagh 2000); logging in East Gippsland is significantly above this threshold (Smith 2010; Gaborov pers. comm., 2015). There is a progressive decline in numbers of hollow-bearing trees in production forests as logging rotations become shorter and as dead stags collapse (Ross 1999; Ball et al., 1999; Lindenmayer et al., 2011).

The Conservation Advice identifies 'Primary Conservation Actions' as:

- 1. Reduce the frequency and intensity of prescribed burns.
- 2. Identify appropriate levels of patch retention, habitat tree retention, and logging rotation in hardwood production.
- 3. Protect and retain hollow-bearing trees, suitable habitat and habitat connectivity.

Recommended high priority actions for 'Active mitigation of threats' are:

- Reduce the frequency and intensity of prescribed burns.
- Constrain impacts of hardwood production through appropriate levels of patch and hollow-bearing tree retention, appropriate rotation cycles, and retention of wildlife corridors between patches.
- Constrain clearing in forests with significant subpopulations, to retain hollow-bearing trees and suitable habitat.
- Avoid fragmentation and habitat loss due to development and upgrades of transport corridors.

Recommended high priority actions for 'Establish or enhance monitoring program' are:

- From existing monitoring projects, design an integrated monitoring program across major subpopulations, linked to the assessment of management effectiveness.
- Monitor the abundance and size structure of critical habitat tree species, and their responses to management including before and after prescribed burns, and before and after logging.

Recommended high priority actions for 'Information and research priorities' are:

Assess the impacts of fire management (prescribed burning programs) on habitat, hollow availability, preferred tree species, and glider population size.

Investigate the numbers, densities and types of hollow-bearing trees that must be retained to ensure viable populations.

The Greater Glider is recognised as nationally vulnerable, though not in NSW. There is no Recovery Plan, just a 2016 Conservation Advice that identifies logging as the most significant threat and the need to 'Constrain impacts of hardwood production through appropriate levels of patch and hollow-bearing tree retention, appropriate rotation cycles, and retention of wildlife corridors between patches'. There has been no attempt in NSW to comply with this and, as also required by the Conservation Advice, there has been no monitoring to determine the numbers of types and hollow-bearing trees that need to be retained, or the effects of logging and burning on retained trees and glider populations. The one NSW prescription requiring increased hollow-bearing tree retention where more than one Greater Glider per hectare is recorded is considered by the Commonwealth Scientific Committee as "not adequate", and there is abundant evidence that the inadequate requirements for habitat tree retention are not complied with in practice. The NSW Government is now intending on removing the specific protection for Greater Gliders in foothill and coastal forests.

Current Threatened Species Licence

Retention of Hollow-bearing Trees and recruitment trees (to grow into the hollow-bearing trees of the future) are key requirements to mitigate logging impacts on an array of native animals in eucalypt forests (see nefa.org.au/old_trees). For decades NEFA have been battling to get improved protection for large hollow-bearing trees and the recruitments needed to sustain them, and the vital hollows they provide, into the future. NEFA considers that current retention rates of hollow-bearing (H) trees are inadequate and that the retention rates of recruitment (R) trees are grossly inadequate to maintain the prescribed numbers of H trees over time. Given natural (and induced) mortality as trees age it is a nonsense to only retain one recruitment tree for each hollow-bearing tree.

Poor and inadequate selection and protection of habitat trees has always been a problem. A large proportion of the R trees retained do not satisfy the selection requirements of being mature, undamaged and un-suppressed, and are therefore unlikely to ever develop into hollow-bearing trees. Similarly NEFA have identified a high proportion of logging damage to retained trees and debris leftaround retained trees ready for burning, further limiting their prospects of survival. NEFA has identified this as a problem in all our audits.

In NSW there are general requirements to retain 8 hollow-bearing trees per hectare where more than one Greater Glider per hectare exists within 3km of a Powerful Owl record (North East NSW) or 5km of a Tiger Quoll record (Southern NSW). Though even then only 5 R trees are required to be retained.

The Commonwealth's (2016) Conservation Advice notes that "In production forests some logging prescriptions have been imposed to reduce impacts upon this species, however these are not adequate to ensure its recovery", in relation to New South Wales stating:

... logging of areas where greater gliders occur in densities of greater than one per hectare require eight hollow-bearing trees to be retained per hectare (Terms of Licence). However, such tree-retention measures are typically not species-specific, and do not consider factors which influence the occupancy of hollows and their suitability for different fauna species (Gibbons & Lindenmayer 2002), including intra-specific or inter-specific competition for hollows and changes in predation by owls related to changes in forest structure.

Hollow-bearing and recruitment trees were identified as one of the EPA's (2016a) Cross-tenure environmental compliance priorities for 2013–16. For "Identification, retention and protection of adequate and appropriate trees for maintenance and replacement of arboreal tree hollow habitat".

Since making habitat trees a compliance priority in 2013 the EPA have found that poor selection and retention of habit trees is the most frequent and widespread breach of the Threatened Species Licence that they find. For example in their 8 proactive audits undertaken in the Upper North East region in 2015 they assessed a total of just 7.9ha for habitat tree retention, with just 43 H trees and 51 R trees assessed, and yet identified 36 breaches (Pugh 2018). For these widespread and frequent breaches the only regulatory action they took was to require 11 Action Plans, time and time again.

This followed on from the EPA (Gregory Abood, 13 August 2014) finding the previous year, from an audit of 6 forests in the Upper North East, that:

Key Audit Findings

Recruitment – failure to select trees most likely to provide hollow bearing resource continuity
EPA audits found a common trend that appropriate recruitment trees were not retained in accordance with
the Threatened Species Licence (TSL) requirements. For example, in Dalmorton State Forest, trees were
felled belonging to a cohort of trees with the largest diameter at breast height over bark (dbhob) contrary to
the TSL requirements. For example, of the required ten recruitment trees (2 hectare assessment area) 6
trees from the cohort of trees with the largest dbhob were felled. Stumps of 85; 78; 70; 66; 60 cm
DBHOB (6 trees) were all belonging to a cohort of trees with the largest dbhob compared to the R trees
retained in the assessed area being 83; 76; 60; 57; 54; 51; 51; 51; 49; 49; 46; 46; 42.5; 36. Most
notably, differences in trees removed versus those retained ranged up to 49cm (i.e. R tree 36cm vs stump
85cm at 1.3m). The EPA audit recorded clear examples of non-compliances with trees felled within 10m of
marked and retained R trees including a Spotted Gum 46cm R tree and four adjacent Spotted Gum trees
felled 75cm, 71cm, 60cm, 58cm DBHOB. Similar findings were recorded at Kangaroo River State Forest
with for example an 81cm DBHOB tree felled and the largest R tree retained was 62cm and smallest R tree
46cm DBHOB (in the assessed area). Trees belonging to a cohort of trees with the largest dbhob were
felled.

Proper selection is critical to achieve compliance and the intent of the condition. The retention of recruitment trees that belong to a cohort of trees with the largest DBHOB is important. Larger size class trees maintain biodiversity, diversity of forest structure and form, forest health and the productive capacity of these forest ecosystems. Larger size class trees are more likely ensure continuity of hollow bearing forest resources. Continuity of these resources is the key to sustain biodiversity elements of ecologically sustainable forest management (ESFM). Removing the next largest size class increases the risk of a hollow bearing resource gap in time. A future resource gap would acutely impact on biodiversity. The presence, abundance and size of hollows are positively correlated with tree basal diameter, which is an index of age. As such, tree dbhob is, in turn, a strong predictor of occupancy by vertebrate fauna and is the primary reason why largest diameter is stated within the TSL conditions. Harvesting trees that belong to a cohort of trees with the largest dbhob will impact on the capacity of this forest ecosystem to function in the future.

For these too they just required an Action Plan. It is clear that the Forestry Corporation can breach requirements as frequently as they like without any meaningful consequences and that the EPA refuse to increase consequences or penalties for repeat offences. This lack of enforcement seems to have led to deteriorating compliance, with the deliberate poor selection of recruitment habitat trees a common and widespread occurrence. Our recent audits have also found a significantly worsening situation with regards to reckless damage to habitat trees.

NEFA's audit of <u>Cherry Tree State Forest</u> (Pugh 2015) provides one example of compliance with the Greater Glider prescription. Cherry Tree State Forest was logged in 2015. NEFA began auditing the operations soon after logging commenced in an attempt to force compliance with Threatened Species Licence (TSL) requirements. This discussion focuses on habitat tree (H and R) retention in compartments 359 and 361 of Cherry Tree State Forest.

Compartments 359 and 361 of Cherry Tree SF both had a density of more than one Greater Glider per hectare (1.07 and 1.0 respectively) and were within two kilometres of a Powerful Owl record, so as required by TSL 6.9d were required to have Hollow-bearing (H) Tree retention rates of 8 per hectare. Though being in the regrowth zone were only required to retain 5 Recruitment (R) trees per hectare. This total net logging area of these two compartments is 310 hectares, requiring a total of 2,480 H trees and 1,550 R trees to be retained across these two compartments. A third

compartment (360) logged at the same time only had a Greater Glider density of 0.9 per hectare so required the retention of just 5H and 5R trees per hectare.

The Threatened Species Licence (TSL 5.6(d)) requires hollow-bearing trees selected must belong to a cohort of trees with the largest diameter (dbhob), have good crown development, have minimal butt damage, and be evenly scattered throughout the net logging area.

Selected Recruitment trees are required (TSL 5.6 (e)) to belong to a cohort of trees with the largest dbhob, have good crown development, minimal butt damage, and be evenly scattered throughout the net logging area,

Damage to retained habitat trees must (TSL 5.6 (h)) be minimised to the greatest extent practicable, by utilising techniques of directional felling, removing or flattening logging debris to a height of less than one metre, and minimising disturbance to ground and understorey, within a five metres radius of retained trees.

The Border Ranges Rainforest Biodiversity Management Plan (which is a Commonwealth multispecies Recovery Plan applicable to the area) includes as an aim:

Ensure retention of existing hollow-bearing trees. Also encourage the protection of recruitment trees that will ensure hollow resources are available into the future.

From NEFA's first visit to compartment 359 of Cherry Tree SF we complained (8 March 2015) to the Environment Minister, the EPA and the Forestry Corporation that:

From our visual appraisal it appears that the required numbers of habitat trees are not being marked and retained. We also noted poor selection of hollow-bearing and recruitment trees, a number with bases damaged, and quite a few with debris stacked against them.

The Forestry Corporation must be reminded to ensure that the required numbers of habitat trees are retained, that damage is minimised, that debris is carefully removed, and that recruitment trees are sound, vigorous, and capable of growing into the hollow-bearing trees of the future. They must also be reminded to retain additional Koala feed trees and eucalypt feed trees where required.

We hoped that by highlighting the obvious problems up-front that those responsible may make some attempt to fix them.

In response to NEFA's initial complaint during March 2015 the EPA audited tree retention. This totalled a two hectare (2ha) complete census and inventory using small plots, assessing retained trees and trees felled. This assessment found retention rates and damage to be compliant.

On subsequent visits we observed that the Forestry Corporation had tidied up their operation by removing debris around habitat trees, marking all surviving habitat trees as H and R trees, and installing cross banks on tracks, though only on ridges. Down the steeper slopes nothing was done. Accordingly when the EPA did their initial inspection they limited their assessment plots to areas that had been tidied up, even then having to walk past obvious H and R breaches to put in their audit plots.

In our subsequent audits we documented numerous breaches down slope from the EPA audit plots on steeper areas which existed at the time of our first complaint and had not been tidied up, which the EPA later confirmed. It was clear that the Forestry Corporation correctly assumed that the EPA would not exert themselves by inspecting steeper areas. The unwillingness of the EPA to exert themselves seems to be a common problem, as it is in these harder to access areas that we find most breaches.



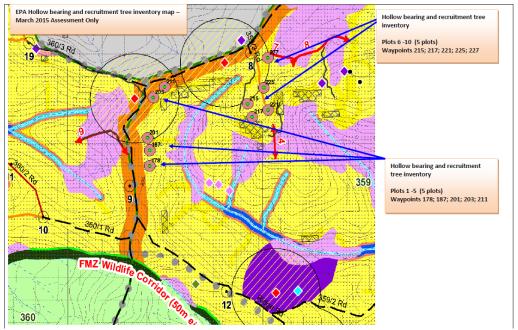
When first inspected this magnificent Tallowwood - many hundreds of years old - had debris piled up around it ready for burning. after our complaint the debris was removed in a token clean up.



On a ridge Forestry cleaned up, an R tree had its crown destroyed during logging (as well as being suppressed by an adjoining H tree). It appears that as part of the Forestry Corporation's clean-up for the EPA it was marked as "cancelled" with a nearby tree marked as an R tree (presumably as the replacement) despite having butt damage and dying crown due to suppression by an adjacent H tree.



Around log dump 8 there were 2 H trees and 2 R trees that had suffered significant butt damage. Despite having to walk past these to place their audit plots the EPA failed to count these as non-compliances. With their blinkered approach they failed to identify any non-compliances.



EPA habitat tree assessment sites of March 2015, note their locations on ridges near roads.

It is apparent that the Forestry Corporation recognise that they don't need to worry about EPA inspections on steeper and less accessible sites where they feel free to flagrantly breach the rules.





Despite the Forestry Corporation's clean up on ridges, below the plot sites there were still numerous breaches that the EPA failed to identify. LEFT: Just downslope from the EPA audit area numerous H and R trees had been damaged and had debris left around them, in this photo 4 hollow-bearing (H) and one Recruitment (R) habitat tree had their crowns knocked out by having trees felled on them, with damage to their trunks and piles of debris left around all 10 habitat trees in the vicinity, ready for cremation. RIGHT: H tree with top knocked out and debris left around base in the same vicinity.



Examples of ongoing damage to habitat trees observed in NEFA's August visit to Cherry Tree State Forest. It was obvious that habitat trees were still being treated with contempt. LEFT: A marked habitat tree with its crown knocked out. RIGHT: Debris left around a habitat tree.

To our disappointment our second visit on the 24 August revealed that these problems were ongoing and that there was no apparent improvement. It was obvious that our complaint and the EPA's token audit had resulted in no improvement. We again found that habitat trees were being inappropriately identified, damaged in logging and left with debris around them. In our second complaint to the Minister regarding logging in the vicinity of log dumps 6 and 7 we noted in relation to habitat trees that "we continue to press our concerns that requirements are apparently not being met".

It was apparent that across most of the area that there had still been no improvement - our attempts to arrest further breaches by exposing the problem had been in vain. Because of the EPA's slackness and ineptitude thousands of trees were logged and damaged in the logging operation that should not have been. It was thus apparent that unless we quantified our concerns that the EPA would do nothing to hold the Forestry Corporation to account.



Accordingly NEFA (Pugh 2015) assessed damage to marked habitat trees at 3 sites (1,2 and 3) totalling 43.3 ha in Compartments 359 and 361, and compliance with retention requirements at one site (3) totalling 3.3 ha. From Site 3 NEFA found that the required numbers of habitat trees were not being retained, noting:

Across the 3.3 hectares marked habitat tree retention was 4.5 H trees/ha and 3.9 R trees/ha, both of which are significantly below the requirements for this compartment. Three trees marked as R trees were observed to have hollows (AMG 476107, 6798517, 476055, 6798553, 476038, 6798553), with re-assignation of these trees as H trees, habitat tree retention was 5.5 H trees/ha and 3.0 R trees/ha. It is evident that retention of hollow-bearing trees was well below the 8 per hectare required and that there were additional hollow-bearing trees available for retention that were logged.

Similarly it is evident that the required numbers of R trees were not retained, and that most marked trees did not satisfy retention requirements. There were abundant stumps in the size range 50-100cm from logging, making it evident that most (if not all) of the largest cohorts of trees that should have been retained as R trees were logged. Only 5 of the marked R trees were accepted as reasonable choices, though these were still small trees and did not belong to the largest cohort of trees as evidenced by stumps. This is a retention rate of only 1.5 R

trees per hectare. When considered with the significant logging damage to retained trees, the outcome is extremely bad.

Based on this sample, with the reassignment of some R trees as H trees and discount of R trees we considered unsuitable choices. NEFA found:

By extrapolation of the results from site 3 across the nett area of compartments 359 and 361 (allowing for reclassification of R trees with hollows to H trees), there are some 1,670 H trees and 460 suitable R trees retained.

This means there are shortfalls of some 810 (33%) in the required number of H trees and some 1090 (70%) in the required number of R trees.

In the EPA's subsequent response (Michael Hood 21 December 2016) they identify they assessed 21 hectares and (without discounting R trees that did not satisfy retention requirements) found retention of recruitment trees adequate but that only 6.95 hollow-bearing trees per hectare were retained, giving a shortfall of 275 hollow-bearing trees for just compartment 359 (325 across both compartments), though they included Forestry Corporation data, to conclude the shortfall is just 172 hollow-bearing trees. The EPA did record inappropriate selection of recruitment trees as an offence though failed to document its extent or discount inappropriate trees when identifying retention rates. The EPA state:

The analysis reflected over page has been conducted for **compartment 359 alone** where the EPA has decided to apply a conservative approach to condition 6.9d which requires 8H/ha. The net harvest area for compartment 359 is 262ha. In effect there was a requirement of 2096 hollow bearing trees, and 1310 recruitment trees for this area.

Tree Retention Results

Based on extrapolation, if the retention rate trend was maintained across the rest of compartment 359 (i.e. across the remaining 230 hectares) there would be a shortfall of hollow bearing tree of approximately **172 trees or approximately 0.75 hollow bearing trees per hectare**. This was calculated based on EPA retention rate of 6.8H/ha plus FCNSW retention rate of 7.5h/ha = 7.25H/ha retained on average. The EPA notes that recruitment tree retention rates were 6.25R/ha, more than 1 recruitment tree per hectares more than the minimum required rates. This analysis is based on 32 hectares of assessed area, equivalent to 12% sampling intensity.

Even with the addition of the Forestry Corporation data, this suggests a shortfall of 232 H trees across both compartments. Despite finding a significant shortfall in the required retention of hollow-bearing trees, the EPA only issued an Official Caution. Note that NEFA maintains it was wrong for the EPA not to discount inappropriately selected R trees in determining retention rates, particularly as their Official Caution included inappropriate selection of R trees.

NEFA's sample of 43.3 ha in Compartments 359 and 361 for damage to habitat (H and R) trees was far more comprehensive, though is considered conservative as damage to many marked trees is likely to have been missed in the rapid assessment undertaken. Given the abundance of debris around many trees, butt damage will be significantly understated. It was evident that for many trees the visible damage to butts and trunks belied the more extensive internal damage sustained from the force of the blows.

In total within Sites 1,2 and 3, 23 H trees and 43 R trees had canopy and/or butt damage, giving likely physical logging damage to marked habitat trees across both compartments as 215 H trees and 308 R trees. In addition to physical damage 30 H trees and 34 R trees had debris left around them, giving debris across both compartments likely to have been left around 215 H trees and 243 R trees. The debris is likely to result in significant damage in post-logging burns.

When the EPA (Michael Hood 21 December 2016) provided their "final" response to our Cherry Tree audit they deferred consideration of our complaints regarding roading and logging in the EEC Lowland Rainforest and damage to habitat trees. They thereafter told us they were considering legal action, and even requested high resolution images of all the habitat tree breaches we had identified. They strung us along for almost a year before telling us (Michael Hood,1 December 2017) that they would take no regulatory action at all. Despite the EPA confirming our complaints for Cherry Tree State Forest from their sample, they refused to take any action what-so-ever for the widespread damage to habitat trees on the spurious grounds that they couldn't prove that the Forestry Corporation caused the damage, even suggesting to us that indeed someone else may have sneaked in there while logging was underway (presumably with a bulldozer and chainsaw) and caused the damage:

Inspections conducted by EPA officers identified 22 trees with crown damage, 51 trees with butt damage and 49 trees that appeared to have debris greater than one metre in height within a five metre radius. These observations were subsequently the subject of further investigations.

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



It is obvious when habitat trees have been damaged during logging yet the EPA now claim that they cannot prove that this is logging damage, or that it may have been caused by some unknown persons. LEFT: One of numerous marked habitat trees knocked by machinery when a snig track was created up to its base. RIGHT: One of many habitat trees obviously damaged by having trees dropped on it, with the debris left around it and surrounding stumps clearly showing the source of the debris. No regulatory action was taken for these or hundreds of similar breaches.

The EPA do not extrapolate their results across the logging area. If it is assumed that this damage was recorded on the EPA's 23ha sample of the nett area of 310ha, for compartments 359 and 361,

this would indicate 984 of the retained habitat trees being physically damaged and 661 with debris left around them, making NEFA's estimate very conservative.

Having spent many days auditing the operation and documenting trees that had been obviously damaged during logging NEFA considers that it is easy to identify the cause of the damage from machinery tracks, locations of tree stumps and the position of cut-off tree heads, Given that drainage works are implemented after each area is logged it was not possible for another person (as the EPA suggested to me) to have caused the damage later, and the idea that someone could operate in there unnoticed causing widespread damage while logging is underway is preposterous.

For the 122 offences the EPA found relating to damage to habitat trees in Cherry Tree they took no action what-so-ever, not even requesting an Action Plan. Indeed with this new interpretation it seems that will never be able to take an action again unless the Forestry Corporation first admits that they committed the offence, It is evident from the Forestry Corporation's response to all of the EPA's 2015 audits that they rarely admit anything.

Private Native Forestry

There is no prescription specifically for Greater Gliders in PNF, though the Private Native Forestry Code of Practice for Northern NSW does require similar increases in protection where there are records of owls:

Where there is a record within the area of forest operations or within 500 metres of the area of forest operations for the powerful owl, masked owl or sooty owl or 250 metres for the barking owl, the following prescriptions apply:

- (a) Buffer zones with a 1000-metre radius (about 300 hectares) for the powerful owl, masked owl or sooty owl and 500-metre radius (about 78 hectares) for the barking owl must be identified, centred on the location of the record or records. The radius of the buffer zone must be measured from the location of the record. Where there is more than one record, the radius of the buffer zone must be measured from a point equidistant from most records, where possible.
- (b) Within this buffer zone, the following additional prescriptions must be implemented:
 - (i) A minimum of 15 trees per 2 hectares with visible hollows must be retained where available.
 - (ii) A recruitment tree must be retained for each hollow bearing tree retained. Where the total number of hollow bearing trees and recruitment trees is less than 30 trees per 2 hectares, additional recruitment trees must be retained to bring the number up to 30 trees per 2 hectares.
 - (iii) Disturbance to understorey trees and shrubs, ground logs, and rocks and litter must be minimised.

While this is theoretically a far superior prescription for the Greater Glider than that applied to public lands, without any requirements for surveys it is in effect meaningless in most cases. For example, because this prescription had not been triggered at both of NEFA's private property audit locations, despite the presence of obviously suitable habitat, we engaged an expert who recorded Sooty Owl and a Masked Owl at Whian Whian and Masked Owl at Limpinwood, thereby triggering this prescription. It is evident that had NEFA not intervened the owls, and by default the Greater Gliders, would not have been given the protection they warranted.

Proposed Coastal IFOA

There is no species-specific prescription for Greater Gliders in the new Coastal IFOA.

The Greater Glider will be significantly affected by the removal of requirements for additional hollow-bearing trees where >1 GG per ha, and in the longer term by the removal of the need to restore 5

hollow-bearing trees per ha in escarpment forests and the need to retain the recruitment trees needed to replace hollow-bearing trees as they die out.

Hastings River Mouse

The Hastings River Mouse *Pseudomys oralis* is listed as 'Endangered' under the EPBC Act. The Hastings River Mouse *Pseudomys oralis* is restricted to upland open forests and woodlands with grass, heath or sedge understorey in north-east New South Wales and south-east Queensland, it is patchily distributed with seven known genetically discrete populations.

There is no 'Conservation Advice' or 'Listing Advice" though there is a Recovery Plan developed by NSW in 2005 and adopted by the Commonwealth in 2008 Recovery Plan for the Hastings River Mouse (Pseudomys oralis).

The protracted process of adopting the plan is testimony to NSW's antagonism to Recovery Planning. The Hastings River Mouse (HRM) Recovery Team had its inaugural meeting on the 23rd and 24th July 1992. This was the first recovery team for a threatened fauna species formed in NSW. The Recovery Team implemented a 3 year research program with the aim of finalising a Recovery Plan within 4 years, i.e. by 1996. While the research was completed, the NPWS frustrated the preparation of the plan. After years of procrastination the preliminary draft Recovery Plan was prepared on 19th May 1997 and discussed at the HRMRT meeting of 23rd May. The next meeting of the HRMRT was not until 22nd December 1997, with the draft Recovery Plan not provided until just before that meeting. The final version of the Plan was to be agreed by the 13th February 1998. The HRMRT did not meet again. The Recovery Plan for the Hastings River Mouse was not adopted until April 2005, thirteen years after it was started and 8 years after the draft plan was prepared.

Habitat alteration and fragmentation of Hastings River Mouse habitat is predominantly a result of frequent fire, forestry activities, clearing activities, grazing and weed infestation (DECCW 2005). The Recovery Plan states:

Timber harvesting impacts adversely on the Hastings River Mouse by reducing shelter provided by hollow logs and old-growth stems with butt cavities. Harvesting activities also open up the understorey and create roads and tracks potentially leading to increased predation pressure. The Hastings River Mouse has been found in logged areas (Meek et al 2003), however, the largest and most stable populations located to date occur in unlogged old-growth forest (Townley 2000a).

The Recovery Plan identifies some actions as:

6.2 Research

Specific Objective: Increase understanding of the ecology and management of the Hastings River Mouse, particularly in relation to disturbance and threatening processes.

Action 2.3: Give priority to research projects that focus on the impact of disturbance, threatening processes and the development of mitigation measures.

Justification: Although significant research has been conducted on the Hastings River Mouse, aspects of the species' ecology and causes of rarity remain unclear. Additional knowledge of the species' ecology and response to disturbance and threatening processes will assist in refining and directing recovery actions.

6.5 Management

Specific Objective: To implement effective management of Hastings River Mouse populations.

Action 5.1: Develop Hastings River Mouse population management programs based on the best available knowledge and the Interim Management Guidelines provided in Appendix 3.

Justification: To ensure that populations of the Hastings River Mouse are actively managed using the most recent and available knowledge.

Specific Objective: To ensure that Hastings River Mouse populations and habitats are identified and managed to minimise impact from developments and activities.

Action 5.2: Develop and provide Environmental Impact Assessment (EIA) guidelines to councils and development control authorities to assist in the assessment of potential impacts from activities on Hastings River Mouse populations or habitat.

Justification: To adequately assess the likelihood of presence of Hastings River Mouse populations or habitat in an area, specific survey and assessment techniques are required. Guidelines should have modelled habitat maps attached. Interim guidelines are provided in Appendices 3 and 4.

Performance Criterion: Guidelines are developed within the life of the plan.

Action 5.3: Develop guidelines for the management of Hastings River Mouse populations and habitat and provide to public authorities, land management agencies and private landholders associated with the management of the Hastings River Mouse.

Justification: Provision of guidelines will assist in the management of Hastings River Mouse populations being incorporated into existing planning and management processes. Interim guidelines are provided in Appendix 3.

Performance Criterion: Guidelines are developed and provided to relevant land managers, public authorities and land holders within three years of the commencement of the plan.

The 2005 Recovery Plan includes "Appendix 2. Interim Hastings River Mouse Trapping and Population Survey Guidelines" identifying "The minimum specifications for trapping are as follows":

a) The minimum trap effort at a locality must be 100 size A Elliott traps over four nights (400 trap nights) for areas up to 50 hectares of moderate or high quality habitat or both. An additional 400 trap nights (100 traps for four nights) per 50 hectares above the original 50 hectares.

The 2005 Recovery Plan includes as "Appendix 3. Interim Hastings River Mouse Management Guidelines":

Timber Harvesting

<u>Surveys:</u> Pre-logging habitat and population surveys (Appendixes 1 & 2) should be carried out by the relevant agencies in areas not covered by the Integrated Forestry Operations Approvals for the Upper North East and Lower North East Regions.

<u>Timber Harvesting</u>: Timber harvesting and associated activities should be excluded from areas of medium to high quality Hastings River Mouse habitat.

Within a 200 m buffer around medium to high quality Hastings River Mouse habitat and mapped Hastings River Mouse corridors the following should apply:

- if the area is unlogged or has not been logged since 1950 it will remain unlogged;
- in other areas a minimum of six mature trees with basal hollows, or trees likely to develop basal hollows, per hectare will be retained; all burning will be excluded; and no fire wood collection should occur within 200 m of a known Hastings River Mouse population.

The Hastings River Mouse was one of those targeted for reservation in the CRA process, with population targets established for 8 discrete populations. These targets were adopted to represent the number of breeding females required to be included in reserves to achieve the long term survival of the species. As with most endangered species the CRA process abjectly failed to deliver on the reservation requirements for this species, with only 8% of the mean of the habitat targeted for reservation included in the reserve system in north-east NSW, with 6 populations achieving less than 10% of their reservation targets (see Table).

HASTINGS RIVER MOUSE RESERVE STATUS IN NORTH EAST NSW AS AT 2004 (From Flint et. al. 2004)

	Population Targeted for Reservation	Estimated Total Population Reserved	Percentage of Reserve Target Achieved
Hastings River Mouse - pop.1	4238	3	1%
Hastings River Mouse - pop.2	4251	116	3%
Hastings River Mouse - pop.3	4251	322	8%
Hastings River Mouse - pop.4	4251	47	1%
Hastings River Mouse - pop.5	4238	523	12%
Hastings River Mouse - pop.6	4238	1231	29%
Hastings River Mouse - pop.7	4251	287	7%
Hastings River Mouse - pop.8	4251	334	8%
TOTAL	33969	2863	8%

The Hastings River Mouse has already been identified as having a high likelihood of becoming extinct within the next 50 years. The extremely low level of reservation achieved has guaranteed that this will be the case unless strong and effective management is applied off-reserve. The RFA requires that IFOA prescriptions take into account the extent of reserved habitat (1A 9, 1(B)13).

Current Threatened Species Licence

For public lands the 1988 Threatened Species Licence gave forests NSW the choice of establishing "An exclusion zone, or exclusion zones, … to protect all modelled habitat within the compartment" or undertaking specified habitat assessments to identify habitat of moderate or high suitability within which targeted trapping surveys are required (TSL 8.8.9).. The Threatened Species Licence (TSL 6.13) required that exclusion zones of 200 metres must be established around records of Hastings River Mouse, extending to 800m in Hastings River Mouse habitat assessed as of moderate or high suitability. So the requirement is to only protect part of the medium and high quality habitat if they happen to catch a Hasting River Mouse, with no application of a 200m buffer to that habitat..

This is effectively a major reduction on what the Recovery Plan identifies as a Management Guideline in Appendix 3 for logging, though the Recovery Plan recognises this prescription, stating: In NSW, an Integrated Forestry Operations Approval (IFOA) granted under part 4 of the NSW Forestry and National Park Estate Act 1998 (FNPE Act) regulates the carrying out of certain forestry operations, including logging, in the public forests of a region. The terms of the Threatened Species Licence of the IFOA outline the minimum protection measures

required to limit the impact of forestry activities on threatened species and their habitats and forms the basis for DECC regulation of those activities. The Threatened Species Licence for the Upper North East and Lower North East Regions include measures for the protection of the Hastings River Mouse.

Specific prescriptions for the Hastings River Mouse state that where there is a record of the species in a compartment or within 800 m outside the boundary of the compartment the following must apply:

- a) Within 800 m of a record of the Hastings River Mouse, 'specified forestry activities' as defined in the IFOA, are prohibited from all areas assessed as moderate or high suitability Hastings River Mouse habitat.
- b) An exclusion zone of at least 200 m radius must be implemented around all records of the Hastings River Mouse.

The prescriptions dictate how targeted surveys for the Hastings River Mouse and habitat suitability assessments must be conducted. Hastings River Mouse microhabitat models (Smith & Quin 1997) used to determine the level of habitat suitability are included in the prescriptions (See Appendix 1).

There are potential threats from logging to Hastings River Mouse sites on private property. Issues relating to timber harvesting include road construction, use of heavy machinery, timber removal and burning to stimulate regeneration and limit wildfires (Smith et al. 1994).

Many of the identified threats to the Hastings River Mouse are intrinsically linked and the magnitude of the effect of one threat is often related to the presence or absence of other threatening processes

The Threatened Species Licence was amended in 2007 and in 2010 so as allow logging operations within 31 compartments in 6 State Forests to be undertaken within areas that would otherwise be required to be protected (TSL 6.13B). These included Mount Mitchell State Forest Compartments 16, 17 and 18. This over-rides TSL 6.13 by establishing mapped HRM exclusion zone and HRM operational zones, with snigging and roading allowed in the operational zones.

These changes were in contravention of the Recovery Plan Action 5.1: Develop Hastings River Mouse population management programs based on the best available knowledge and the Interim Management Guidelines provided in Appendix 3.It is a safe bet that this major wind-back in protection for the Hastings River Mouse was never subject to monitoring to assess impacts on Hastings River Mouse and the effectiveness of the new measures.

What is most alarming is that this reduced protection appears to have been approved because of the high numbers of Hastings River Mice in these areas. For example, there were 16 records of Hastings River Mouse made in compartment 16 of Mount Mitchell SF, indicating a much larger population inhabiting the area and one likely to be of national significance. Such areas should be designated critical habitat and fully protected (particularly given the poor reservation status of this species) rather than being allowed to be logged with reduced protection.

The 2010 Review of NSW Forest Agreements and Integrated Forestry Operations Approvals: Upper North East, Lower North East, Eden and Southern regions stated:

Current Hasting River Mouse survey requirements and exclusion zones do not reflect current knowledge of Hasting River Mouse occurrence. Habitat suitability surveys are used to identify areas where trapping is required but are limited to areas within modelled habitat. The model is deficient because many records of the species fall outside of modelled habitat.

To counter this deficiency, habitat suitability surveys within compartments containing 'known habitat' as well as those containing modelled habitat is appropriate; however, there is a need for Forests NSW to document the process of 'rapid assessment' of habitat suitability.

Forests NSW proposes that the Hastings River Mouse is now more widespread and numerous than when existing conditions were developed, and that the home range of the species is now known to be relatively small. As such, Forests NSW considers that exclusion zones of up to 800 m diameter are not appropriate.

One of the recommended changes was:

Forests NSW is to apply an exclusion zone covering 12 ha (equivalent to a circle of approximately 200 m radius) where there is a record of Hastings River Mouse of suitable habitat.

In contravention of the Recovery Plan requirement the prescription for the Hastings River Mouse was changed on the 7 November 2011. There does not appear to have been any attempt to critically review Forests NSW's claims, or to assess the likely consequences of the changes on Hastings River Mouse. The retention of habitat around Hastings River Mouse records was dramatically reduced from an exclusion area encompassing all habitat of moderate or high suitability within 800m (a potential maximum of 200ha) and all land within 200m, down to a 12ha exclusion area encompassing as much habitat as practical around a record:

6.13 Hastings River Mouse Pseudomys oralis

Where there is a record of a Hastings River Mouse in the compartment or within 200 metres outside the boundary of the compartment, the following must apply:

a) A 12 ha exclusion zone that takes in as much Suitable Habitat for Hastings River Mouse as practical, must be established around the record. The exclusion zone need not be symmetrical and should, where possible, link to other areas excluded from harvesting activities.

This had the effect of opening-up large areas of Hastings River Mouse Habitat protected for well over a decade for logging.

Instead of undertaking surveys the Forestry Corporation have the option under condition 7(x) of "An exclusion zone, or exclusion zones, must be implement to protect all modelled habitat within the compartment".

The 7 November 2011 change also significantly reduced the likelihood of locating Hastings River Mouse by, for example, halving the Recovery Plan's (Appendix 2) trapping effort of a minimum of 400 trap nights per 50ha down to 200 trap nights per 50ha:

8.8.9 B Targeted surveys

Surveys to determine the presence of Hastings River Mouse must be conducted as follows:

- a) The minimum specifications for trapping are as follows:
 - i. The trap effort is to be at a rate of 1 size A Elliott trap over four nights for each hectare identified as having Suitable Habitat for Hastings River Mouse (either as the result of habitat suitability surveys under 8.8.9A or otherwise such as during compartment traverse or incidentally recorded).
 - i. The minimum number of traps will be 50 for up to 50 hectares, with 25 additional traps for each 25 hectares increment above 50 hectares, as follows:
 - 10-50 hectares 50 traps
 - 50-75 hectares 75 traps
 - 75-100 hectares 100 traps
 - > 100 hectares add additional 25 traps for each 25 ha increment

This change makes it less likely that the Hastings River Mouse will be located where it occurs. For example Meek et. al. (2003) report the results of pre-logging surveys for Hastings River Mouse at 7 sites where it was recorded (there is no information on how many apparently suitable sites it was not recorded at) identifying "*Trap success for P. oralis at Marengo was 1.7%* (excluding recaptures), 0.1% at Chaelundi, 0.3% at Hyland, 0.7% for Styx River, 0.8% for Glen Elgin, 0.4% for Enfield and 0.2% for Gibraltar Range". At 3 sites only single Hastings River Mouse were recorded, being 1 per 800 trap nights at Chaelundi, 1 per 400 trap nights at Hyland and 1 per 250 trap nights at Enfield (given the minimum effort was meant to be 400 trap nights it is not known why the Enfield trap nights were so low).

Given this confirmation of the low likelihood of detecting Hastings River Mouse, even when it is present, it is perplexing as to why the EPA effectively removed protection from many localities by reducing required trap-nights and thus the probability of detecting any Hastings River Mice that are present.

This major reduction in habitat protection is contrary to the National Recovery Plan for this species, most significantly Appendix 2. minimum specifications for trapping and Appendix 3 Timber Harvesting Guidelines. Such ad-hoc and unjustified changes are contrary to the objective to implement effective management of Hastings River Mouse populations in accordance with actions 5.1. and 5.2:

The TSL prescription is often ignored, for example, in three separate forests Sparks (2010) identified a total of 83 hectares of modelled habitat of the Hastings River Mouse that was logged without the required habitat or trapping surveys having been undertaken to justify not excluding the areas from logging. Because the required surveys were not done it is not known what effect this had on Hastings River Mouse. In a typically grossly inadequate response, the EPA (then DECCW) issued warning letters for two of these three breaches.

Private Native Forestry

The Private Native Forestry Code of Practice for Northern NSW requires:

Where there is a Hastings River mouse record within the area of forest operations or within 200 metres of the area of forest operations, the following must apply:

- (a) An exclusion zone with a 200-metre radius (about 12.5 hectares) must be identified, centred on the location of the record, within which the following additional prescriptions must be implemented:
 - (i) No forest operations or removal of understorey plants or groundcover are permitted.
 - (ii) No post-harvest burning is permitted.
 - (iii) Disturbance to any seepage areas within or adjacent to the exclusion zone, as well as to ground logs, rocks and litter, must be minimised.

The Recovery Plan (DECCW 2005) identifies that "Eight percent of known Hastings River Mouse sites are located on private land. There is a high probability that additional populations are located on private land". There are likely to be significant populations on freehold land as 21% of high quality habitat is modelled on freehold land.

The prescription applied to forestry operations on freehold land are a sham. Contrary to the Recovery Plan, the Private Native Forestry Code of Practice for Northern NSW ignores modelled habitat for this species and requires that a 200m exclusion area must be established around any known records. Because there are no requirements for surveys to locate this species (even in modelled habitat), and it is unlikely they will have been previously recorded on most private property sites where it occurs, this prescription will have absolutely no effect on most logging operations undertaken within occupied Hastings River Mouse habitat on private land.

Proposed Coastal IFOA

For Hastings River Mouse the new Coastal IFOA requires:

Where there is a record of a Hastings River Mouse in the operational area, or within 200 metres outside the boundary of the operational area:

(a) an exclusion zone that is 12 hectares or greater must be retained around each record, which must:

i. be dominated by Hastings River Mouse micro-habitat;

ii. have a low edge to area ratio; and

iii. link to other ESAs.

The current requirement to encompass "as much Suitable Habitat for Hastings River Mouse as practical" has effectively been reduced to "dominated by Hastings River Mouse micro-habitat" which is a lesser requirement.

The new IFOA Protocol 20: Pre-operational surveys (8) (f) Hastings River Mouse trapping surveys proposes "25 traps for each 25 hectares of Hastings River Mouse micro-habitat in the base net area, with a minimum effort of 50 traps", with traps "placed for a minimum of four nights". This is equivalent to the current prescription.

The Recovery Plan for the Endangered Hastings River Mouse was adopted in 2005 by NSW thirteen years after it was started and 8 years after the draft plan was prepared. It was adopted in 2008 by the Commonweaith. It includes specific survey and habitat requirements which were initially incorporated into the Threatened Species Licence in a reduced form. In contravention of the Recovery Plan the Threatened Species Licence was amended in 2007 and in 2010 so as allow logging operations within 31 compartments in 6 State Forests to be undertaken within areas that would otherwise be required to be protected. The prescription for the Hastings River Mouse was changed in November 2011 to significantly reduce exclusion areas and survey requirements to reduce the likelihood of detecting its presence. Habitat retention requirements are proposed to be further reduced in the Coastal IFOA. There is evidence that the reduced surveys have significantly reduced the likelihood of detecting Hastings River Mouse, though there has never been any attempt to assess the effectiveness of the reduced prescription. The current and proposed prescriptions are clearly not consistent with the Recovery Plan.

Graham, K., Blackwell, G. and Hochuli, D., 2005. Habitat use by the Hastings River mouse, Pseudomys oralis. *Australian Zoologist*, 33(1), pp.100-107.

Meek, P.D., Mccray, K. and Cann, B., 2003. New records of Hastings River mouse Pseudomys oralis from State Forest of New South Wales pre-logging surveys. *Australian Mammalogy*, *25*(1), pp.101-105.

Broad-toothed Rat

The Broad-toothed Rat (*Mastocomys fuscus mordicus*) is listed as 'Vulnerable' under NSW legislation (with the Barrington Tops population identified as Endangered) and under the EPBC Act. It is found in found in alpine and sub-alpine heathlands and open eucalypt woodlands in patches where there is a dense ground cover of grasses, sedges and shrubs.

There is a 2016 'Conservation Advice *Mastocomys fuscus mordicus* broad-toothed rat (mainland)', but no Recovery Plan.

The Conservation Advice identifies habitat change due to too frequent burning, stock grazing, weeds and dieback as significant threats, also identifying "Habitat change due to logging" as a "A likely threat, but impacts are uncertain".

The Conservation Advice identifies as **Survey and monitoring priorities**:

Undertake a targeted survey of all suitable habitat within the subspecies' range. Design an integrated monitoring program across subpopulations, linked to an assessment of management effectiveness.

In 2001 the NSW Scientific Committee made a Final Determination to list the Barrington Tops population of Broad-toothed Rat, *Mastacomys fuscus*, as an Endangered population on the grounds that it is in immediate danger of extinction.

The OEH Action Statement for this Endangered population identifies "interim" management actions as including:

Research impact of disturbance and threatening processes, and determine mitigation measures.

Ongoing abundance surveys, identify key colonies, and implement monitoring program with micro-chipping equipment.

Develop and distribute environmental impact assessment and management guidelines. Complete preparation of the recovery plan in 2007.

And identifies activities as including "Protect areas of habitat from clearing and disturbance" and 'Support surveys in potential habitat'.

Current Threatened Species Licence

Under the original TSL the Broad-toothed Rat was identified under "1.2 Species Requiring Site-specific conditions", with explicit survey requirements:

Surveys for the Broad-toothed Rat must be conducted as follows:

- a) 75 size A Elliott traps baited with a mixture of rolled oats, peanut butter and honey must be spaced at ten metres intervals, in potential habitat.
- b) Traps must be set for a minimum of four nights.
- c) Survey Season: Anytime of the year, preferably avoiding cold, wet periods.

Changes in March 2013 included a prescription to require the protection for the endangered Barrington Tops population of Broad-toothed Rat by requiring protection of "Suitable habitat for Broad-Toothed Rat" (specifically defined to include heath and sedge/rush communities associated with saturated soil conditions) and a 20m buffer, requiring:

- a) Where Suitable habitat for the Broad-toothed Rat extends beyond the boundary of a wetland, soak, bog, seepage or riparian exclusion zone, the boundary of the suitable habitat must be identified and an additional 20m exclusion zone must be applied to it.
- b) Any area of Suitable habitat for the Broad-toothed Rat and exclusion zone that is greater than 0.1 ha must be marked in the field and mapped on the operational map.

The need to survey for the Broad-toothed Rat was removed, though replaced with a requirement to retain and buffer all "Suitable habitat for Broad-Toothed Rat".

Private Native Forestry

There is no prescription for this species.

Proposed Coastal IFOA

The new Coatal IFOA assumes that the Broad-toothed Rat is "considered adequately protected by the multi-scale protection measures".

The Barrington Tops population of the Vulnerable Broad-toothed Rat is listed as an endangered population. The current prescription requires all "Suitable habitat for Broad-Toothed Rat" to be protected with a 20m buffer. All species-specific protection is intended to be removed. It can not be assumed that this endangered population is adequately protected by the proposed exclusions. The

Conservation Advice requirement to "Undertake a targeted survey of all suitable habitat within the subspecies' range" and to undertake a monitoring program to assess management effectiveness have not been complied with.

Large-eared Pied Bat

Large-eared Pied Bat (*Chalinolobus dwyeri*) is listed as 'Vulnerable' under the EPBC Act. The Recovery Plan identifies that little is known about this species, observing: "*Over most of its range, the large-eared pied bat appears to roost predominantly in caves and overhangs ... and forage in nearby high-fertility forest or woodland near watercourses"*.

There is a 2011 'National recovery plan for the large-eared pied bat Chalinolobus dwyeri', and a 2012'Commonwealth Listing Advice on Chalinolobus dwyeri (Large-eared Pied Bat)'.

The Recovery Plan identifies that little is known about threats to this species, though roost sites are considered particularly vulnerable, also considering:

Vegetation clearance in the proximity of roosts

Clearing or harvesting of vegetation in or around roosts has the potential to affect foraging resources through habitat loss and fragmentation of the surrounding vegetation. This is likely to be particularly detrimental in the vicinity of maternity roosts where pregnant and lactating females require sufficient food resources to raise young. The microclimate within roosts may also be altered through adjacent clearing and logging altering solar radiation levels and groundwater levels.

Identified actions include:

Specific Objective 2: Implement conservation and management strategies for priority sites

Action 2.1 Protection of known roosts and associated foraging habitats and management of threats.

Methodology: Roost and maternity sites, together with foraging habitat, not already located within protected areas, (identified from Actions 1.1-1.5) to be protected under relevant legislation and/or other options such as conservation covenants and voluntary agreements to ensure protection.

Action 2.5 Undertake monitoring to assess the impact of prescribed management strategies.

Methodology: Conservation measures undertaken at priority sites (as identified in Action 1.3) for the large-eared pied bat, including non-breeding populations, roost and maternity sites need to be monitored to assess the efficacy of the strategies. The monitoring of such sites will evaluate the impact of actions on the specific populations and contribute to measuring the effectiveness of the recovery program. It is important that on-ground works do not interfere with the ability of the bats to function normally within their environment. This information will be made publicly available.

Performance criteria: A consistent and coordinated monitoring and reporting process implemented across the relevant states through the development of (i) A monitoring plan and; (ii) Annual progress reporting system.

The Recovery Plan identifies "Management practices that will protect large-eared pied bat populations" include "Regulation of vegetation clearing or logging within the vicinity of known or potential roosts".

The OEH 'Large-eared Pied Bat - profile' identifies threats as including:

Loss of foraging habitat close to cliffs, caves and old mine workings from forestry activities and too-frequent burning, usually associated with grazing.

And activities as including:

Protect known and potential forest and woodland habitat around cliffs, rock overhangs and old mine workings from clearing and isolation.

Current Threatened Species Licence

The current TSL requires that for the Large-eared Pied Bat:

- a) A 50 metres wide buffer must be established around entries to known major subterranean roosting sites of these species. Specified forestry activities must be excluded from these buffers.
- b) These buffers must be mapped on the Harvesting Plan Operational Map

Private Native Forestry

There is no prescription for this species.

Proposed Coastal IFOA

The new Coastal IFOA considers that the Large-eared Pied Bat is "protected by a species-specific condition applying to a nest, den, roost, camp or feed tree retention".

It is assumed that it is considered to be covered by clause 87. Subterranean bat roosts which requires that an *exclusion zone* with a minimum radius of 100 metres must be retained around a cave, mine, tunnel or rock overhang, and 40m around a disused mine shaft, unless bats are proved to be absent in accordance with "*Protocol 30: Subterranean bat roosts and flying-fox camps*".

The 2011 'National recovery plan for the large-eared pied bat Chalinolobus dwyeri' identifies that it roosts in caves and overhangs and forage in nearby high-fertility forest or woodland near watercourses, with the protection of known roosts and associated foraging habitats, with monitoring of the effectiveness of prescriptions. The current TSL requires 50 m buffers around roosts and the new Coastal IFOA generally requires 100m buffers around potential roosts, though neither require protection of associated foraging habitat. The effectiveness of the current or proposed prescriptions have never been monitored. The proposed Coastal IFOA significantly increases logging intensity and reduces headwater stream buffers which will significantly increase impacts on the foraging habitat of this species. It clearly contravenes the Recovery Plan.

BIRDS

Coxen's fig-parrot

Coxen's fig-parrot (*Cyclopsitta diophthalma coxeni*) is listed as endangered under the EPBC Act. The NSW Scientific Committee's 2007-2009 review of the conservation status of a selection of species recommended that Coxen's Fig-Parrot be upgraded to Critically Endangered.

Coxen's fig-parrot *Cyclopsitta diophthalma coxeni* recovery plan 2001–2005 identifies as a threat:

disturbance to some suspected ecotonal breeding areas;

Also recognising:

Logging and associated disturbance of the subtropical rainforest/eucalypt ecotones thought to be part of the breeding habitat may also be a threat for the subspecies. Forshaw (1981) emphasises the special need to protect the rainforest edge where burning, clearing or logging operations not specifically targeted at the rainforest can be particularly damaging.

The Recovery Plan identifies as an action:

10.4.1 Develop management prescriptions and protocols for logging identified Coxen's fig-parrot habitat

Much of the bird's remaining habitat occurs in state forests and, at least in the locations described by Norris (1964), Holmes (1994a, 1995) and J. Young (pers. comm.), logging adjacent to rainforest may have affected the bird's habitat. Probable fig-parrot nests have been observed as early as July in mature flooded gum Eucalyptus grandis near the rainforest edge and in areas with a rainforest understorey (J. Young pers. comm.).

Threatened Species Licence conditions in the NSW Integrated Forestry Operations Approval (IFOA) require SF NSW and NSW NPWS to jointly develop and agree on site-specific conditions for all records in state forest that may be affected by logging operations. Such operations must not commence until these conditions are in place.

Conditions relating to proposed logging near rainforest in state forests north of the Bruxner Highway in NSW are currently being developed but extension of management guidelines to include all probable habitat in state forests within the bird's range is required. Rainforest edge buffers currently approved under the IFOA may require amendment in the vicinity of known fig-parrot habitat. These buffers should be protected from controlled burns during the August-December breeding season.

. . .

Outcome

Existing habitat within state forests will be protected.

The Recovery Plan identifies "Prescriptions and logging protocols" as a number 1 priority.

The Threatened Species Scientific Committee (2016) 'Conservation Advice *Cyclopsitta diophthalma coxeni* Coxen's fig-parrot' identifies as threats:

Clearance of Habitat

Logging, land clearing and associated disturbance of the subtropical rainforest/eucalypt ecotones thought to be part of the breeding habitat may be a threat for the subspecies. Forshaw (1981 cited in Coxen's Fig-Parrot Recovery Team 2001) emphasises the special need to protect the rainforest edge where burning, clearing or logging operations not specifically targeted at the rainforest can be particularly damaging (Coxen's Fig-Parrot Recovery Team 2001).

and as an action:

Survey and Monitoring priorities

• Undertake survey work in suitable habitat and potential habitat to locate any additional occurrences and to more precisely assess population size and distribution.

Current Threatened Species Licence

The TSL (8.6) relies upon incidental sightings for Coxen's Fig Parrot (there are no targeted survey requirements) and the implementation (TSL 1.2.) of Site Specific Conditions only when it is recorded.

Private Native Forestry

There is no prescription for this species.

Proposed Coastal IFOA

The new Coastal IFOA identifies the Coxen's Fig Parrot as a "Fauna threatened species considered adequately protected by the multi-scale protection measures".

The 2001–2005 Recovery Plan for the Endangered Coxen's Fig-parrot and the Commonwealth's 2016 Conservation Advice clearly identify the need to protect rainforest ecotones as potential breeding habitat for this species. This has never been provided. The NRC (2018) proposes the remapping of rainforest with a view to opening up substantial areas for logging. In their trial remapping 62% of rainforest was remapped as not being rainforest applying their new criteria. It is evident that the Recovery Plan and Conservation Advice for this species have never been complied with.

Regent Honeyeater and Swift Parrot

The Regent Honeyeater and the Swift Parrot are dealt with jointly as they are covered jointly in the planning process, with the same survey and protection requirements.

Researchers at Australia's Threatened Species Recovery Hub (Geyle *et. al.* 2018) recently identified that Regent Honeyeater has a 57% chance of extinction within the next 20 years and that Swift Parrot has a 31% chance of extinction within the next 20 years, ranking them the 7th and 13th most threatened birds in Australia.

It is the mature trees that produce the most nectar that are vital to species such as the Swift Parrot and Regent Honeyeater Older trees produce significantly more flowers and seeds than young trees and thus are of particular importance to fauna relying on these food sources. For Mountain Ash trees Ashton (1975) found:

The mature forest produced 2.15-15.5 times as many flowers as the pole stage trees, and 1.5-10 times as many as the spar stage forest. Estimates of the fruit set following the late autumn flowering of 1954 indicate that that of the mature forest was 1.6 times as great as that in the spar stage forest and 3.5 times as great as that in the pole stage forest.

REGENT HONEYEATER

Regent Honeyeater (*Anthochaera phrygia*, previously *Xanthomyza phrygia*) is listed as Critically Endangered under the EPBC Act. There are four known key breeding areas: three in NSW and one in Victoria,

There was previously a 1999 – 2003 Regent Honeyeater Recovery Plan. The Minister approved new Conservation Advice on 25/06/2015 and transferred this species from the Endangered to the Critically Endangered category, effective from 08/07/2015

The Conservation Advice identifies:

The decline of the Regent honeyeater is thought to be mainly due to the clearing, fragmentation and degradation of its habitat (Garnett et al., 2011). The species relies on a range of different food resources, and is particularly vulnerable to the removal of large mature trees which are important feeding and breeding habitat (Franklin et al., 1989; Oliver, 2000).

Primary Conservation Objectives

- 1. Reverse the long-term population trend of decline and increase the numbers of regent honeyeaters to a level where there is a viable, wild breeding population, even in poor breeding years
- 2. Maintain key regent honeyeater habitat in a condition that maximises survival and reproductive success, and provides refugia during periods of extreme environmental fluctuation.

Conservation and Management Actions

1. Improve the extent and quality of regent honeyeater habitat.

. . .

Information and research priorities

•••

4. Develop silvicultural techniques that accelerate maturity in key food species

The 2016 National Recovery Plan for the Regent Honeyeater states:

4.2.3 Habitat degradation

Remaining regent honeyeater habitat faces ongoing degradation and loss of quality, particularly on agricultural land in central and north-east Victoria and on the western slopes and northern tablelands of New South Wales. Loss of mature trees occurs through senescence, eucalypt dieback, harvesting for fence posts or firewood, or drought-induced stress

... It is important to identify and retain trees that produce relatively high levels of nectar. In some areas where there has been a history of removal of large trees, regent honeyeaters often select the largest available trees of the 'key' species. These trees are not necessarily mature or particularly large but are locally significant, producing heavier nectar flows than surrounding trees (Webster & Menkhorst 1992; Oliver 2000).

3.4.6 Habitat critical to survival

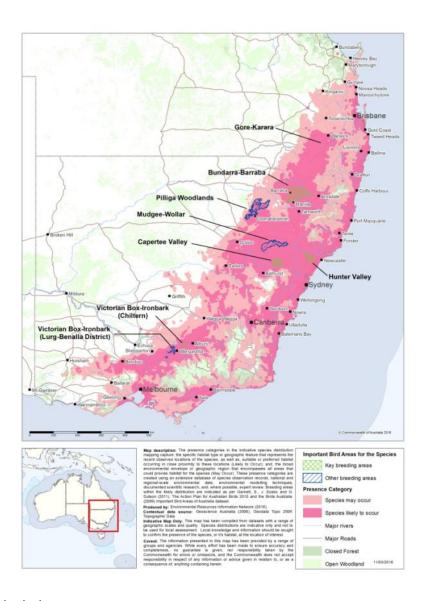
Habitat critical to the survival of the regent honeyeater includes:

Any breeding or foraging habitat in areas where the species is likely to occur (as defined by the distribution map provided in Figure 2); and

Any newly discovered breeding or foraging locations.

Key areas include the Bundarra-Barraba, Pilliga Woodlands, Mudgee-Wollar and the Capertee Valley and Hunter Valley areas in New South Wales, and the Chiltern and Lurg-Benalla regions of north-east Victoria (Table 2; Figure 1).

Habitat critical to the survival of the regent honeyeater occurs in a wide range of land ownership arrangements, including on private land, travelling stock routes and reserves, state forests and state reserves, and National Parks. It is essential that the highest level of protection is provided to these areas and that enhancement and protection measures target these productive sites.



Recovery Actions include:

1c Protect intact (high quality) areas of regent honeyeater breeding and foraging habitat (as described in '3.4.6 Habitat critical to survival').

With a performance criteria including:

- Clearing of mature foraging trees in areas of habitat critical to the survival of the species (as described in 3.4.6) has been limited.
- Any developments in areas of mapped breeding habitat (figure 1), or areas critical to survival (section 3.4.6) have incorporated suitable threat mitigation measures.
- If avoidance or mitigation were not possible, any developments that proceeded provided offsets that protected and/or rehabilitated habitat of equivalent or better quality.

Strategy 3 of the Recovery Plan focuses on "Increase understanding of the size, structure and population trends of the wild population of regent honeyeaters", while this is primarily focussed on research, there can be no doubt that well conducted pre-logging surveys could greatly enhance available information.

Regarding Socio-economic Impacts the Recovery Plan notes:

Public and private forestry harvesting operations are potential threats to the regent honeyeater. The retention of nesting areas and a suitable number of large mature trees for nectar production and to provide foraging habitat is required. Application of suitable prescriptions protecting regent honeyeater habitat in areas managed for forestry throughout the range of the regent honeyeater may reduce the volume of timber available for harvesting. The extent of this reduction is unknown at this stage.

SWIFT PARROT

The Swift Parrot Lathamus discolor is listed as 'Endangered' under the EPBC Act.

The first national recovery plan was adopted in 2002. A revised recovery plan was made in 2011. The National Recovery Plan for the Swift Parrot Lathamus discolor Recovery Plan (2011) states:

Based on current knowledge of the ecology and distribution of the Swift Parrot the persistence of this species is mainly threatened by loss and alteration of habitat from forestry activities including firewood harvesting, clearing for residential, agricultural and industrial developments, attrition of old growth trees in the agricultural landscape, suppression of forest regeneration, and frequent fire. The species is also threatened by the effects of climate change, food and nest source competition, flight collision hazards, psittacine beak and feather disease, and illegal capture and trade.

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

The most relevant action is under Manage and protect nesting and foraging habitat.:

2.1b. Provide recommendations for the revision and update of forestry prescriptions to reflect the most recent habitat information available in Victoria and New South Wales

DSE and OEH are identified to provide recommendations for revision of prescriptions for Swift Parrots when forestry licence agreements are due for renewal in each state.

It is specified under **Management practices**:

Where forestry operations continue to occur within foraging habitats on the mainland, logging prescriptions should include the retention of all trees 60cm DBH or greater, together with at least 5 trees per hectare from a mixture of other age classes (30-40cm, 40-50cm and 50-60cm DBH) to ensure continuity of food resources over time.

The Recovery Plan states in relation to Action 4(c), 'Monitoring the effectiveness of management prescriptions in conserving habitat in production forests', that:

In NSW detailed recommendations for improving prescription measures for Swift Parrot habitat have been provided repeatedly for inclusion during threatened species license reviews. However this information, including published scientific information, has not been accounted for in any prescriptions to date. Limited compliance monitoring of prescriptions is likely to be undertaken as part of a general audit process, however this does not include identifying inadequacies of the prescriptions.

Current Threatened Species Licence

The Threatened Species Licence (TSL) requires:

6.11 Swift Parrot Lathamus discolor, Regent Honeyeater Xanthomyza Phrygia, and Blackchinned Honeyeater (eastern sub-species) Melithreptus gularis gularis Where there is a record of Swift Parrot, Regent Honeyeater or Black-chinned Honeyeater (eastern subspecies) in a compartment, the following must apply:

- a) At least ten eucalypt feed trees must be retained within every two hectares of net logging area.
- b) Where a Swift Parrot, Regent Honeyeater or Black-chinned Honeyeater (eastern sub-species) is observed feeding, the tree in which it is feeding must be retained.
- c) The trees referred to in condition 6.11 (a) and (b) above must be marked for retention. Where retained eucalypt feed trees also meet the requirements of hollow-bearing or recruitment trees, the retained eucalypt feed tree may be counted as a hollow-bearing or recruitment tree

The TSL (8.8.4 D) requires that Diurnal Bird surveys target Regent Honeteater and Swift Parrots, during specific periods, with a minimum effort of:

Surveys must be conducted for a minimum of one person hour duration for areas up to 200 hectares of net survey area, plus an additional 15 minutes per 50 hectares above 200 hectares.

Regent Honeyeater nests are required to have a 20m buffer.

The TSL (7b vii) allows that instead of undertaking surveys as a default:

Swift Parrot and Regent Honeyeater: At least ten eucalypt feed trees must be retained within every two hectares of net logging area. These trees must be marked for retention. Where retained eucalypt feed trees also meet the requirements of hollow-bearing tree or recruitment trees, the retained eucalypt feed tree can be counted as a hollow-bearing tree or recruitment tree. Where a Swift Parrot or Regent Honeyeater is observed feeding, the tree in which it is feeding must be retained.

"Eucalypt feed tree" means mature or late mature trees of a variety of specified nectar producing species. It is the older trees that provide the most nectar and seed, thus the TSL requires they must be mature or late mature individuals. This requirement cannot be misinterpreted and applies to **every** area of 2 hectares.

These trees must be marked for retention (TSL 6.11, 5.6(g)). The licence also explicitly requires that habitat trees "must be marked for retention" and that "logging debris must not, to the greatest extent practicable, be allowed to accumulate within five metres" of a retained tree.

It is apparent that the TSL requirement for the retention of 5 "mature or late mature" nectar trees per hectare may not be in keeping with the Regent Honeyeater Recovery Plan objective of "limiting" clearing of mature foraging trees in areas of habitat critical to the survival of the species", though it is obviously not consistent with the Swift Parrot Recovery Plan requirement for "retention of all trees 60cm DBH or greater, together with at least 5 trees per hectare from a mixture of other age classes (30-40cm, 40-50cm and 50-60cm DBH) to ensure continuity of food resources over time".

As noted in the Swift Parrot Recovery Plan, the Recovery Team's advice "has not been accounted for in any prescriptions to date".

It is also apparent that the Swift Parrot Recovery Plan requires monitoring to be undertaken of the effectiveness of the prescription, though this certainly has not been done.

Though it is evident that the prescription for the Swift Parrot and Regent Honeyeater is not being either effectively implemented or monitored. More often than not the Forestry Corporation opts for the default prescription of retaining 5 mature and late mature feed trees rather than doing surveys, presumably because they consider they don't need to do anything. The EPA appear blind to the needs of both species and oblivious to the fact that this prescription is, in part, applied for these species.

Even where surveys are undertaken they can be of questionable veracity, as noted in the section on Rufous Scrub Bird where for years the Forestry Corporation had someone surveying for Diurnal Birds who they considered inadequately trained and incompetent for the task. There is also a significant issue with poor selection of mature and late mature trees for retention and the significant damage that is done to them (i.e. see section on Greater Glider).

Then there is just the failure to implement the prescription. For Royal Camp State Forest the Ecology Report (Threatened Species Licence Pre-logging and Pre-roading Survey Report for Compartments 14 and 15 Royal Camp State Forest, 13 September 2011) identifies that modelled habitat for both Regent Honeyeater and Swift Parrot occurs in the compartments. There is also an old record of Regent Honeyeater in the area. For diurnal birds it identifies "Inappropriate season for surveys to be conducted. Default prescription will be implemented".

TSL Condition	TSL Condition No.	Record Details	Prescription Summary
Giant barred Frog (Mixophyes iteratus)	7. b) iii	Nil records	Protection zone of 30m on both sides of streams that occur within modelled habitat.
Swift Parrot (Lathamus discolor) Regent Honeyeater (Xanthomyza phrygia)	7. b) x	Nil records	Retain 10 eucalypt feed trees (which may include habitat and recruitment feed tree species) within every 2ha of NLA. All trees where species were observed feeding must be retained.
Large-footed Myotis (Myotis macropus)	7. b) xv	Nil records	Protection zones of 30m on all dams, permanent

Table 3: Default Species-specific Conditions in lieu of survey

In Royal Camp SF for the nectivorous Swift Parrot and Regent Honeyeater the Harvesting Plans adopt the default prescription (TSL 6.11) of retaining "10 eucalypt feed trees (which may include habitat and recruitment feed tree species) within every 2ha of NLA". This is also the prescription applied for the Black-chinned Honeyeater that was recorded in Compartment 15. "Eucalypt feed tree" means mature or late mature trees of a variety of specified species, for Royal Camp focussing on ironbark species, forest red gum, box species and spotted gum species.

NEFA's audit report identified that required retention and marking of Koala and Yellow-bellied Glider feed trees, as well as hollow-bearing, recruitment and eucalypt feed trees was clearly deficient across the logging areas. In relation to the later, NEFA found:

no attempt has apparently been made to specifically identify or mark or retain any of the required eucalypt feed trees for nectivorous birds. (breaches TSL 5.6.(f), 6.11 and the site specific prescription for Black-chinned Honeyeater);

Within, and adjacent to, the Koala High Use Area that we identified (i.e. an area of approximately 5ha), we observed a single tree marked for retention as an "R" tree or recruit hollow-bearing tree. No attempt had apparently been made to mark any of the other required trees. We take this to be a representative sample of retention in stands with low numbers of large hollow-bearing trees.

A randomly chosen area of 2.3 hectares to the south west of log dump 27 was chosen for an assessment of tree retention in a multi-aged stand. In this area all stumps were measured and all retained trees over 40 cm diameter at breast height over bark (dbhob) documented. Diameters of retained trees were measured. In the 2.3 hectares assessed 11 eucalypt feed trees should have been retained. All retained trees are required to be marked for retention. It was found that:

Of the 9 trees marked for retention some are likely to have been redgums other than E. tereticornis and some were senescent trees, the requirement for marking and retention of 11 mature or late mature individuals of the listed eucalypt feed trees has not been satisfied.

NEFA concluded:

Of the total of 16 trees removed that were over 40 cm dbhob and thus likely to have been mature, late-mature or senescent, at least 11 should have been retained as hollow-bearing, recruitment or eucalypt feed trees and should not have been logged.

In response to NEFA's complaint the EPA (Steve Hartley 15 August 2013) assessed an area of 8.4 hectares in compartment 15 and found 2 hollow bearing trees (H) and 3 recruitment trees(R) that had been marked. The selected area presumably includes areas where logging had been stopped and was thus incomplete (ie more trees were intended to be felled). The Threatened Species licence required 42 Eucalypt Feed Trees should have been marked and protected within this area. As well as the 5 marked trees the EPA assessed there were an additional 13 trees in the area which were considered to meet the Eucalypt feed tree definition, giving a shortfall of 24 trees. There was no reported assessment of how many trees qualifying as H, R or Eucalypt Feed Trees were felled.

Specifically in relation to Eucalypt Feed Trees the EPA stated:

The EPA determined that within the area assessed (8.4 hectare) only 2 H trees were marked. EPA officers also noted that 3 R trees had been marked in the assessed area – these marked trees were considered to meet the Eucalypt feed tree requirements.

The EPA identified an additional 13 mature Grey Ironbark (Eucalyptus paniculata) in the area assessed which were considered to meet the Eucalypt feed tree definition. These trees were not however marked.

The net area of Compartments 14 and 15 is 784 ha, so if the EPA's assessment of 8.4ha was representative of the overall stand, the shortfall in Eucalypt Feed Trees would be in the order of 2,240 (57%) across the net area of both compartments.

This is a significant loss of resources when NEFA has found it is being replicated across logging operations throughout the region. Similarly the EPA consistently (i.e. see section on Greater Glider) find a failure to retain appropriate and sufficient recruitment (R) trees to satisfy legal requirements, and these are often damaged during logging. It is recruitment (R) trees that are primarily relied upon to satisfy the default requirements for Swift Parrot and Regent Honeyeater.

For Royal Camp the EPA found the Forestry Corporation failed to mark or retain an adequate number of eucalypt feed trees in accordance with TSL 6.11(c), identified this as "Not compliant" and issued an "Official Caution". It is not as if this was a new or novel case.

NEFA have found that the Forestry Corporation frequently rely upon the default prescription for both Swift Parrot and Regent Honeyeaters rather than undertaking surveys. In most cases where this is done the Forestry Corporation fail to mark Eucalypt Feed Trees for retention, instead relying upon their marking of Hollow-bearing and Recruitment trees to satisfy the 10 feed trees per 2 hectares, with no apparent consideration of their suitability as Eucalypt Feed Trees. NEFA have found a number of instances where there was no habitat tree mark-up at all.

During an audit of <u>Doubleduke State Forest</u> in June 2010 NEFA identified that. roading had been undertaken, a log dump constructed and logging was well under way in compartment 146 without any of the required trees and special features having been marked. This means the required surveys had not been done and no attempt had been made to select the most appropriate eucalypt feed trees and protect them from logging. NEFA's inspections of the adjoining Compartment 150 had led NEFA to suspect that it had been marked-up after logging. NEFA immediately (20 June 2010) informed the EPA and Minister for the Environment asking for the logging to stop:

For Doubleduke State Forest the Ecology Report (Threatened Species Licence Pre-logging and Pre-roading Survey Report, Doubleduke State Forest Compartments Ca-146,150, 5 November

2009) identifies that modelled habitat for both Regent Honeyeater and Swift Parrot occurs in the compartments For diurnal birds it identifies "Inappropriate season for surveys to be conducted. Default prescription will be implemented".

While the EPA did not specifically consider Eucalypt Feed Trees, they were also affected when the EPA found NEFA's complaint proven, noting:

EPA's Responsive Audit Compartment 146:

- FCNSW issued Official Caution on 11 October 2011 in relation to the following 5 TSL breaches indentified in compartment 146 of Doubleduke SF:
 - 5.1(h) A failure to conduct compartment mark-up at least 100 metres in advance of harvesting operations
 - 5.2.1(d) Harvesting operations being undertaken in areas which have not been subject to compartment mark up.
 - 5.2.2(a) A failure to conduct compartment mark-up at least 300 metres in advance of harvesting operations in a compartment that contains preferred forest types.
 - 5.2.2(b) Failure to conduct Koala mark-up searches prior to harvest.
 - 5.6(g)iii Failure to mark hollow-bearing trees in the regrowth zone.

NEFA audits have found that this too is not an uncommon occurrence.

In order to see if Key Breeding Areas for Regent Honeyeater receive any special treatment the Harvesting Plans available online around the mapped "Hunter Valley" Key Breeding Area were reviewed. It is apparent that there is no particular consideration of the Regent Honeyeater:

The Harvesting Plan for 291, 294 and 295 Corrabare State Forest (11 June 2013) falls partially within the mapped "Hunter Valley" Key Breeding Area for Regent Honeyeater, the plan states "*Refer to the Threatened Species Licence (TSL) Booklet for Conditions*", makes no mention of the Regent Honeyeater or Swift Parrot, with no increased Eucalypt feed tree retention. There is a 1985 record of Regent Honeyeater in compartment 298.

The Harvesting Plan for 305, 306, 316, 317, 318 & 319, Corrabare State Forest (1 August 2014) adjacent to the mapped "Hunter Valley" Key Breeding Area for Regent Honeyeater states "Refer to the Threatened Species Licence (TSL) Booklet for Conditions", makes no mention of the Regent Honeyeater, though does state "Swifft Parrot-10 Eucalypt feed trees per 2ha". There was an observation of the Swift Parrot in the area. There are also a 1988 record of Regent Honeyeater in compartment 308.

The Harvesting Plan for 307 & 315 Corrabare State Forest (31 January 2013) which occurs on the boundary of the mapped "Hunter Valley" Key Breeding Area for Regent Honeyeater states "Refer to the Threatened Species Licence (TSL) Booklet for Conditions", makes no mention of the Regent Honeyeater or Swift Parrot, and requires no increased Eucalypt feed tree retention.

The Harvesting Plan for 239 and 240 Heaton State Forest (3 November 2015), which occurs on the boundary of the mapped "Hunter Valley" Key Breeding Area for Regent Honeyeater, identifies Eucalypt Feed Tree retention as the standard "6 Eucalypt feed trees/2 ha where they occur" and then, somewhat confusingly, for Regent Honeyeater and Swift Parrot the default "At least 10 eucalypt feed trees must be retained within every 2 ha of net logging area".

Private Native Forestry

The Private Native Forestry Code of Practice for Northern NSW includes similar prescriptions for both species, being that where there is a record of the species:

(a) At least ten eucalypt feed trees (refer to Table E) must be retained within every two hectares of the net harvest area. These must be marked for retention. Where retained eucalypt feed trees also meet the requirements of habitat or recruitment trees, the retained eucalypt feed trees can be counted as habitat or recruitment trees.

Similarly where one of them is observed feeding "the tree in which it is feeding must be retained". And a 20-metre radius exclusion zone is required around any identified Regent Honeyeater nests.

Proposed Coastal IFOA

The new Coastal IFOA identifies Swift Parrot as "Fauna threatened species considered adequately protected by the multi-scale protection measures"

Regent Honeyeaters are classed as "Fauna species and endangered populations protected by a species-specific condition applying to a nest, den, roost, camp or feed tree retention", with 25m radius exclusion zones required around identified nests.

For the Critically Endangered Regent Honeyeater there is an outdated 1999–2003 Recovery Plan and 2015 Conservation Advice, both of which identify the loss of mature eucalypt feed trees as significant threats and their retention as essential recovery actions. For the Endangered Swift Parrot the revised 2011 Recovery Plan requires the retention of all trees 60cm DBH or greater, together with smaller trees as recruits. The current TSL requires the retention of 10 mature eucalypt feed trees per 2 hectares where there are records of these species, though most often the default of retaining 10 mature feed trees per 2 hectares in modelled habitat is adopted in lieu of surveys. Though most commonly no attempt is made to specifically identify such trees in practice, with Hollow-bearing (H) and Recruitment (R) trees being relied upon. The new Coastal IFOA proposes removing any need to retain nectar feed trees or recruitment (R) trees as well as allowing for a significant increase in logging intensity. This is in clear contravention of Recovery Plans and Conservation Advices for both species.

Ashton, D.H. (1975) Studies of Flowering Behaviour in *Eucalyptus regnans* F. Muell. *Australian Journal of Botany* 23(3) 399 - 411

Geyle Hayley M., Woinarski John C. Z., Baker G. Barry, Dickman Chris R., Dutson Guy, Fisher Diana O., Ford Hugh, Holdsworth Mark, Jones Menna E., Kutt Alex, Legge Sarah, Leiper Ian, Loyn Richard, Murphy Brett P., Menkhorst Peter, Reside April E., Ritchie Euan G., Roberts Finley E., Tingley Reid, Garnett Stephen T. (2018) Quantifying extinction risk and forecasting the number of impending Australian bird and mammal extinctions. *Pacific Conservation Biology*, - https://doi.org/10.1071/PC18006

Rufous Scrub-bird

Rufous Scrub-bird (*Atrichornis rufescens*), is listed as Endangered under the EPBC Act. There are two accepted subspecies of Rufous Scrub-bird, the northern (*A. r. rufescens*) and the southern (*A. r. ferrieri*) variants. *A. r. rufescens* occurs in the Gibraltar Ranges, Border Ranges, the northern part of the McPherson Range and in parts of the Main Range, but formerly occurred in lowland habitats of the Richmond and Tweed River basins. *A. r. ferrieri* occurs on Barrington Tops, Hastings Range and in the Dorrigo/Ebor area.

The Minister approved the conservation advice on 20/10/2014; and included this species in the endangered category, effective from 06/11/2014. The Conservation Advice in part states:

Some subpopulations of the northern subspecies are thought to have disappeared within the last two decades, including those at Mt Warning and Spicers Gap (Garnett et al., 2011); while the southern subspecies is believed to have gone from several areas where they were

once common in New England National Park. Recent surveys at Gloucester Tops found that although the numbers appeared stable in the core habitat areas above 600 m, there was a general failure to find any territories at lower altitudes and in areas burnt by wildfire (Newman et al., 2014). Surveys of the Border Ranges National Park found evidence of a decline in the density of breeding territories between 1981 and 2012 (Newman et al., 2014). Areas outside of the core range of the rufous scrub-bird have been poorly surveyed since the early 1980s and it is likely that declines in these non-core regions have been greater than in the core regions.

There should not be a recovery plan for Atrichornis rufescens as the remaining populations mostly occur in protected habitat and the primary anthropogenic threat to the species (clearance of suitable habitat) has mostly stopped.

Information required and research priorities

1. Information on the trends in distribution and population size across the range, including in non-core areas

Management actions required

- 1. Develop and implement fire management plans for all subpopulations
- 2. Assess whether experimental habitat manipulation is justified

Current Threatened Species Licence

The Threatened Species Licence (TSL) requires:

6.10 Rufous Scrub-bird Atrichornis rufescens

If there is a record of Rufous Scrub-bird in a compartment or within 300 metres outside the boundary of a compartment, the following must apply:

- a) An exclusion zone must be implemented which encompasses all Rufous Scrubbird microhabitat (as defined in Schedule 9 of this licence) within a 300 metres radius of the record.
- b) An additional exclusion zone of at least 20 metres wide must be implemented around all microhabitat referred to in condition 6.10 (a) above.

For the Rufous Scrub-bird TSL condition 7(b) gives the Forestry Corporation the option of either undertaking surveys or "Protect all microhabitat (as defined in Schedule 9 of this licence) and implement a 20 metres exclusion zone around this habitat".

TSL conditions 8.1 (a), (b), (d) and (e) requires that <u>reliable</u> pre-logging and pre-roading surveys must be conducted in modelled habitat for Rufous Scrub-bird. Condition 8.3 requires that Forests NSW <u>must ensure</u> that persons conducting pre-logging and pre-roading surveys are suitably experienced and trained, notably surveyors <u>must be</u> able to identify the threatened species and habitats of threatened species relevant to the region that require species-specific or site-specific conditions, as well as similar species that may be confused with these. Condition '8.8.4 C Rufous Scrub-bird' identifies the required methodology. which includes undertaking two separate surveys on separate days between August and February at sites selected at a density of 4 sites per 50ha of potential habitat.

There are 91 hectares of modelled Rufous Scrub-bird habitat in Compartment 502 of Styx River State Forest. During pre-logging surveys in March 2007 the Forestry Corporation reported hearing Rufous Scrub-birds call 10 times at 7 sites in response to call-playback. These call detection records were identified as highly reliable and entered into FNSW BIODATA data base and OEH's Wildlife Atlas.

In March 2011 the Forestry Corporation finalised their "Threatened Species Licence Pre-logging and Pre-roading Flora & Fauna Survey Report" for Compartment 502 which relied on the 2007 survey results but did not acknowledge the presence of modelled Rufous Scrub-bird habitat or any

of the 2007 Rufous Scrub-bird records. Despite these obvious omissions it certified that it was a "full and accurate account of the survey results",

Four months later in July 2011 the Forestry Corporation claimed that due to emerging "doubts over the validity of the records" for Rufous Scrub-bird that they undertook an "intense habitat assessment" of Compartment 502 where it was determined that the habitat did not constitute Rufous Scrub-bird microhabitat in accordance with the TSL, also claiming that "Further investigation questioned the observer at length where it was revealed that the positive identification was of a bird that flew up to 2 metres off the ground and 'seemed to follow me through the forest'". The Forestry Corporation claim that then "a decision was made that the records were a misidentification and removed from FNSW BIODATA data base", four months after they had been certified not to exist.

In November 2011 the Harvest Plan for Compartment 502 was approved. with no mention of Rufous Scrub-bird or its modelled habitat. In early 2012 the Forestry Corporation conducted a pre-harvest burn which burnt off most understorey within the modelled Rufous Scrub-bird habitat.

In March 2012 NEFA (Joe Sparks 09/03/2012) complained to EPA that the 7 Rufous scrub-bird localities recorded by State Forests on the NPWS Atlas are not represented on the Harvesting Plan for Compartment 502, and harvesting is occurring in RSB habitat. EPA sent a staffer out to have a quick look and who reported that logged and burnt areas complained about had indeed been disturbed, apparently making no attempt to assess whether the remaining undisturbed areas that hadn't yet been logged were Rufous Scrub-bird habitat, or whether the disturbed areas were likely to have been habitat before being burnt and logged. The logging continued.

In April the North Coast Environment Council engaged two ornithologists to visit compartment 502 who identified ideal habitat for Rufous Scrub-bird and considered that logged areas were likely to have been good habitat. In response the Forestry Corporation undertook another assessment claiming no suitable habitat existed. NEFA then employed another expert who confirmed the presence of suitable habitat.

On May 4th the EPA engaged an OEH expert who inspected part of compartment 502 for half a day in company with the Forestry Corporation. The EPA had refused our request to meet them on site and show them our specific complaints on the basis that they wanted to undertake an investigation independent of both us and the Forestry Corporation, yet the Forestry Corporation accompanied them on their "independent" investigation. Despite the limited time spent on site, the incomplete assessment and the fact that by the time of the investigation extensive areas of potentially suitable habitat had been burnt and logged, the OEH expert (Andren 2012) identified five sites considered to be potential Rufous Scrub-bird habitat, while recognising that areas of potential habitat "may have been fragmented by fire" and that his limited assessment "does not preclude other sites within the compartment that were not inspected from also containing suitable habitat". The logging continued.

The outcome was that logging continued through the whole process with two areas of suitable microhabitat for Rufous Scrub-bird protected, the EPA (Greg Abood 22 April 2013) "found that the experience of the person undertaking the initial Rufous Scrub Bird targeted surveys not to be adequate", requesting "that a number of surveys be reconducted where it was evident that surveys were undertaken by personnel with insufficient technical experience where they have been relied upon in other situations". The EPA limited their concerns about the competence of the surveyor purely to his ability to recognise responses to call playback in diurnal bird surveys and not his ability to undertake surveys for other fauna and threatened plants despite his only training being to attend a Forestry Corporation 'wildlife school'. Neither was the EPA concerned about the Forestry Corporation's other ecologist's inability to identify Rufous Scrub-bird microhabitat, merely commenting "there were areas where this microhabitat assessment could be improved in the future". Basically the EPA accepted the Forestry Corporation's argument that the incompetence of their surveyor was irrelevant because they had belatedly opted to rely on microhabitat surveys in accordance with TSL 7(b) rather than surveys.

The EPA took no regulatory action. merely requesting "FCNSW to implement a corrective action to ensure the correct procedure is followed in the future".

It is evident that little was learnt from this travesty. NEFA (Joe Sparks, letter to NSW Environment minister Mark Speakman, 14/10/2015) later found that the Forestry Corporation had not assessed or surveyed all the modelled Rufous Scrub-bird habitat within Compartments 525-7 of Styx River State Forest. It took numerous requests and over a year for the EPA (Michael Hood 2 November 2016) to respond, stating "we determined more survey work needed to be done" and the Forestry Corporation "shortly after ... did more surveys achieving better coverage". The EPA then considered that the Forestry Corporation were "compliant with the TSL" and issued them with an advisory letter on 11 July 2016. The EPA did not apparently undertake an independent assessment, instead relying on Forestry Corporation's review.

Again in 2016 NEFA (Joe Sparks) complained about the Forestry Corporation's failure to include records and assess habitat of Rufous Scrub Bird in Compartments 83 and 84 of Barrington Tops State Forest. The EPA (Gregory Abood 26 February 2018) responded:

EPA found that FCNSW failed to include three (3) RSB records and associated protection zones at 2 locations on the harvest plan map and from the harvest plan document. EPA issued FCNSW with an Official Caution for not complying with BCL condition 3a). This was a breach of section 2.14(4) of Biodiversity Conservation Act 2016.

The EPA's ineffective regulation of Rufous Scrub-bird licence requirements has failed to provide them with the protection they are entitled to. Given that NEFA only audit a small proportion of logging operations it is apparent that these widespread failures are likely to be having a significant effect on this species.

It is apparent that contrary to the Conservation Advice that Rufous Scrub-bird is not all included in the reserve system and that NSW's processes are not adequate to identify and protect Rufous Scrub-bird habitat on State Forests. Given this species' Endangered listing and concerns about the viability of remaining populations all remaining suitable habitat needs to be adequately protected.

Private Native Forestry

The Private Native Forestry Code of Practice for Northern NSW requires:

If there is a record of a rufous scrub-bird in an area of forest operations or within 300 metres of the boundary of an area of forest operations, the following must apply:

- (a) An exclusion zone must be implemented which encompasses all rufous scrub-bird microhabitat (as defined below) within 300 metres of the location of the record.
- (b) An additional exclusion zone at least 20 metres wide must be implemented around all microhabitat referred to above

As there is no requirement for surveys this prescription is unlikely to be applied in practice.

Proposed Coastal IFOA

For Rufous Scrub-bird the new Coastal IFOA requires:

- 73.1 Where there is a record of Rufous Scrub-bird within an operational area or within 300 metres outside the boundary of an operational area, FCNSW must retain:
 - (a) an exclusion zone that encompasses all Rufous Scrub-bird micro-habitat within a 300-metre radius of the record; and
 - (b) an additional exclusion zone that is 20 metres or greater in width must be maintained around the outer edge of the exclusion zone referred to in condition 73.1(a).

73.2 If FCNSW does not conduct a targeted survey for Rufous Scrub-bird in accordance with Protocol 20: Pre-operational surveys, FCNSW must:

- (a) retain an exclusion zone that encompasses all Rufous Scrub-bird micro-habitat in the operational area; and
- (b) an additional exclusion zone that is 20 metres or greater in width must be maintained around the outer edge of the exclusion zone referred to in condition 73.2(a).

The new IFOA Protocol 20: Pre-operational surveys requires that surveys must be undertaken "between August and February at the rate of four survey sites per 50 hectares of Rufous Scrub-bird micro-habitat in the base net area, with a minimum number of four survey sites where less than 50 hectares of Rufous Scrub-bird microhabitat occurs in that area", or "If a Rufous Scrub birds survey cannot be carried out during the peak calling season (August to February), eight sites per 50 hectares of Rufous Scrub-bird micro-habitat in the base net area must be conducted".

The allowance of surveys in periods when the Rufous Scub Bird is unlikely to respond will significantly reduce the chances of detecting this species and thus the likelihood of applying the prescription where it occurs.

For the Endangered Rufous Scrub-bird The 2014 Conservation Advice identifies that there is no need for a Recovery Plan because "the remaining populations mostly occur in protected habitat". Contrary to the Advice Rufous Scrub Bird does occur on State Forests. The current TSL requires that the all "microhabitat" within 300m of a record be protected, along with a 20m buffers. Surveys are required to be undertaken in the appropriate season when detection is most likely. As a default all microhabitat and a 20m buffer can be protected. The evidence is that the required prescriptions are rarely applied in practice and that the Forestry Corporation does not have the expertise to identify the species or its microhabitat. The new Coastal IFOA retains the prescription though allows surveys in seasons when it is unlikely to be detected.

Black-breasted Button-quail

The Black-breasted Button-quail (*Turnix melanogaster*) is listed as 'Vulnerable' under the EPBC Act. The NSW Scientific Committee's 2007-2009 review of the conservation status of a selection of species recommended that Black-breasted button-quail be upgraded to Critically Endangered.

The 2009 'National recovery plan for the black-breasted button-quail *Turnix melanogaster'* states: The distribution of the species in NSW is almost unknown, hence estimations of the size and density of extant populations cannot as yet, be made. In north-eastern NSW, the species appears restricted to the Northern Rivers and Tablelands (Marchant & Higgins 1993). There are 10 reliable yet unconfirmed records from NSW in the past 20 or so years, from six areas in the far north-east of the state (Milledge & McKinley 1998: Garnett & Crowley 2000; Milledge 2000). Smyth and Young (1996) reported the species from as far south as the Walcha-Yarrowitch area and near Dorrigo, the sightings were made in the 1970s. Many confirmed sightings have also been reported directly adjacent to the Queensland border.

1. Habitat loss and fragmentation

Loss of habitat in order to sustain a range of human activities (timber-harvesting and other forestry-related practices, agriculture, infrastructure construction and urban development) leads to fragmentation of habitat and is a serious threat to the viability of populations...

3.3 Areas under threat

Combined with knowledge of population locations derived from surveys and trends in human activities across the landscape, the most significant areas under threat are likely to include areas:

where forestry operations still persist (e.g. Yarraman/Blackbutt) within the range of the species;

The Recovery Plan places strong reliance upon surveying and identifying potential habitat for this species in NSW:

Specific Objective 1

Consolidate current knowledge and define assessment and monitoring strategies for black-breasted button-quail, including an assessment of current status throughout its range and a clear definition of the habitats occupied by the species.

Performance criterion 1.1: Existing habitat mapped

. . .

Action 1.1.2: Map existing data on black-breasted button-quail distribution and habitat requirements and develop a predictive model of the species' distribution.

Predictive modelling of the distribution of the black-breasted button-quail will contribute to the species' recovery, honing current understanding of the ecological requirements of these birds. It will be particularly important in New South Wales where black-breasted button-quail are little known. Predictions gained by such analyses will be used as a guide for conducting searches for this species, again particularly in New South Wales and in areas of Queensland where modelling shows the birds may occur but have previously not been observed.

Outcomes: Accurate mapping and up-to-date predictive distribution model available as a planning tool.

Performance criterion 1.2: Ecological assessment and monitoring strategies established. Assessment of the following key areas where knowledge is deficient with respect to species' presence or habitat is completed:

In NSW, Yarrowitch/Walcha areas, Border Ranges and potential coastal populations.

...

Action 1.2.1: Develop and document an effective method of finding and recording black-breasted button-quail and design and implement a monitoring program.

Action 1.2.2: Survey habitat where black-breasted button-quail occurrence is possible but has not yet been detected.

For north-east NSW the Recovery Plan identifies as a current action to reduce threats: "site-specific management conditions under the Integrated Forestry Operations Approval on Forests NSW estate".

The improvement of prescriptions is a key requirement of the Recovery Plan:

Specific Objective 2

Protect key ecosystems/habitat that support populations of black-breasted buttonquail from human-induced threatening processes, thus maintaining current populations and habitat.

Performance criterion 2.1: Up to date management guidelines for black-breasted buttonquail habitat and protection of populations maintained; promotion and adoption by government, industry and community sustained.

Action 2.1.1: Review and promote management guidelines to ameliorate impacts from human activities (housing land development, water infrastructure development,

timber harvesting, fire and stock management) on identified black-breasted buttonquail habitat.

Outcomes: Management practices for protection, restoration and offsetting of black-breasted button-quail habitat and protection of populations accepted and implemented.

...

Specific Objective 3

Maintain or improve the extent, condition (quality) and connectivity of black-breasted button-quail habitat.

Performance criterion 3.1: Management guidelines for protecting populations and habitat adopted by government, industry and community and protective status of habitat enhanced.

Current Threatened Species Licence

Black-breasted Button-quail is one of those species that under the TSL (1.2) requires a site-specific prescription if Forestry Corporation become aware of its presence during logging.

In total contravention of the 2009 National recovery plan for the black-breasted button-quail Turnix melanogaster, the 2010 Review of NSW Forest Agreements and Integrated Forestry Operations Approvals: Upper North East, Lower North East, Eden and Southern regions stated:

Under condition 8.8.4 of the UNE TSL, Forests NSW is required to survey for Black-breasted Button-quail across the entire region where modelled habitat occurs.

The current model is a poor predictor of habitat and occurrence of the species in NSW is very unlikely.

Rather than complying with the Recovery Plan Action 1.1.2:to "map existing data on black-breasted button-quail distribution and habitat requirements and develop a predictive model of the species' distribution", or requirements of Performance criterion 2.1 and Action 2.1.1 for improved updated management guidelines, the EPA decided to remove any requirements to look for Black-breasted Button-quail.

The TSL (7c) still identifies "*Pre-logging and pre-roading surveys must be conducted in compartments which contain Black-breasted Button-quail known habitat or potential habitat*". Though the need for pre-logging surveys specifically targeting Black-breasted Button-quail was removed from condition 8.8.4. in March 2013.

Private Native Forestry

There is no prescription for this species.

Proposed Coastal IFOA

The new Coastal IFOA identifies Black-breasted Button-quail as "Fauna threatened species considered adequately protected by the multi-scale protection measures".

The Vulnerable Black-breasted Button Quail is covered by a 2009 Recovery Plan that requires a new predictive model, surveys in potential habitat and the implementation of management prescriptions for forestry. Instead of developing an improved predictive model to guide surveys for this species, in 2013 the TSL was changed to remove the need for pre-logging surveys. The proposed Coastal IFOA removes all protection. The NRC (2018) proposes the remapping of rainforest with a view to opening up substantial areas for logging. In their trial remapping 62% of rainforest was remapped as not being rainforest applying their new criteria. It is evident that the Recovery Plan for this species have never been complied with in NSW.

RFPTII FS

Broad-headed Snake

The Broad-headed Snake (*Hoplocephalus bungaroides*) is listed as Vulnerable nationally and as Endangered in NSW.

The Commonwealth's 2014 *Approved Conservation Advice for* Hoplocephalus bungaroides *(broadheaded snake)* states:

During autumn, winter and spring, the species shelters in rock crevices and under flat sandstone rocks on exposed cliff edges (OEH, 2012), especially in areas with a west to north-west aspect (NSW NPWS, 1999). In summer, it shelters in hollows of large trees within 200 m of escarpments (OEH, 2012).

...

Threats

The main identified threats to the broad-headed snake are:

disturbance of habitat, in particular the removal of large hollow-bearing trees adjacent to sandstone escarpments (OEH, 2012) and bush rock removal (Shine et al., 1998).

..

Research priorities that would inform future regional and local priority actions include:

More precisely assess ecological requirements, the summer life cycle, the type of
use (obligatory versus facultative) of winter shelter sites and the relative impacts of
threatening processes (OEH, 2012).

Develop and validate a habitat model for the broad-headed snake (OEH, 2012).

. . .

More precisely assess the species abundance and monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.

--

Habitat Loss, Disturbance and Modification

Ensure there is no disturbance in areas where the broad-headed snake occurs, excluding necessary actions to manage the conservation of the species.

...

Local Priority Actions

. . .

Include appropriate measures in forestry prescriptions, including reduced ridgetop disturbance, appropriate track creation and tree hollow retention.

Undertake survey work in suitable habitat and potential habitat to locate any additional populations/occurrences/remnants.

The Department of the Environment (2011) has prepared survey guidelines for *Hoplocephalus bungaroides*. The survey guidelines are intended to provide guidance for stakeholders on the effort and methods considered appropriate when conducting a presence/absence survey for species listed as threatened under the EPBC Act. For Broad-headed Snake it is recommended:

Most records for this species have been obtained by searching suitable sheltering sites (under rocks or in crevices) on westerly-facing sandstone cliffs by day during winter (Webb & Shine 1997b). The effect of disturbance to sandstone exfoliations by active searching that involves lifting are not yet clear, but it is generally perceived that breakage or inappropriate replacement of rocks could affect their suitability as sheltering sites. For these reasons, searching appropriate sheltering sites with torches during winter to detect the presence of the species in an area is recommended. Searching rock outcrops by day will only sample a subset of rocky sheltering sites; in particular deep crevices will not be thoroughly examined.

Current Threatened Species Licence

The TSL (1.2a) originally identified Broad-headed Snake as requiring "Site Specific Conditions" (to be determined once recorded). The required surveys were "*incidental (spotlight survey minimum)*", with spotlight surveys requiring:

For areas up to 200 hectares of net logging area, a spotlight transect totalling two kilometres distance, plus an additional 500 metres for each 50 hectares of net logging area above 200 hectares ... This / these transects must be spotlighted twice on two separate nights. On one night, the transect(s) must be spotlighted while walking. On the other night, the spotlighting transect(s) may be conducted from a vehicle. Preferably both transects should be done on foot.

It is apparent that the survey methodology was totally inappropriate for detecting any Broad-headed Snakes in compartments containing suitable habitat as it failed to target the rock outcrops where they were likely to be found as intended by the Commonwealth survey guidelines

Changes to the TSL in March 2013 removed protection for the nationally vulnerable Broad-headed Snake by deleting it from list of species requiring surveys and site-specific conditions. It is now listed on Schedule 5 'Threatened fauna species considered adequately protected by the General conditions'.

Contrary to the Conservation Advice there are no species-specific requirements in forestry prescriptions requiring reduced ridgetop disturbance, appropriate track creation and tree hollow retention within 200m of rock outcrops. There appears to have no attempt to identify the effectiveness of management prescriptions (when they existed) or to adapt them to make them effective. With the abandonment of surveys and measures to minimise impacts there is nothing specifically required to "ensure there is no disturbance in areas where the broad-headed snake occurs".

Private Native Forestry

The Private Native Forestry Code of Practice for Northern NSW requires:

Where there is a broad-headed snake record in the area of forest operations, the following must apply:

- (a) A buffer zone with a 100-metre radius (about 3 hectares) must be identified, centred on the location of the record.
- (b) Within this buffer zone, the following additional prescriptions must be implemented:
 - (i) A minimum of 26 trees with visible hollows with openings greater than 10 centimetres must be retained where available.
 - (ii) Disturbance to understorey trees and shrubs, ground logs and, in particular, rock outcrops and ledges must be minimised.

While this prescription is likely to provide some unquantified benefit for the Broad-headed Snake, it has apparently never been monitored, and without any survey requirements it is highly unlikely to be applied. A species-specific prescription was removed from the TSL in 2013.

Proposed Coastal IFOA

The new Coastal IFOA identifies Broad-headed Snake as "Fauna threatened species considered adequately protected by the multi-scale protection measures".

For the Vulnerable Broad-headed Snake the 2014 Conservation Advice identifies that it utilises rock outcrops and hollow-bearing trees within 200m, with the need to survey for the species and retain hollow-bearing trees. The Commonwealth survey guidelines are not applied in forestry. The prescription for this species was removed from the TSL in 2013. There is no requirement to survey for this species or to protect hollow-bearing trees within 200m of rock outcrops. This species will be impacted by the Coastal IFOA's proposals to increase logging intensity, the removal of the need to

restore 5 hollow-bearing trees per ha in escarpment forests and the need to retain the recruitment trees needed to replace hollow-bearing trees as they die out.

FROGS

Giant Burrowing Frog

The Giant Burrowing Frog (Heleioporus australiacus) is listed as Vulnerable under the EPBC Act. Potential habitat is identified in the south of the Lower North East region. There is no Recovery Plan. The 2014 'Approved Conservation Advice for Heleioporus australiacus (giant burrowing frog)' identifies as threats:

The main threats to the giant burrowing frog include:

... Conservation of narrow buffers along streams does not sufficiently protect the species habitat.

. . .

Forest disturbance associated with forestry operations resulting in:

- o disturbance and compaction of areas used for burrowing (Penman, 2005)
- o loss of vegetation, particularly the understorey, that reduces microhabitat shading (Penman, 2005)
- o vehicle strike (Lemckert et al., 1998).

Priority Actions include:

Habitat Disturbance and Modification

- Prepare and implement site specific management plans to protect key giant burrowing frog populations from identified threats.
- Apply alternative forestry management if current actions not considered suitable.
- Protect breeding sites from disturbance, sedimentation and pollution.
- Retain native vegetation and minimise ground disturbance where the species occurs, especially within 300 metres of known breeding sites.

Current Threatened Species Licence

Changes in March 2013 removed survey requirements for the nationally vulnerable Giant Burrowing Frog in the LNE and replaced site specific protections with a monitoring program "based on tadpole surveys" "to assess the persistence of populations" as a result of logging "Where there is a record of Heleioporus australiacus in a compartment or within 100 metres outside the boundary of a compartment".

Private Native Forestry

The Private Native Forestry Code of Practice for Northern NSW requires:

Where there is a record of a giant burrowing frog in an area of forest operations or within 300 metres of the boundary of the area of forest operations, the following must apply:

- (a) An exclusion zone with a 300-metre radius must be identified, centred on the location of the record.
- (b) No post-harvest burns must occur in the exclusion zone.

As there is no requirement to undertake surveys for this species the prescription is unlikely to be applied to most areas where they occur. This species is thus effectively unprotected in most logging operations on private lands.

Proposed Coastal IFOA

For north-east NSW the new Coastal IFOA identifies Giant Burrowing Frog as "Fauna threatened species considered adequately protected by the multi-scale protection measures". A species management plan is required in a specified Southern area.

The Vulnerable Giant Burrowing Frog has no Recovery Plan, though has a 2014 Conservation Advice which requires site specific management plans, protection of breeding sites and the retention of vegetation "especially within 300 metres of known breeding sites". In 2013 the TSL was altered to remove survey requirements and replaced with tadpole monitoring where there are records. The proposed Coastal IFOA removes all protection for this species, while proposing increased logging intensity and that buffers on headwater streams be reduced from 10m to 5m - despite the Conservation Advice being that "narrow buffers along streams does not sufficiently protect the species habitat".

Green and Golden Bell Frog

The Green and Golden Bell Frog (*Litoria aurea*) is listed as Vulnerable under the EPBC Act. There is no Recovery Plan. The 2014 *Approved Conservation Advice for* Litoria aurea (*green and golden bell frog*).

The main identified threats to the green and golden bell frog are:

• habitat destruction and degradation, which are the biggest causes of recent local extinction (White & Pyke, 2008).

Identified Local Recovery Actions include:

Habitat Loss, Disturbance and Modification

- Monitor known populations to identify key threats.
- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.

Undertake survey work in suitable habitat and potential habitat to locate any additional populations/occurrences/remnants.

Minimise adverse impacts from land use at known sites.

The 'Significant Impact Guidelines for the vulnerable green and golden bell frog *Litoria aurea'* identify specific survey guidelines, including:

Field surveys for the green and golden bell frog should be done either in conjunction with or after a habitat assessment and should be done:

over a minimum of four nights to increase the detection rate between September and March, at the time of peak activity for the species during warm and windless weather conditions following rainfall, and using a combination of diurnal surveys for basking frogs, nocturnal spotlight surveys, call detection, call playback and tadpole surveys.

...

Small wetlands (less than 50 metres at greatest length) should be covered in a period of about one hour by searching banks and emergent vegetation. Larger wetlands (more than 50 metres) should be searched by sampling multiple units systematically...

The Guidelines are not prescriptive, though identify a significant impact as constituting "the removal or degradation of terrestrial habitat within 200 metres" of known or suitable habitat, and "breaking the continuity of vegetation fringing ephemeral or permanent waterways or other vegetated corridors linking" such habitats.

Current Threatened Species Licence

The TSL states for '6.2 Green and Golden Bell Frog Litoria aurea':

- a) Where there is a record of Litoria aurea in a compartment or within 50 metres outside the boundary of the compartment, an exclusion zone of at least 50 metres radius must be implemented around the record.
- b) In addition, where the record is associated with a wetland or dam, a 50 metres wide exclusion zone must be implemented around the wetland or dam.

Given that the Guidelines identify that a significant impact constitutes "the removal or degradation of terrestrial habitat within 200 metres" of known or suitable habitat, it can be considered that 50m buffers are unlikely to be adequate.

For Green and Golden Bell Frog the TSL requires "Permanent wetlands or dams of greater than one hectare surface area must be surveyed for a minimum of one hour, both day and night. For large wetlands or dams, survey effort should be proportional to this effort. For smaller wetlands or dams a minimum of 30 minutes survey must be undertaken both day and night", with "Night searches must be conducted twice on two separate nights". This is half the *minimum of four nights* recommended by the Approved Conservation Advice and half the one hour survey effort for smaller dams and wetlands.

Private Native Forestry

The Private Native Forestry Code of Practice for Northern NSW requires:

- (a) Where there is a record of a green and golden bell frog in an area of forest operations or within 50 metres of the boundary of the area of forest operations, an exclusion zone with at least a 50-metre radius must be implemented around the location of the record.
- (b) In addition, where the record is associated with a wetland or dam, a 20-metre-wide exclusion zone must be implemented around the wetland or dam.

As there is no requirement to undertake surveys for this species the prescription is unlikely to be applied to most areas where they occur. This species are thus effectively unprotected in most logging operations on private lands.

Proposed Coastal IFOA

The new Coastal IFOA identifies Green and Golden Bell Frog as "Fauna threatened species considered adequately protected by the multi-scale protection measures". 10m buffers are required around dams.

The Vulnerable Green and Golden Bell Frog has no Recovery Plan. The 2014 Conservation Advice requires surveys and monitoring of management actions. The Significant Impact Guidelines identify a significant impact as constituting "the removal or degradation of terrestrial habitat within 200 metres" of known or suitable habitat and the breakage of habitat linkages, while specifying specific survey guidelines. The TSL requires buffers of 50m around records or occupied waterbodies, with significantly less survey requirements than recommended. The new IFOA proposes removing survey requirements for Green and Golden Bell Frog and the requirement for exclusion zones, thereby opening up all exclusion zones established in the past 20 years for logging. This is in total contravention of the Approved Conservation Advice.

Giant Barred Frog

Giant Barred Frog (Mixophyes iteratus) is listed as Endangered under the EPBC Act. There is a 2017 *Conservation Advice* Mixophyes iteratus (giant barred frog, southern barred frog) and the only Recovery Plan is the 2002 *Recovery plan for Stream Frogs of South-east Queensland 2001-2005*.

The Conservation Advice notes:

... A short term study of the patterns of daily movement of this species during the breeding season showed that individuals moved up to 100 m in a night, but not more than 20 m from the stream (Lemckert & Brassil 2000). There have been no longer term studies that include nonbreeding times sufficient to adequately assess habitat usage of the giant barred frog.

The Conservation Advice identifies "Habitat loss and modification is considered the foremost threat to the giant barred frog", noting:

Many sites where M. iteratus occurs are the lower reaches of streams that have had major disturbances such as clearing, timber harvesting and urban development in their headwaters. In the Dorrigo area (north-east New South Wales), Lemckert (1999) found that M. iteratus was less abundant in recently logged areas and at sites where there was little undisturbed forest. ...

The Conservation Advice does not include any NSW specific actions relating to 'Habitat loss disturbance and modifications'.

Some of the information in the Queensland Recovery Plan is state specific, though some actions are of relevance, such as:

4.1. Assess effectiveness of management prescriptions

The effectiveness of current forestry management prescriptions in ameliorating disturbance to the habitat of these frogs needs to be assessed. The current management prescriptions are largely based on establishing riparian buffer zones. Radio- and spool-tracking studies of barred-frogs (Task 3.6) will provide the necessary information on movement behaviour and habitat usage on which to make the assessment. The task involves reviewing existing management prescriptions as information from Task 3.6 becomes available.

The NSW OEH 'Giant Barred Frog - profile' identifies a variety of threats including weed infestations "where there are canopy gaps in the riparian vegetation", "Reduction in water quality or alterations to flow patterns", and "Inadequate protection of riparian habitat during forestry activities". The only site specific action in the so-called Action Toolbox is the vague "Protection and rehabilitation of the riparian habitat of the Giant Barred frog".

Current Threatened Species Licence

The current Threatened Species Licence for Giant Barred Frog requires pre-logging surveys and: Where there is a record of Mixophyes balbus, M. iteratus or M. fleayi in a compartment or within 200 metres outside the boundary of the compartment, the following must apply:

- a) Exclusion zones of at least 30 metres wide must be implemented on both sides of all streams within 200 metres of the record.
- 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.

The TSL defines streams as "any stream or watercourse shown on the relevant topographic map(s) for the compartment", meaning that protection is not applied to "unmapped" streams which can constitute a large proportion of streams in any catchment.

The TSL (8.8) identifies Giant Barred Frog as one of those requiring Targeted Fauna Surveys, for riparian frog surveys requiring "one person hour for areas up to 200 hectares of net survey area, plus an additional 15 minutes per 50 hectares above 200 hectares. If more than one stream is surveyed, a minimum of ten minutes must be spent at each separate site", "Three call playback sessions must be conducted per one hour search", with "Surveys must be conducted twice, on different nights", and searches "must not be conducted in cold, windy conditions" between August to March.

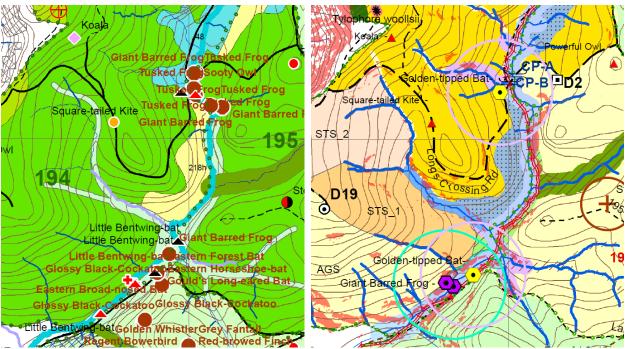
The Commonwealth 'Survey guidelines for Australia's threatened frogs' are significantly more targeted, specifically requiring "Call playback and spotlighting" along 200m of streams, requiring a "minimum of two nights under ideal conditions" though "Should be repeated on at least four separate occasions in activity period", including surveys for tadpoles, with searching "Not during heavy rainfall or stream flow. One week after heavy rainfall" between September to March.

The Commonwealth Guidelines differ significantly in requiring tadpole surveys and a minimum of 200m metres per stream surveyed compared to minimum of 10 minute surveys per stream (which presumably could be comprised of 2x5min surveys). Both require a minimum of 2 visits, though there is a higher threshold for favourable weather conditions with the Commonwealth Guidelines, and a preference for 4 repeats. Local reference sites where the species has been recorded are additional mandatory Commonwealth inclusions.

The TSL (7) also allows for no surveys when "Exclusion zones at least 30 metres wide must be implemented on both sides of those streams that occur within modelled habitat".

In 2014-5 the Forestry Corporation recorded 11 Giant Barred Frogs in pre-logging surveys in compartments 194 and 195 of Lansdowne State Forest. All of these were clearly within the compartments on Rock Creek, with 10 "below Longs Crossing". These were documented in the Ecology Report, with most shown on the "Threatened Species map 3", yet for some obscure reason nine of these records and the protection they required were omitted from the Harvesting Plan. This was particularly significant as these were compartments chosen by the EPA for their "IFOA Trials", meaning that the Harvesting Plans were also signed off by them and the logging operations undertaken under their supervision - they are equally culpable.

NEFA (Joe Sparks 1 March 2016) submitted an audit to the EPA identifying a variety of breaches in these compartments, including the failure to implement the required protection for the Giant Barred Frog, though are yet to get a response.



Extract from Threatened Species map 3 (LEFT) and Harvesting Plan (RIGHT) compartments 194 and 195 of Lansdowne State Forest. The Harvesting Plan only shows, and provides the required protection for, 2 (purple hexagons) of the 11 records of Giant Barred Frog recorded in the area. This omission is particularly significant as this is one of the EPA's "IFOA Trials".

Private Native Forestry

The Private Native Forestry Code of Practice for Northern NSW requires:

Where there is a record of a giant barred frog, Fleay's frog or stuttering frog in an area of forest operations or within 200 metres outside the boundary of the area of forest operations, the following must apply:

- (a) A 30-metre wide exclusion zone must be implemented on both sides of all streams (including Prescribed Streams, and first-, second- and third-order and above streams see Figure 5) within the forest operations area, within 200 metres of the location of the record.
- (b) The width of the exclusion zone 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

As there is no requirement to undertake surveys for any of these species the prescription is unlikely to be applied to most areas where they occur. These species are thus effectively unprotected in most logging operations on private lands.

Proposed Coastal IFOA

The new Coastal IFOA identifies Giant Barred Frog as "Fauna threatened species considered adequately protected by the multi-scale protection measures"

As the only mitigation measure the IFOA does require:

84.2 Any new **drainage feature crossing** that is located within 200 metres upstream or downstream of a **stream breeding threatened frog record** must not alter natural stream flow.

There is no applicable Recovery Plan for the Giant Barred Frog, only a 2017 Conservation Advice which identifies that it moves up to 20m from streams and is impacted upon by logging. The need to protect riparian habitat from logging and monitoring of frog movements is recognised. The current TSL requires surveys and the implementation of 30m buffers on "mapped" streams (not "unmapped") within 200m of records. The prescription has been found to not be applied in practice. The new IFOA proposes removing survey requirements for Giant Barred Frog and the requirement for exclusion zones, thereby opening up all exclusion zones established in the past 20 years for logging. The intent is also to reduce exclusion zones along headwater streams in catchments less than 20ha down from mostly 10m to 5m which may have significant direct impacts on any populations in such areas and will have significant impacts water quality for any downstream populations. There has not been any monitoring to assess the effectiveness of the current prescription and there have not been any trials to assess how Giant Barred Frog will be affected by the removal of the prescription. This is in contravention of the Conservation Advice.

This is purely a politically derived outcome aimed at increasing access to timber resources with no consideration of the ecological requirements of this species or the necessity to limit the impacts of logging upon it.

Stuttering Frog

National Recovery Plan for the Stuttering Frog Mixophyes balbus

The Stuttering Frog *Mixophyes balbus* is identified as Vulnerable under the EPBC Act. The National Recovery Plan for the Stuttering Frog *Mixophyes balbus* (Hunter and Gillespie 2011) identify some of its habitat requirements as:

The Stuttering Frog occurs from northern NSW to Victoria, though most recent records of the Stuttering Frog are from the north of its range, with few records south of Sydney (Gillespie & Hines 1999; NSW Wildlife Atlas),

In north-eastern NSW it has been found along small first-order tributaries and larger third or fourth-order streams. The species has also been found in moist gullies within areas of dry forest, sometimes utilising small trickles of water (Tyler 1997). In the south it has mostly been found in headwaters, along small first or second-order streams (NSW Wildlife Atlas; Gillespie 1997).

Adult Stuttering Frogs are terrestrial, often found sheltering in leaf-litter along the banks and lower slopes of streams. As with the ecologically similar species Mixophyes fleayi, (Doak 2005) Stuttering Frogs may also use habitats considerable distances away from riparian areas and may routinely disperse into surrounding forests outside of the breeding season (Mahony 1999). Consequently, terrestrial habitats in catchments containing populations are also of importance for foraging, shelter and possibly dispersal.

The National Recovery Plan for the Stuttering Frog *Mixophyes balbus* (Hunter and Gillespie 2011) identify as threats:

Some riverine frogs are known to be susceptible to changes in catchment processes, such as hydrological regimes, sediment movement and nutrient yields, that influence the stream environment (Gillespie 2002). Catchment processes are in turn influenced by management activities, such as forestry operations, mining, impoundments, and other disturbance processes, such as fire and grazing.... Habitat destruction continues to threaten the Stuttering Frog, primarily through forestry activities and agriculture (Gillespie & Hines 1999; White 2000).

Many remaining Stuttering Frog populations occur in catchments managed by Forests NSW (Industry and Investment NSW) for timber harvesting. Forestry activities have the potential to impact on frog populations in a number of ways. The most direct impact is through mortality of individual frogs, and the loss of suitable habitat (including that required for movement or dispersal) through disturbance to ground substrates and removal of native vegetation. Forestry activities may also directly impact on the aquatic riverine environment used by the Stuttering Frog. This is primarily through increased sediment loads into the river as a result of road construction and maintenance, and the use of heavy machinery to extract timber. Increased sediment loads into streams are likely to reduce the availability of suitable oviposition sites and tadpole habitat (Gillespie 2002; Mahony 1999).

The Recovery Plan considers that "In view of the extent and rapid nature of the recent population declines of the Stuttering Frog throughout its entire distribution, all extant populations are considered critical for the long-term survival of this taxon at this stage".

The Recovery Plan includes as Performance Criteria:

All extant populations and priority populations critical to species survival identified; geographic genetic structure determined; habitat requirements are determined and information is available to land managers.

Action

- 1.3. Establish a population monitoring program of priority populations to determine population demography and evaluate the effectiveness of management actions
- 2.6. Develop effective license conditions and interim protocols to minimise adverse impacts of all commercial activities near to, and up stream of, all Stuttering Frog populations
- 3.2. Develop conservation and management guidelines for habitat protection and restoration for public land management agencies and private land managers

Current Threatened Species Licence

The current Threatened Species Licence for the Stuttering Frog requires pre-logging surveys and:

Where there is a record of Mixophyes balbus, M. iteratus or M. fleayi in a compartment or within 200 metres outside the boundary of the compartment, the following must apply:

- a) Exclusion zones of at least 30 metres wide must be implemented on both sides of all streams within 200 metres of the record.
- 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.

The current TSL fails to satisfy the Recovery Plan intent in that there has been no monitoring to assess the effectiveness of current prescriptions and there are no species specific requirements required to minimise upstream impacts. Upstream impacts will be greatest where road crossings are implemented and where logging of "unmapped" streams occurs.

The TSL (8.8) identifies the Stuttering Frog as one of those requiring Targeted Fauna Surveys, for riparian frog surveys requiring "one person hour for areas up to 200 hectares of net survey area, plus an additional 15 minutes per 50 hectares above 200 hectares. If more than one stream is surveyed, a minimum of ten minutes must be spent at each separate site", "Three call playback sessions must be conducted per one hour search", with "Surveys must be conducted twice, on different nights", and searches "must not be conducted in cold, windy conditions" between August to March.

The Commonwealth 'Survey guidelines for Australia's threatened frogs' are significantly more targeted, specifically requiring "Call playback and spotlighting" along 200m of streams, requiring a "minimum of two nights under ideal conditions" though "Should be repeated on at least four separate occasions in activity period", including surveys for tadpoles, with searching "Not during heavy rainfall or stream flow. One week after heavy rainfall" between September to March.

The Commonwealth Guidelines differ significantly in requiring tadpole surveys and a minimum of 200m metres per stream surveyed compared to minimum of 10 minute surveys per stream (which presumably could be comprised of 2x5min surveys). Both require a minimum of 2 visits, though there is a higher threshold for favourable weather conditions with the Commonwealth Guidelines, and a preference for 4 repeats.

The TSL (7) also allows for no surveys when "Exclusion zones at least 30 metres wide must be implemented on both sides of those streams that occur within modelled habitat".

A site inspection of FNSW operations in Compartments 16, 17 and 18 of Mount Mitchell State Forest by NEFA (Joe Sparks, September 2011) found breaches that directly affected the habitat utilised by Stuttering Frog. NEFA identified numerous breaches of erosion mitigation conditions, including 4 stream crossings in an identified exclusion zone for a Stuttering Frog which appears to overlie a Hastings River Mouse Exclusion Zone, stating:

We have today found serious breaches of the Environment Protection Licence in cpt's 16, 17, 18. Four crossings of Hartleys creek (4th order stream) are unstable crossing's in breach of the EPL, sediment pollution is resulting from all four instances, one crossing is two concrete pipes which have been crushed by the machinery, it seem in a deliberate act. This same crossing has 50m of road drainage draining directly in to it (the EPL specifies 30m). 25m east of crossing 4, there is 150m of undrained road at 18 degrees leading in to the exclusion zone, 3 of the crossings are within a stuttering frog exclusion zone. One is right on the records for these frogs and could represent an attempt to kill these animals.



PHOTO: ONE OF 4 BREACHES OF RIPARIAN ZONE IN MOUNT MITCHELL SF IN STUTTERING FROG EXCLUSION.

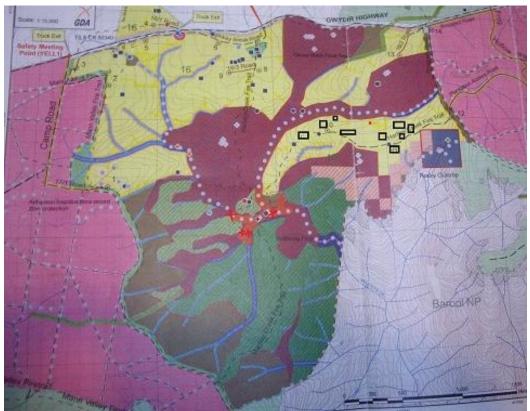


PHOTO: HARVESTING PLAN FOR COMPARTMENT 16 SHOWING HRM EXCLUSION ZONE (MAROON), HRM RECORDS (GREY DIAMONDS), STUTTERING FROG EXCLUSION ZONE (RED), AND REPORTED BREACHES (RED CROSSES)

In response to Mr. Sparks' complaint the EPA responded (G. Abood, 12 February 2012):

... the EPA immediately responded to your report of water pollution by issuing Forests NSW a Clean-Up Notice ... Forests NSW complied with this notice and implemented temporary sediment control measures on 30 September 2011 at each of the crossings within Mt. Mitchell State Forest.

In relation to your environment line report, the EPA has determined that Forests NSW failed to comply with the Environment Protection Licence (EPL) best practice conditions on 24 occasions, specifically failing to undertake operational planning for the four crossings. The EPA has issued Forests NSW with a formal written warning relating to Forests NSW failure to undertake the appropriate operational planning.

The issuing of a warning letter for so many breaches is a grossly inadequate response. True to form the EPA made no attempt to assess impacts on the riparian habitat of Stuttering Frog or Hastings River Mouse.

In a review of Harvesting Plans NEFA (Pugh 2016) identified that for Compartments 60, 61, 62, 198, 199, 201 and 202 of Ellis State Forest:

The harvesting plans identify 11 Stuttering Frog (Mixophyes balbus) records, and 4 Giant barred Frog (Mixophyes iteratus) records in the vicinity, requiring 30m wide riparian buffers within 200m of records, though only 3 localities are identified on the harvesting plans within the compartments and one nearby. ...

There are 9 records of Stuttering and Giant Barred Frogs from wildlife atlas not shown on the plan, with at least 3 of these dated November 2013 which do impact on the nett harvest area:

Stuttering frog SK SF-1298993 20/11/2013 E460440 N6668930 Stuttering Frog SK-1298975 21/11/2013 E 459050 N6667900 Stuttering frog SK-1298979 21/11/2013 E 459200 N

Given that the plan was not prepared until 29 January 2014 it is perplexing as to why these were not included. ...

When preparing their harvesting plan for compartments 280,281,283 and 284 of Forestland State Forest the Forestry Corporation failed to apply the required stream buffers for a record of Stuttering Frog, this was pointed out to CEO Nick Roberts by NEFA (Joe Sparks 29/7/2014) and the failure was affirmed (Rahmat Khaiami 25/8/14), though the Forestry Corporation claimed it hadn't been logged.

It is clear that there has been a systemic failure by the Forestry Corporation to transfer records of both Stuttering Frog and Giant Barred Frog from their surveys into Harvesting Plans. From our small samples this appears to be happening far too frequently to be accidental. These appear intentional with the intent being to increase access to riparian areas for logging.

Proposed Coastal IFOA

The new Coastal IFOA identifies Stuttering Frog as "Fauna threatened species considered adequately protected by the multi-scale protection measures"

The IFOA does require:

84.2 Any new **drainage feature crossing** that is located within 200 metres upstream or downstream of a **stream breeding threatened frog record** must not alter natural stream flow.

There is a 2011 Recovery Plan for the Vulnerable Stuttering Frog that identifies it uses small streams and forest well away from streams, with forestry identified as a threat and the need for monitoring and application of forestry prescriptions. The current TSL requires surveys and the

implementation of 30m buffers on "mapped" streams (not "unmapped") within 200m of records. The prescription has been found to not be applied in practice. The new IFOA proposes removing survey requirements for Stuttering Frog and the requirement for exclusion zones, thereby opening up all exclusion zones established in the past 20 years for logging. The intent is also to reduce exclusion zones along headwater streams in catchments less than 20ha down from mostly 10m to 5m which may have significant direct impacts on any populations in such areas and will have significant impacts water quality for any downstream populations. There has not been any monitoring to assess the effectiveness of the current prescription and there have not been any trials to assess how Stuttering Frog will be affected by the removal of the prescription. This is in contravention of the Recovery Plan.

This is purely a politically derived outcome aimed at increasing access to timber resources with no consideration of the ecological requirements of this species or the necessity to limit the impacts of logging upon it.

The failure to undertake a rigorous monitoring program to assess the effectiveness of logging current prescriptions on Stuttering Frogs is in contravention of the Recovery Plan objectives, let alone the failure to assess the effect that their removal will have on Stuttering Frogs. This is contrary to Recovery Plan actions 1.3. 2.6 and 3.2.

There needs to be the development of guidelines on minimum habitat requirements in an independent (of Forestry Corporation) scientific process in accordance with Action 2.6 and 3.2. and trials undertaken to quantify the effectiveness of any proposed prescriptions before they are applied.

Pugh, D. (2016) New IFOA Changes in Forest Protection In the Clarence and Richmond River Valleys. North East Forest Alliance, January 2016.

Fleay's Barred Frog

Fleay's Barred Frog (Mixophyes fleayi) is listed as Endangered under the EPBC Act. There is a 2017 Conservation Advice Mixophyes fleayi (*Fleay's frog*) and the only Recovery Plan is the 2002 Recovery plan for Stream Frogs of South-east Queensland 2001-2005.

The Conservation Advice notes:

Adults are found in leaf litter and along watercourses in rainforest and adjoining wet sclerophyll forests. Males call from rocks in streams or from pools at the margins of these streams (Corben & Ingram 1987) or from the forest floor. Females have been located well away from streams, over hundreds of metres from known breeding sites.

After disease the Conservation Advice identifies 'Habitat loss and fragmentation' as the major threat, noting:

Upstream clearing of habitat and disturbances such as timber harvesting and urban development may reduce water quality (e.g. via sedimentation) and flow regimes. Increased sedimentation in streams results in filling of crevices and interstitial spaces in stream substrates reducing the availability of suitable oviposition sites or refugia for tadpoles (Welsh & Ollivier 1998) and reduce tadpole growth and development rates (Gillespie 2002). Forestry activities extracting water from streams may also alter hydrological regimes of catchments with resultant impacts on frog breeding habitat (deMaynadier & Hunter 1995).

The Conservation Advice identifies as Conservation and Management priorities: Habitat loss, disturbance and modifications

o Assess the effectiveness of current forestry management practices in ameliorating disturbance to the habitat of Fleay's frog, and revise management practices if necessary.

o Improve the management of stream flows, water quality and riparian environments throughout catchment, particularly upstream of existing and potential sites by monitoring erosion and clearing events and implementing rehabilitation of riparian vegetation.

Some of the information in the Queensland Recovery Plan is state specific, though some actions are of relevance, such as:

4.1. Assess effectiveness of management prescriptions

The effectiveness of current forestry management prescriptions in ameliorating disturbance to the habitat of these frogs needs to be assessed. The current management prescriptions are largely based on establishing riparian buffer zones. Radio- and spool-tracking studies of barred-frogs (Task 3.6) will provide the necessary information on movement behaviour and habitat usage on which to make the assessment. The task involves reviewing existing management prescriptions as information from Task 3.6 becomes available.

Current Threatened Species Licence

The current Threatened Species Licence for Fleay's Barred Frog requires pre-logging surveys and: Where there is a record of Mixophyes balbus, M. iteratus or M. fleayi in a compartment or within 200 metres outside the boundary of the compartment, the following must apply:

- a) Exclusion zones of at least 30 metres wide must be implemented on both sides of all streams within 200 metres of the record.
- 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.

The current TSL fails to satisfy the Conservation Advice intent in that there has been no monitoring to assess the effectiveness of current prescriptions and there are no species specific requirements required to minimise impacts of upstream impacts on water quality or quantity. Upstream impacts will be greatest where road crossings are implemented and where logging of "unmapped" streams occurs.

The TSL (8.8) identifies Fleay's Barred Frog as one of those requiring Targeted Fauna Surveys, for riparian frog surveys requiring "one person hour for areas up to 200 hectares of net survey area, plus an additional 15 minutes per 50 hectares above 200 hectares. If more than one stream is surveyed, a minimum of ten minutes must be spent at each separate site", "Three call playback sessions must be conducted per one hour search", with "Surveys must be conducted twice, on different nights", and searches "must not be conducted in cold, windy conditions" between August to March.

The Commonwealth 'Survey guidelines for Australia's threatened frogs' are significantly more targeted, specifically requiring "Call playback and spotlighting" along 200m of streams, requiring a "minimum of two nights under ideal conditions" though "Should be repeated on at least four separate occasions in activity period", including surveys for tadpoles, with searching "Not during heavy rainfall or stream flow. One week after heavy rainfall" between September to March.

The Commonwealth Guidelines differ significantly in requiring tadpole surveys and a minimum of 200m metres per stream surveyed compared to minimum of 10 minute surveys per stream (which presumably could be comprised of 2x5min surveys). Both require a minimum of 2 visits, though there is a higher threshold for favourable weather conditions with the Commonwealth Guidelines, and a preference for 4 repeats.

The TSL (7) also allows for no surveys when "Exclusion zones at least 30 metres wide must be implemented on both sides of those streams that occur within modelled habitat".

NEFA conducted an <u>audit of compartment 28 of Koreelah State Forest</u> on the 8 and 9 June 2013. At that time we made new records of Albert's Lyrebird and Koalas in compartment 28. It was obvious

to us that Forestry Corporation had not conducted adequate pre-logging fauna surveys. Given the records of Alberts Lyrebird, Marbled Frogmouth and Fleay's Barred Frog in compartment 31, and the obvious presence of suitable habitat in compartment 30, it was apparent to us at that time that the Forestry Corporation had not conducted adequate surveys for these species in compartment 30 and thus were not applying the required prescriptions.

Regrettably the NSW Ministers, the Environment Protection Authority and the Forestry Corporation ignored our calls for additional surveys to ensure that the minimal prescriptions for threatened species were applied. So we returned with a fauna expert on the evening of the 31 August to undertake a <u>survey of compartment 30 of Koreelah State Forest</u>, and located 3 Marbled Frogmouths and 4 Fleay's Barred Frogs (along with one Sooty Owl and 2 Yellow-bellied Gliders), which required a 10m increase in riparian protection around most streams in the compartment. Without our intervention the minimalist prescriptions for these species would not have been applied.

Proposed Coastal IFOA

The new Coastal IFOA identifies Fleay's Barred Frog as "Fauna threatened species considered adequately protected by the multi-scale protection measures"

As the only mitigation measure the IFOA does require:

84.2 Any new **drainage feature crossing** that is located within 200 metres upstream or downstream of a **stream breeding threatened frog record** must not alter natural stream flow.

There is no applicable Recovery Plan for the Endangered Fleay's Barred Frog, with a 2017 Conservation Advice that identifies it uses forest well away from streams, with forestry identified as a threat and the need for monitoring and application of forestry prescriptions. The current TSL requires surveys and the implementation of 30m buffers on "mapped" streams (not "unmapped") within 200m of records. The prescription has been found to not be applied in practice. The new IFOA proposes removing survey requirements for Fleay's Barred Frog and the requirement for exclusion zones, thereby opening up all exclusion zones established in the past 20 years for logging. The intent is also to reduce exclusion zones along headwater streams in catchments less than 20ha down from mostly 10m to 5m (which represents 75% of streams) which may have significant direct impacts on any populations in such areas and will have significant impacts water quality for any downstream populations. There has not been any monitoring to assess the effectiveness of the current prescription and there have not been any trials to assess how Fleay's Barred Frog will be affected by the removal of the prescription. This is in contravention of the Conservation Advice.

This is purely a politically derived outcome aimed at increasing access to timber resources with no consideration of the ecological requirements of this species or the necessity to limit the impacts of logging upon it.

The removal of survey requirements, failure to undertake a rigorous monitoring program to assess the effect the reduced logging prescriptions will have, and the failure to identify specific measures to reduce downstream impacts, on Fleay's Barred Frog is in contravention of the Conservation Advice.

THREATENED ECOLOGICAL COMMUNITIES

There are a large number of Nationally Threatened Ecological Communities (TECs) that occur in north-east NSW, though they are generally not explicitly recognised in planning processes for forestry. NSW Threatened Ecological Communities are explicitly excluded from the current Threatened Species Licence (TSL). In practice they have often not been recognised and have been logged.

The new Coastal IFOA notes "The biodiversity conservation licence authorises FCNSW and any authorised person, to carry out any forestry operation in accordance with the approval that is likely to result in" harm to any animal, plant or habitat that is " a threatened species or threatened ecological community" and "is listed or considered by ... Protocol 27: Threatened ecological communities". Protocol 27 identifies 15 "certified" TECs which have been mapped and 3 "indicative" TECs covered by indicative mapping, for which some require buffers up to 20m. It does not authorise harm to a "threatened ecological community that is not described in Protocol 27".

Remapping by the Forestry Corporation is allowed. The mapping is limited to public lands and there is no mapping for private lands.

There is no mention of Federally listed TECs which may be described differently to State listed TECs, and thus may not be covered by them. While they should theoretically be protected, there is no requirement that they be so, and in practice they are ignored.

Forestry is only recognised as a threat to the Critically Endangered Lowland Rainforest of Subtropical Australia. Remapping and roading of Lowland Rainforest for Private Native Forestry has been found to be a problem in practice. The over-arching problem is the failure to recognise the presence of Federally listed Lowland Rainforest, and State even by NSW Government agencies.

Lowland Rainforest of Subtropical Australia

Lowland Rainforest of Subtropical Australia is identified as Critically Endangered.

The Commonwealth's Species Profile and Threats Database identifies "Recovery Plan not required, the planning, implementation and coordination of recovery actions does not involve complexity beyond that which can be managed through existing management plans and processes". A conservation advice is also available that details the priority recovery actions required for this ecological community (11/11/2011)".

The 2011 Approved Conservation Advice for the Lowland Rainforest of Subtropical Australia states: The main ongoing threats to the ecological community include: vegetation clearance, impacts associated with fragmentation of remnants and weeds.

Ongoing incremental clearing of vegetation for agricultural activities (in particular macadamias and fruit crops), horticultural industry (and the subsequent introduction of new potential weeds), hobby farming, peri-urban and rural residential development (including vegetation removal for bush fire protection) and also private native forestry are further adding to isolation and fragmentation of Lowland Rainforest remnants.

Research priorities that would inform future regional and local priority actions include:

- Undertake surveys to locate and map remnants and other occurrences of the ecological community, as well as threatened species that occur in the ecological community.
- Design and implement a monitoring program or, if appropriate, support and enhance existing programs for the ecological community and associated threatened species.

Habitat Loss, Disturbance and Modification

- Protect and conserve remaining areas of the ecological community. Further clearance and fragmentation of this critically endangered ecological community should be avoided.
- ..
- Monitor the progress of recovery, through improved mapping, estimates of extent and condition assessments of the ecological community, and effective adaptive management actions.
- Implement appropriate management regimes to maintain the biodiversity, including the threatened species, of the ecological community.
- ..
- Develop and implement best practice standards for management of the ecological community on private and public lands.
- Liaise with local councils and state authorities to ensure new developments, road widening, maintenance activities, or other activities involving substrate or vegetation disturbance in areas where the ecological community occurs, do not adversely impact the ecological community.
- Liaise with planning authorities to ensure that planning takes the protection of the ecological community into account, with due regard to principles for long-term conservation.
- Include buffer zones between the ecological community and development zones and areas undergoing pasture development or cultivation.

Enable Recovery of Additional Sites

Patches of the Lowland Rainforest ecological community should be considered a priority for conservation funding (priority repair sites are identified in the Border Ranges Rainforest Biodiversity Management Plan (DECCW, 2010)).

Current Threatened Species Licence

Under "Authorisation" the Threatened Species Licence states:

This licence does not authorise the carrying out of an activity that is likely to:

- 1. Harm an endangered population or an endangered ecological community (as far as animals are concerned);
- 2. Result in the picking of a plant that is part of an endangered population or endangered community;
- 3. Damage critical habitat; or
- 4. Damage to the habitat of an endangered population or endangered community.

There is no specific mention of Threatened species or Threatened Ecological Communities listed under the *Environment Protection and Biodiversity Conservation Act 1999*.

Private Native Forestry

The Private Native Forestry Code of Practice for Northern NSW (PNF Code) requires that "A Forest Operation Plan must contain ... recorded locations of any ... endangered ecological communities listed under the schedules of the Threatened Species Conservation Act 1995".

Table C: Requirements for protecting landscape features specifies " Endangered ecological communities listed in the Threatened Species Conservation Act 1995 at the date the private native forestry PVP is approved by the Minister... Forest operations may only occur in endangered ecological communities as part of an approved Ecological Harvesting Plan approved by the Director General of the Department of Environment and Climate Change, except that existing roads may be maintained" and for "Vulnerable ecological communities listed in the Threatened Species Conservation Act 1995 at the date the private native forestry PVP is approved by the Minister ... Forest operations must not occur in vulnerable ecological communities, except that existing roads may be maintained".

The PNF Code only requires inclusion of "recorded locations" of State listed Threatened Ecological Communities (TECs) on harvesting plans, whereas most locations are unlikely to be recorded in existing data bases - there is no need to look before they log. Broader protection to TECs listed " at the date the private native forestry PVP is approved by the Minister" is theoretically provided by Table C. Though with no survey requirements, and a blanket refusal from the EPA to identify TECs, the reality is that TECs are unlikely to be provided with any intentional protection on private land. Many TECs will also not be protected as no subsequently listed TECs are required to be protected once a PVP has been issued.

There is no mention of nationally listed threatened species and ecological communities in the PNF Code, though the Environment Protection Authority (EPA) website states:

An approval under the Native Vegetation Act 2003 does not remove the obligation of landholders to obtain approval under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), where necessary. 'Actions' that are likely to have a significant impact on a matter of national environmental significance, such as ... nationally listed threatened species and ecological communities, ... require approval under the EPBC Act. If a person proposing to take an action believes that it might have a significant impact on a matter of national environmental significance, they must refer the proposal to the Commonwealth Department of Environment to determine if an approval is required.

It appears that in practice little, if any protection, is provided to either State or nationally listed Threatened Ecological Communities in PNF operations. This is demonstrated by the failure of the Forestry Corporation, EPA and Office of Environment and Heritage (OEH) to identify or protect rainforest qualifying as both the Endangered Ecological Community (EEC) Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion under the NSW Threatened Species Conservation Act, and the Critically Endangered Lowland Rainforest of Subtropical Australia under the *Environment Protection and Biodiversity Conservation Act 1999*. The rainforest was mapped, though despite "detailed" assessment all three agencies failed to recognise it as either a State or Federally listed TEC, they then remapped parts of the rainforest as cleared, and constructed a road through it as well as the exclusion zones for numerous threatened species (see sections on Red Bopple Nut and Clear Milkvine).

During controversy over logging of the private property at Whian Whian (<u>Pugh 2014</u>) a community survey was undertaken on 29 September 2013. Dr. Robert Kooyman, a rainforest expert, identified the nationally listed Critically Endangered Lowland Rainforest of Subtropical Australia as occurring along the access road in the identified logging area.

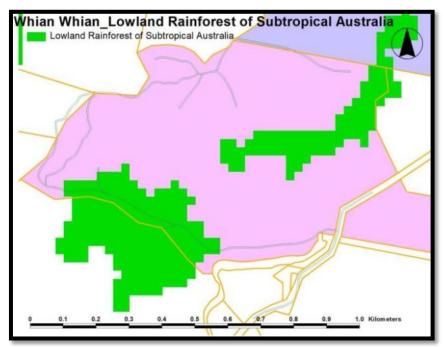
A subsequent NEFA review of rainforest mapping showed the road had been constructed through a 12.5ha stand of rainforest mapped in the NSW 1998 Comprehensive Regional Assessment (CRA), that extends across the boundary with the property to the south. The mapping by Flint and Cerese (2010) clearly identified this rainforest as Lowland Rainforest of Subtropical Australia under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). FC, EPA and OEH have no excuse for ignoring this evidence.

The property is also identified as a Repair Priority in Figure 11c of the Border Ranges Rainforest Biodiversity Management Plan which is a national multi-species Recovery Plan. Though this too was ignored.

This CRA mapped rainforest is taken to be rainforest for Property Vegetation Plans (PVPs) except where disputed by property owners. If the landowner is not happy with the CRA rainforest mapping on their property, the landholder can:

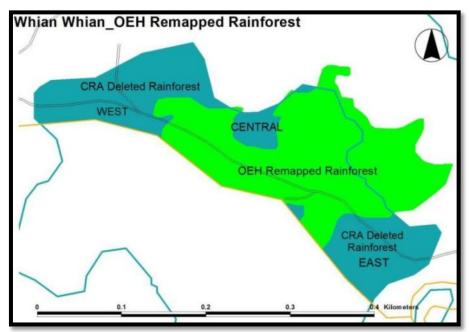
apply to DECC for an evaluation of the area proposed for private native forest for new rainforest mapping and determination of rainforest. The landholder will need to identify the

area in dispute and provide evidence to DECC officers that the area is not rainforest. Evidence could include photographic and logging records, or other disturbance history.



Mapped Lowland Rainforest of Subtropical Australia (from Flint and Cerese 2010)

In May 2012 as part of the preparation of the PVP, the OEH, at the request of the EPA and Forestry Corporation, reviewed the rainforest mapping. In this process they redrew the rainforest boundary. The 4.9 hectares of rainforest mapped on the property in the stand along the road, was remapped as 3.3ha by OEH, with 2.5 ha deleted and 0.9ha added by an extension of the boundary to the north. The deleted rainforest was reassigned either to the loggable area or as cleared land. The FC constructed the main access road through this stand of rainforest for 520m, with this reducing to 250m with the remapping. This road was newly constructed through the deleted rainforest.



MAP: OEH remapping of the CRA mapped rainforest resulted in the deletion of a western, central and eastern patches. Note that most of the stand occurs on the adjacent property (outlined in blue). This is part of a stand mapped as Lowland Rainforest of Subtropical Australia by Flint and Cerese in 2010.

In deleting these rainforest patches the Government agencies removed all protection from them and their inhabitants, reallocating the western and central stands for logging and the eastern stand as cleared land.

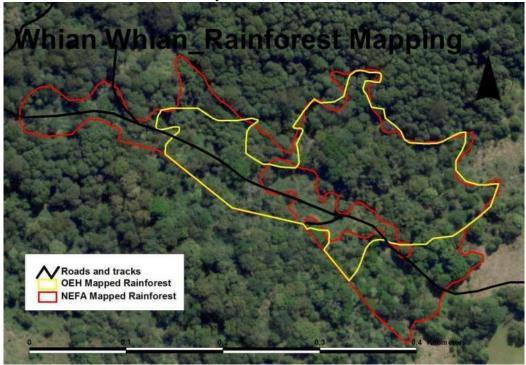


Examples of Lowland Subtropical rainforest remapped by OEH as either cleared land or assigned to the logging area.



Part of a large area of lantana retained as rainforest in OEH remapping, though classed as non-rainforest in NEFA mapping.

NEFA engaged an API expert and botanist to remap the rainforest in the vicinity of the access road using Aerial Photographic Interpretation (API). This was done by applying the definition in the PNF Code and the methodology specified in the "Identification of Rainforest, Field Guide" (NRM Field Assessment Guidelines: Rainforest Identification). In accordance with the Field Guide NEFA undertook transects to determine crown separation ratio using two "zig zag transects" (Field Guide 3.2). From this process, floristic assessments, and consideration of the criteria, it was clear the deleted rainforest qualified as both the Endangered Ecological Community (EEC) Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion under the NSW Threatened Species Conservation Act, and the Critically Endangered Lowland Rainforest of Subtropical Australia under the Environment Protection and Biodiversity Conservation Act 1999.



Mapping by OEH and NEFA overlaid on aerial photo, note the south eastern patch classed as "cleared" by OEH and the central lantana dominated area classed as non-rainforest by NEFA.

Compliance of NE NSW Forestry with Commonwealth Threatened Species Requirements

NEFA presented our detailed evidence to the EPA as part of our audit (Pugh 2014). NEFA requested the PVP and documents relating to the rainforest remapping under the Government Information (Public Access) Act 2009 (GIPA) from both the EPA and OEH though they gave a blanket refusal of every document on the grounds they are "personal information" and that their release can "reasonably be expected to" "expose a person to a risk of harm or of serious harassment or serious intimidation".

There was a 2 year window of opportunity for the EPA to legally pursue this matter, and they used most of this time up before they responded (Michael Hood 28 September 2015). The EPA refused to consider or investigate our rainforest complaint, instead referring back to the PVP remapping:

The EPA engaged the Office of Environment and Heritage (OEH) to do an independent review of existing rainforest mapping of the property. This review was done using the agreed and documented rainforest re-mapping protocol and in accordance with the PNF Code definition of rainforest. API and field site verification was completed during 2012. All mapped rainforest was excluded from the approved PNF PVP for the property.

The Environment Protection Authority issued a Property Vegetation Plan (PVP) for part the Hewittville property (Lot 136 DP 755724 Tyalgum) in the Tweed Valley on 29 April 2013. This property is recognised as a Conserve Priority Area in Figure 10b and a Repair Priority in Figure 11b of the Border Ranges Rainforest Biodiversity Management Plan.

Controversy ensued in late 2017 when NEFA found an Environmental Protection Zone was being logged without the required approval by Tweed Shire Council. A community assessment in December 2017 identified a rainforest stand as qualifying as the Endangered Ecological Community Lowland Rainforest, with 14 Vulnerable Durobby (*Syzygium moorei*) and a number of Endangered Green-leaved rose walnut (*Endiandra muelleri* subsp. *bracteata*) within or near it. While their report was provided to the EPA (with localities) because it was anonymous nothing will be done to protect these unless the EPA investigate it for themselves.

Proposed Coastal IFOA

Lowland Rainforest of Subtropical Australia, and other Commonwealth listed TECs, are not considered under the new Coastal IFOA, though the NSW listed Lowland Rainforest has been mapped for protection on public land, but not private. They are differently described, so the Commonwealth listed TEC is not necessarily protected.

FLORA

There are two multi-species recovery plans which cover north-east NSW, the Border Ranges Rainforest Biodiversity Management Plan and Northern Rivers Regional Biodiversity Management Plan. Both are extremely vague when it comes to species-specific measures and do not provide the direction needed to appropriately protect and recover the subject species.

The Border Ranges Rainforest Biodiversity Management Plan does not specifically consider forestry as a Threat, though it can generically be counted as a threat under the classifications of: Clearing, Fragmentation, modification and degradation, and Weed invasion. These are identified as threats to all the plants covered. Forestry is one of the most widespread activities occurring throughout forests in the region and the failure of the plan to specifically consider forestry impacts and mitigation measures is irresponsible in what is meant to be a recovery plan.

The Border Ranges Rainforest Biodiversity Management Plan is dealt with previously.

The Northern Rivers Regional Biodiversity Management Plan (the NRRBM Plan) constitutes the national regional recovery plan under the *Environment Protection and Biodiversity Conservation Act* 1999 for threatened species and ecological communities principally distributed in the Northern Rivers Region of NSW. It is only marginally better when considering forestry impacts.

In relation to Recovery Actions for Forestry it is noted:

Impacts on biodiversity from forestry can be directly linked to harvesting intensity and frequency. The protection of non-wood biodiversity values requires a balance between maximum potential harvest regimes and the retention and management of key biodiversity features within the landscape.

'OUTCOME 7.1: Impacts of forestry operations on biodiversity are minimised' identifies:

- Develop criteria and indicators to measure, monitor and report on ecologically sustainable forest management practices for forestry operations on private lands, to ensure sustainability of the full range of wood and non-wood values of forests.
- Develop appropriate criteria and indicators to review the effectiveness of threatened species protection measures currently employed in public and private native forestry activities. Strengthen threatened species protection measures where they are shown to be inadequate.

The NRRBM Plan identifies 15 Federally listed threatened plant species that are specifically threatened by Forestry. Of these, the new Coastal IFOA proposes removing protection for 4 of these species and reducing protection for 3. Four are effectively having their protection increased to 20m exclusion zones and three remain the same. Slaty Red Gum remains equivocal as the monitoring process has been of little benefit - while it has been found the greatest damage is to small trees, the protection is to be limited to mature trees with no buffers to limit damage.

	Flora	species	EPBC Act	TSC Act	Current Prescription	Proposed Changes
	Tall Knotweed	Persicaria elatior				
Herb			V	V	50m	Road Plan
	Big Nellie	Hakea archaeoides				
Shrub	Hakea		V	V	none	20m
	Bordered	Hibbertia marginata				
Shrub	Guinea Flower		V	V	Man Plan	20m

	Dorrigo Daisy	Olearia flocktoniae				
Shrub	Bush		Е	Е	90% plants	Road Plan
Shrub	Four-tailed Grevillea	Grevillea quadricauda	V	V	Man Plan	20m
Shrub	Mason's Grevillea	Grevillea masonii	E	E	20m	20m
Shrub	Moonee Quassia	<i>Quassia</i> sp. 'Moonee Creek'	E	E	20m/90%	20m
Shrub	Narrow-leaf Melichrus	<i>Melichrus</i> sp. 'Gibberagee'	E	E	50m	20m
	Orara Boronia	Boronia umbellata				
Shrub			V	V	90% plants	Remove
Small	Dwarf Heath	Allocasuarina				
tree	Casuarina	defungens	Е	Е	20m/90%	Remove
	Sandstone	Angophora robur				
Tree	Rough-barked Apple		V	V	Man Plan	Remove
	Slaty Red	Eucalyptus				Protect
Tree	Gum	glaucina	V	V	Man Plan	mature
	Square-fruited	Eucalyptus				
Tree	Ironbark	tetrapleura	V	V	90% plants	Remove
Vine	Cryptic Forest Twiner	Tylophora woollsii	E	E	20m	20m
Vine	Milky Silkpod	Parsonsia dorrigoensis	E	V	Man Plan	Man.Plan

Federally threatened species identified in the Northern Rivers Regional Biodiversity Management Plan as being under threat from Forestry, with current and proposed prescriptions.

Five of these species were subject to Monitoring Programs.

The current TSLs for UNE and LNE identify 11 plants that require Monitoring Programs be prepared under condition 6.27 of the Threatened Species Licence for the Upper North East and Lower North East Regions of the Forest Agreement:

Rupp's Wattle Acacia ruppii,

Rusty Plum *Niemeyera* (previously *Amorphospermum*) *whitei*- Southern Metapopulation Unit Sandstone Rough-barked Apple, *Angophora robur*

Long leaf wax flower. Eriostemon myoporoides ssp. conduplicatus

Slaty Red Gum Eucalyptus glaucina - Northern Metapopulation Unit

Narrow-leaf Finger Fern Grammitis stenophylla

Four-tailed Grevillea Grevillea quadricauda

Bordered Guinea Flower Hibbertia marginata

Grove's Paperbark Melaleuca groveana

Milky Silkpod Parsonsia dorrigoensis

Broad-leaved Pepperbush Tasmannia purpurascens

The Monitoring Programs allow logging to be undertaken in a species' habitat without any prescriptions required to be applied. It is not until monitoring is undertaken and the results considered that anything is intended to be done to modify prescriptions. The reality is that despite being in operation for 20 years monitoring is rarely done and there has been no improvement in protection for any species despite significant impacts being identified.

An informal GI(IP) Act request was submitted on 13 April 2017 for all relevant documents with a response provided by the EPA on 31/07/2017.

The most apparent problem with the limited monitoring undertaken is that the foresters supervising the operation (and likely the contractors) are aware they were logging in a trial area (with plots often

marked on the ground) and thus needed to minimise damage, so the reported damage is likely significantly less than what would occur in a normal operation. Despite this damage to species was far higher than expected by the Forestry Corporation.

Of the 11 species identified for monitoring, the EPA (2017, pers. comm.) identified that:

- 1. Rupp's Wattle *Acacia ruppii* is claimed to be "*not known within 50m of FMZ4*" so the conditions were not triggered.
- 2. Long leaf wax flower *Eriostemon myoporoides ssp. conduplicatus* is claimed to be "not known within 50m of FMZ4" so the conditions were not triggered.
- 3. For Narrow-leaf Finger Fern *Grammitis stenophylla* the EPA identified "Occurrence in harvesting operations unclear. No plan or report located".
- 4. For Grove's Paperbark Melaleuca groveana (not federally listed) the EPA identify that "Plan has not been required to be enacted" though an undated Monitoring Plan was prepared for Kippara State Forest Compartments 6 and 7 and Kippara SF compartments 8, 12 and 13. Online plans identifies Melaleuca groveana within the net harvesting area of the 2016 Harvesting Plan for Kippara SF compartments 27, 28, 29, 30, 31 and 33.
- 5. Similarly there does not appear to have been any monitoring of Four-tailed Grevillea (*Grevillea quadricauda*) despite the Forestry Corporation preparing a Flora Monitoring Program and identifying significant numbers in an area they intended to log in 2009, with the EPA stating "Plan has not been required to be enacted".
- 6. For *Tasmannia purpurascens* (not federally listed) monitoring was started in 2011, with plots established, though the EPA apparently have no results.
- 7. The only monitoring report for Bordered Guinea Flower (*Hibbertia marginata*) was not reported until 2012 and the impacts were found to be far greater than anticipated, with 28% and 36% of plants killed or removed at two locations, often by soil disturbance or being smothered by dense logging debris, with many other plants damaged, yet despite changes to the licence since then the prescription has not yet been changed to the proposed 20m buffer.
- 8. The only monitoring report for Sandstone Rough-barked Apple (*Angophora robur*) was prepared in 2008 with just 35 trees assessed of which 23% suffered significant damage (5 killed), yet the intent now is to remove all protection.
- 9. The only monitoring report for Slaty Red Gum (*Eucalyptus glaucina*) was not prepared until 2012, finding 30% of trees up to 60 cm dbhob were damaged by logging (5 logged) and 3 years after logging there was a population decline, yet the intent now is to limit protection to mature plants with no buffers.
- 10. Monitoring of Milky Silkpod (*Parsonsia dorrigoensis*) was not written up until 2009, up to 5 years after monitoring was complete. The monitoring covered 69 plants across 4 State Forests, finding "*Logging results in a large proportion (41-64%) of plants, or at least their above-ground parts, being damaged, destroyed or removed. Although all plants damaged by logging survived, a high proportion (19-41%) of plants is destroyed or removed".*
- 11. Rusty Plum (*Niemeyera whitei*) is not Federally listed, so is not detailed below. Monitoring up to a year post-logging was reported on in 2008. Of the 40 trees monitored 12 trees (30%) were damaged by harvesting, with 6 of these "subject to moderate to severe damage considered potentially capable of causing mortality", though with one exception all damaged trees coppiced.

This means that over 20 years of the Threatened Species Licence the impacts of logging were only monitored and reported on for 5 species. Even then the monitoring was not commenced until long after the TSL came into effect, and often not reported on until years later. Even under the controlled monitoring programs, where monitored species were identified and presumably avoided, in all cases significant damage to the threatened species was recorded. Only one monitoring report for each species was undertaken, often despite claims that monitoring would be ongoing and the need to better identify the significance of impacts. None of the monitoring has so far resulted in any changes to prescriptions, with these species still subject to uncontrolled logging impacts.

The results do clearly show that any threatened species within logging areas is likely to be subject to significant impacts, even when identified prior to logging with efforts made to avoid impacts. It is also apparent that for many species post-logging burning greatly compounds logging impacts. The results also show that impacts are more significant that the agencies assume.

What is most concerning is that the existing monitoring has been undertaken under the current logging regimes, which the Flora Monitoring Programs place strong reliance upon to minimise impacts, yet future logging is proposed to be undertaken under a significantly increased intensity with reduced tree retention. Thus the impacts on threatened plant species will be far greater.

The concept of undertaking monitoring while indiscriminately logging habitat of threatened species over decades is a nonsense, and failing to introduce appropriate protection measures when significant impacts are found is a farce.

A precautionary approach would require that logging exclusion zones are placed around all threatened plant species potentially vulnerable to the range of impacts associated with logging (ie physical damage, soil disturbance, microclimate changes, hydrological changes, burning, weed invasion, logging dieback), with logging only allowed after independent trials have proven that logging impacts can be appropriately controlled.

Big Nellie Hakea

Big Nellie Hakea *(Hakea archaeoides)* is **listed** as Vulnerable under both NSW's Threatened Species Conservation Act and the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999.* It is restricted to the hinterland between Kempsey and Taree, around Mt Boss, Broken Bago and Landsdowne. Found on steep, rocky, sheltered slopes and in deep gullies in open eucalypt forest. Commonly occurs at the interface of dry eucalypt forest and gully communities.

The OEH Profile (Accessed 01 Dec 2017) in part identifies:

Threats

- Risk of local extinction due to low population numbers.
- Burning patterns which do not allow regeneration.
- Forestry activities.

Activities to assist this species

- Manage fire in areas of habitat to maintain the shrub layer and to promote regeneration of Hakea archaeoides.
- Protect from forestry activities.
- Report new occurrences to the OEH.

The Approved Conservation Advice for Hakea archaeoides (1/10/2008) states "The main potential threats to H. archaeoides include inappropriate fire regimes; forest operations; and vulnerability to stochastic effects due to small population sizes (DEC, 2005b)", identifying:

Habitat Loss, Disturbance and Modification

- Monitor known populations to identify key threats.
- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.
- Identify populations of high conservation priority.
- Ensure forest activities, road widening and maintenance activities (or other infrastructure or development activities) involving substrate or vegetation disturbance in areas where H. archaeoides occurs do not adversely impact on known populations.

- ...
- Minimise adverse impacts from land use at known sites.
- Investigate further formal conservation arrangements, management agreements and covenants on private land, and for crown and private land investigate inclusion in reserve tenure if possible.
- Assess implementation and effectiveness of forestry management prescriptions, and, if needed, develop or refine threatened species prescriptions.

Recovery Plan is identified as Department of Environment, Climate Change and Water NSW (2010). Northern Rivers Regional Biodiversity Management Plan, National Recovery Plan for the Northern Rivers Region.

Current Threatened Species Licence

This species is not mentioned in the current licence.

As Hakea trineura (from which it was separated) it was identified in the previous licence as requiring Where there is a record of one or more of the species listed in part b) of this prescription in the compartment the following must apply:

a) Damage to plants caused by specified forestry activities must be avoided. No buffer is required. The location of these species must be mapped on the Harvesting Plan Operational Map.

Private Native Forestry

The PNF Code requires:

Threatened and protected flora: protection of 90% of individuals

Where there is a record of a species to which this condition applies:

(a) A minimum of 90% of individuals must be protected from specified forestry activities. During forest operations, the potential for damage to these plants must be minimised by the use of directional felling techniques.

Proposed Coastal IFOA

Under the new Coastal IFOA Big Nellie Hakea is classed as "Flora species that require a 20-metre exclusion zone around all individuals".

The Vulnerable Big Nellie Hakea is covered by the 2010 Northern Rivers Regional Biodiversity Management Plan, which is its generic Recovery Plan, though provides little direction. It is also subject to a 2008 Conservation Advice. Forestry is a recognised threat, with monitoring and review of prescriptions as actions. It is not currently provided with any protection under the TSL, though the new Coastal IFOA proposes a 20m buffer. The current lack of any protection is clearly not in accord with this species' Recovery Plan or Conservation Advice.

Bordered Guinea Flower

Bordered Guinea Flower (*Hibbertia marginata*) is listed as Vulnerable under both NSW's Threatened Species Conservation Act and the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999*. Bordered Guinea Flower is a small shrub, growing to 0.5 m tall. restricted to the southern Richmond Range between Casino and Grafton. The 2001 Forests NSW 'Monitoring Plan –Hibbertia marginata' identifies that "*the total population is about 9 000 individuals*" but could be larger, considering "*It may occur as small discrete stands, with tens of individuals over hundreds of square metres, or as much larger, diffuse stands occupying tens of hectares*".

The OEH Profile (21 Aug 2018) identifies as Threats Road maintenance and widening, Inappropriate fire regimes, and Timber harvesting activities. Management activities are identified as "Identify roadside populations and protect them during road-works" and " Protect areas of known habitat during timber harvesting activities".

The "Approved Conservation Advice for Hibbertia marginata" (3 July 2008) identifies "The main identified threats to *H. marginata* are forestry activities and inappropriate fire regimes (NSW NPWS, 1999)". Regional and Local Priority Actions are identified as:

Habitat Loss, Disturbance and Modification

- Monitor known populations to identify key threats.
- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.
- Identify populations of high conservation priority.
- Ensure road widening and maintenance activities in areas where Hibbertia marginata occurs do not adversely impact on known populatio
- ...
- Assess implementation and effectiveness of forestry management prescriptions, and, if needed, develop or refine threatened species prescriptions (DECC, 2005).

Recovery Plan is identified as Department of Environment, Climate Change and Water NSW (2010). Northern Rivers Regional Biodiversity Management Plan, National Recovery Plan for the Northern Rivers Region.

Current Threatened Species Licence

Bordered Guinea Flower is identified in the current TSL as one of the 11 plants that require Monitoring Programs be prepared under condition 6.27 of the Threatened Species Licence for the Upper North East and Lower North East Regions of the Forest Agreement:

The 2001 Forests NSW 'Monitoring Plan –Hibbertia marginata' outlines the intent, with monitoring immediately post logging and burning, within a year after and three and seven years post-logging.

The 2012 "Hibbertia marginata Flora Monitoring Program, First report" is the only report prepared. At 3 sites in different forests twenty plants were selected and tagged with uniquely-numbered metal tags. Monitoring was undertaken at variable times, though within a year. It appears the longer-term monitoring was not done. They found:

For all study areas combined, there was a significant effect of treatment type p<0.01). There was a mean decline of 24% in unlogged, burnt plots and 33% in logged, unburnt plots, ... there was evidence for a greater decline in logged and burnt plots than either alone ...

Based on the change in plant density, the mean proportion of plants killed or removed over all three areas combined is 0.28. The proportion is substantially lower for Tabbimoble SF, but since logging is incomplete in that area, the data may not be representative. The proportion for Mount Belmore SF (a decline of 36%) is higher than for Doubleduke (28% decline) ...

Damaged individuals were found to be unexpectedly difficult to relocate with certainty, due to the small, easily damaged stems and the frequent loss of tags.... Because of the loss of tags and the effect of fire on the Mount Belmore plots, it is not possible to quantitatively estimate the proportion of plants damaged by logging or the types and extent of damage sustained. The decline in numbers of plants appears to be due to plants removed as a result of soil disturbance or smothered by dense logging debris, rather than a result of plants simply being physically damaged.

- - -

The decline in numbers of plants in the net harvest area was greater than predicted. For logged, unburnt areas, the results suggest an immediate overall decline of about 30% in the net harvest area and 15% in the total State forest population (assuming that approximately 50% of the population is in harvest exclusion areas). There was also an unexpected decline in areas which were burnt but not affected by logging. Although many individuals survive low intensity fire, a significant proportion do not survive.

Although there was some seedling recruitment soon after logging, it was insufficient in the short term to replace plants which were lost. It remains to be seen whether longer term recruitment will compensate for the decline immediately following logging. ...

T I I 3 C				
lable 2. Change	in numbers of	i piants followir	g logging, r	by treatment type.

Treatment type	Number of plots	Mean change, plants per plot	Mean percentage change
All unlogged, burnt plots	13	-6.5	-24
All logged, unburnt plots	17	-3.2	-33
All logged burnt plots	6	-19.2	-70

Private Native Forestry

For Bordered Guinea Flower the PNF Code requires:

Exclusion of specified forestry activities from 100% of individuals and no buffer.

Individuals of the threatened species or protected native plants to which this condition applies must not be picked in the course of carrying out specified forestry activities

Proposed Coastal IFOA

Under the new Coastal IFOA Bordered Guinea Flower is classed as "Flora species that require a 20-metre exclusion zone around all individuals".

The limited monitoring for this species identified that the species was significantly damaged during logging, despite it being apparent that the foresters supervising the operation (and likely the contractors) were aware they were logging in a trial area and thus needed to minimise damage to Bordered Guinea Flower. It is astounding that since 1998 the Forestry Corporation were allowed to log in the habitat of this species subject to a Flora Monitoring Plan that wasn't completed until 2012, and that the prescription is still yet to be changed to provide this species with the protection it obviously needs.

Clear Milkvine

Clear Milkvine (AKA Slender Marsdenia) (*Marsdenia longiloba*) is listed as 'Vulnerable' under the EPBC Act and as Endangered under NSW's Threatened Species Conservation Act. There is no approved Recovery Plan. There is a 2008 *Approved Conservation Advice for* Marsdenia longiloba (*Clear Milkvine*).

The Conservation Advice considers:

The main identified threats to Clear Milkvine include localised extinction due to small population; loss and fragmentation of habitat through land clearing for agriculture and urban development; invasion by introduced weeds, such as Lantana (Lantana camara); grazing and trampling by cattle; inappropriate fire regimes; and herbicide usage (DECC, 2005a, 2005c).

The Conservation Advice 'Research Priorities' include:

Research priorities that would inform future regional and local priority actions include:

More precisely assess population size, distribution, ecological requirements and the relative impacts of threatening processes.

Undertake survey work in suitable habitat and potential habitat to locate any additional populations/occurrences/remnants

The Conservation Advice identifies as Regional and Local Priority Actions:

Habitat Loss, Disturbance and Modification

- Monitor known populations to identify key threats.
- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.
- Suitably control and manage access on private land.
- Minimise adverse impacts from land use at known sites.
- Investigate formal conservation arrangements, management agreements and covenants on private land, and for crown and private land investigate inclusion in reserve tenure if possible.

Conservation Information

• Liaise with private landholders to convey the significance of Clear Milkvine populations occurring on or adjacent to their property and encourage works for species protection (DECC, 2005b).

Current Threatened Species Licence

Under the TSL 6.26 Threatened and Protected Flora: protection of 90% of individuals:

A minimum of 90% of individuals must be protected from specified forestry activities. During harvesting operations, the potential for damage to these plants must be minimised by utilising techniques of directional felling.

Private Native Forestry

The Private Native Forestry Code of Practice for Northern NSW requires that "An exclusion zone with at least a 20-metre radius must be implemented around all individuals".

NEFA and the community identified 13 Clear Milkvine during a logging operation on a private property at Whian Whian (<u>Pugh 2014</u>). Of these 5 were apparently killed, one severely damaged, and 4 had logging and/or roading within what should have been their exclusion zones. More are likely to have been killed or buried under debris. The FC and EPA were notified of the location of 3 of these before they disappeared, and themselves tagged one before they constructed a track through its exclusion area.

On the 22 September 2013 NEFA identified what it considered likely to be 3 Clear Milkvine (which was later confirmed) in the vicinity of the FC's proposed new road. Flagging tape was placed on an adjacent palm so as not to risk damage to the vine. A photo was provided to the EPA and GPS localities to both EPA and the FC. Three days later, under the supervision of the EPA, the FC constructed a new track through the site and NEFA are now unable to find it or the adjacent palm that had been marked with flagging tape. It appears it was simply bulldozed.



Photo of Clear Milkvine provided, along with GPS co-ordinates, to EPA on 22 September, three days later under the supervision of the EPA the FC constructed a new track through the site and NEFA are now unable to relocate it.

As part of the Community Survey on the 27 of September botanist Nan Nicholson found that the new extraction track had been constructed through a group of 3 Clear Milkvine located 40m to the SSW from NEFA's reported location of 22 September. Two of these had been killed and one severely damaged, as was confirmed by the FC botanist. NEFA inspected this site and do not consider it is the one located on 22 September. Though NEFA's record, and another nearby, emphasises that both EPA and FC botanists should have searched this vicinity thoroughly.

As part of its post-logging assessment NEFA located another Clear Milkvine 38m to the NNE of NEFA's September 22 record, and 7m from a drain outlet on the new track. This one was growing on an Arrow-head Vine and had been marked with flagging tape by the FC. It is apparent that both the FC and EPA should have identified this individual before they violated its exclusion zone. Though a FC comment that "Doug ... said no" appears to refer to this species and suggests that despite tagging the vine on which it was growing (and the marking of the centre of the track through a patch of 3) the FC botanist (Doug Binns) may not have recognised this species, even after being alerted to its presence.

During the Community Survey on the 27 of September botanist Nan Nicholson also located another Clear Milkvine next to the logging road that FC had bulldozed debris around. This one is particularly interesting in that the forester charged with identifying threatened species had marked the tree on which the Clear Milkvine was growing, just below a spray of leaves, as the boundary of a riparian exclusion zone. This shows that the responsible foresters are not adequately trained. The others identified in the Community Survey were subsequently protected.



LEFT: 3 Clear Milkvine were found in this pile of debris next to track, two were killed and one severely damaged. RIGHT: Clear Milkvine growing on an Arrow-head vine, marked with tape by FCNSW before track construction, nearest debris 3m, cross drain outlet 7m away and edge of track 10m away.



Clear Milkvine (Marsdenia) found growing on marked tree next to road with debris pushed near it. Note the spray of Clear Milkvine leaves on the trunk above the markings. The marking is for the filter strip, though the forester doing it apparently did not recognise the plant in front of him.

As part of the Community Surveys a further 3 Clear Milkvine were identified by volunteer botanists before the FC could log or road them. As part of NEFA's post-logging assessment a further 2 Clear

Milkvine were located on the northern boundary of the logging area in an area not covered in the Community Surveys. One small one was found with debris 1.5 m away and extensive logging within 20m and another larger one with logging debris reaching it and again with extensive logging within 20m. Logging of this area occurred after the Community Surveys and was overseen by foresters who had taken part in the Community Surveys and thus should have been able to identify Clear Milkvine by then, if they could be bothered looking.



Two Clear Milkvine (foreground) were found in an area not inspected in the Community Survey that was subsequently logged. Both did not have exclusion zones applied and had extensive logging and debris within what should have been their buffers. It is highly likely that others were killed in the adjacent logging area.

There was a 2 year window of opportunity for the EPA to legally pursue this matter, and they used most of this time up before they issued the Forestry Corporation with two Penalty Notices (each with a fine of \$5,500) on the 11 September 2015 for constructing their track through what should have been 20m exclusion zones for a Koala High Use Tree and the NSW Endangered vine Clear Milkvine.

The Forestry Corporation stated they intended to vigorously dispute the fines on the grounds that their intent "was discussed with EPA staff on site during the operation". In other words, the EPA knew they were going to construct the illegal road and, at best, did nothing to stop them.

Given that the EPA had almost used up their 2 years for legal action, the Forestry Corporation simply bided their time before telling the EPA that they would not pay the fines and would rather dispute them in court. By then, the EPA claim, it was too late to defend the fines in court.

Proposed Coastal IFOA

Under the new Coastal IFOA Clear Milkvine is classed as "Flora species that require a 20-metre exclusion zone around all individuals".

The Vulnerable Clear Milkvine has no Recovery Plan, but is covered by a 2008 Conservation Advice which requires surveys, monitoring and an assessment and review of management actions, particularly on private land. The TSL requires protection of 90% of individuals. For PNF 20m buffers are required. During a logging operation undertaken by the Forestry Corporation on private land in 2013 NEFA identified 13 plants, of which 5 were apparently killed, one severely damaged, and 4 had logging and/or roading within what should have been their exclusion zones. Three of those killed were identified prior to road construction, and the other 2 found after. Other individuals are likely to have been killed in the operation. The EPA waited until the time for prosecution had almost

expired before issuing the Forestry Corporation with a \$5,500 fine for roading within the buffer of Clear Milkvine, though they contested the offence and refused to pay the fine, by which time it was too late for the EPA to prosecute. It is evident that because of the absence of survey requirements this species has no meaningful protection on private land in contravention of the Conservation Advice. The new Coastal IFOA proposes 20m buffers for this species.

Four-tailed Grevillea

Four-tailed Grevillea (*Grevillea quadricauda*) is **listed** as Vulnerable under both NSW's Threatened Species Conservation Act and the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999*. It is a dense shrub growing up to 2 m high found to the north-west of Whiporie in Mount Belmore State Forest, Mount Neville Nature Reserve and at Tucabia, east of Grafton.

The OEH Profile (09 Mar 2018) identifies threats as

- Timber harvesting activities.
- Too-frequent fire.
- Road widening and maintenance.
- Clearing for development and agriculture.
- Risk of local extinction because populations are small.

Activities to assist this species include:

- Ensure forestry operations do not damage habitat.
- Identify roadside populations and protect them during road-works.

The Commonwealth's Approved Conservation Advice for Grevillea quadricauda (Four-tailed Grevillea) (26/3/2008) states "The main identified threats to G. quadricauda are timber harvesting activities; frequent fires; road widening and maintenance activities; and clearing for development and agriculture. The small population size of this species further increases the risk of local extinctions resulting from these threats (DECC, 2005a)".

Regional Priority Actions identified include:

- Identify populations of high conservation priority.
- Manage threats to areas of vegetation that contain populations of the species.
- Ensure road widening and maintenance activities (or other infrastructure or development activities as appropriate) in areas where G. quadricauda occurs do not adversely affect known populations.
- •
- Include direction for the protection of known populations and potential habitat of the species in the Code of Practice for Private Native Forestry (DECC, 2007).

Local Priority Actions include:

- Monitor known populations to identify key threats.
- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.
- Minimise adverse impacts from land use at known sites.
- Undertake survey work in suitable habitat and potential habitat to locate any additional populations.
- Assess implementation and effectiveness of forestry management and develop or refine threatened species prescriptions, if required (DECC, 2005b).

Identified as Recovery Plan not required.

Current Threatened Species Licence

Four-tailed Grevillea is identified in the current TSL as one of the 11 plants that require Monitoring Programs be prepared under condition 6.27 of the Threatened Species Licence for the Upper North East and Lower North East Regions of the Forest Agreement:

A Flora Monitoring Program for Grevillea quadricauda was prepared on 4 November 2008.

A 2008 Monitoring Report identifies "In July 2008 during a desktop survey of compartments scheduled for harvesting in Mt Belmore State Forest it was identified that previous records of Grevillea quadricauda existed within proposed harvest area", these records were confirmed with operations scheduled for January 2009.

It does not appear that the monitoring was ever undertaken, with the EPA 2017 claiming "Plan has not been required to be enacted".

Private Native Forestry

The PNF Code requires:

Exclusion of specified forestry activities from 100% of individuals and no buffer Individuals of the threatened species or protected native plants to which this condition applies must not be picked in the course of carrying out specified forestry activities.

Proposed Coastal IFOA

Under the new Coastal IFOA Four-tailed Grevillea is classed as "Flora species that require a 20-metre exclusion zone around all individuals".

No Recovery Plan is required for the Vulnerable Four-tailed Grevillea. The 2008 Conservation Advice identifies forestry as a threat, requiring implementation and monitoring of prescriptions. The current TSL class it as one of the 11 plants that can be logged indiscriminately subject to the undertaking of a Monitoring Program. There does not appear to have been any monitoring of this species despite the Forestry Corporation preparing a Flora Monitoring Program and identifying significant numbers in an area they intended to log in 2009, with the EPA stating "Plan has not been required to be enacted". The PNF Code requires protection of all individuals with no buffers. The new Coastal IFOA proposes to require 20m buffers. It is outrageous that this species has been allowed to be subject to indiscriminate logging for the past 20 years with no protection and no monitoring.

Milky Silkpod

Milky Silkpod (*Parsonsia dorrigoensis*) is listed as Vulnerable under NSW's Threatened Species Conservation Act and as Endangered under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999*. It is a slender, trailing climber found in tall eucalypt forests and in subtropical and warm-temperate rainforests between Kendall and Woolgoolga. State Forests 2000 the Flora Monitoring Program (FMP) identifies that "*Its longevity is unknown, but is likely to be at least several decades and may be in the order of centuries*".

The OEH Profile (28 Jun 2018) identifies threats as including "Road maintenance and widening", "Loss of individuals or impacts on habitat as a result of forestry activities" and "Invasion of habitat by introduced weeds, particularly Lantana". Activities to assist this species include:

- Searches for the species should be conducted prior to any logging operations.
- Control introduced weeds in potential habitat areas.
- Protect known habitat from clearing, high levels of disturbance and development.
- Monitor populations to identify any threats or population declines.

 Ensure roadside populations are identified and marked to protect them from road works and weed spraying.

Approved Conservation Advice for *Parsonsia dorrigoensis* (Milky Silkpod) (3/7/2008) notes: The main identified threat to Milky Silkpod is low numbers.

The main potential threats to Milky Silkpod include clearing of habitat for agriculture or roadworks; invasion of habitat by introduced weeds, particularly Lantana (Lantana camara); and detrimental burning regimes. State Forest populations may be affected by forest operations (DECC, 2005; Richards, 1999).

Identified Regional Priority Actions include:

- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.
- Identify populations of high conservation priority.
- Manage threats to areas of vegetation that contain populations/occurrences/remnants of Milky Silkpod, particularly on State Forests with logging activity.
- Ensure road widening and maintenance activities (or other infrastructure or development activities involving substrate or vegetation disturbance) in areas where Milky Silkpod occurs do not adversely impact on known populations.

Local Priority Actions include:

- Minimise adverse impacts from land use at known sites, particularly on State Forests, by conducting searches for Milky Silkpod prior to any logging operations.
- Identify and remove weeds in the local area, particularly Lantana, which could become a threat to Milky Silkpod, using appropriate methods.

The Recovery Plan is Department of Environment, Climate Change and Water NSW (2010). Northern Rivers Regional Biodiversity Management Plan, National Recovery Plan for the Northern Rivers Region.

Current Threatened Species Licence

Milky Silkpod is identified in the current TSL as one of the 11 plants that require Monitoring Programs be prepared under condition 6.27 of the Threatened Species Licence for the Upper North East and Lower North East Regions of the Forest Agreement:

In June 2000 the Flora Monitoring Program (FMP) was approved. In Scotchman SF monitoring was completed in 2003-2004. In Viewmont State Forest monitoring was completed in 2004. In Tuckers Nob SF monitoring was completed in 2008.

The 'Parsonsia dorrigoensis Flora Monitoring Program First report' was not prepared until 26 June 2009. It monitored the impacts on 20 plants at each of 3 logging operations and 10 plants in another, notionally one month following logging being completed within the compartments, with one site measured after a year. The report identifies:

There were highly significant declines in the numbers of large plants (all classes greater than or equal to 2 m long) in Scotchman 106 (logged, burnt) and in Viewmont. There was a small but non-significant decline in large plants in Scotchman 107 and a small but non-significant increase in Tuckers Knob. ...

...

1. In the logged burnt area, an estimated 60% of plants were killed or removed. Due to the relatively small number of plots, this estimate is subject to substantial uncertainty, with the 95% confidence interval being 31 to 83%. In areas which were logged but not burnt, an estimated 29% of plants were killed or removed, with the 95% confidence interval 19 to 41%.

The total proportion damaged by logging but not killed or removed is estimated as 20%, comprising 13% with major damage (stems severed below lowest leaves) and 7% with minor damage. The proportions of destroyed and damaged plants varied widely among study areas, mainly in relation to the varying intensity of logging operations.

2. All plants which were damaged by logging, but not removed or destroyed, recovered regardless of the type or extent of damage. Those which were severely damaged by being severed at or near ground level recovered by sprouting new stems. Those with less severe damage recovered by new shoots or continued growth on residual stems.

...

Logging results in a large proportion (41-64%) of plants, or at least their above-ground parts, being damaged, destroyed or removed. Although all plants damaged by logging survived, a high proportion (19-41%) of plants is destroyed or removed. Based on results from Scotchman and Tuckers Knob, after one year post-logging, lost plants are replaced by seedlings or vegetative sprouts from rhizomes, to the extent that the net result is a slight increase in the numbers of plants. However, the immediate post-logging results from Viewmont suggest that this may not always be the case, and that in some circumstances there may be a net decline. There is an indication that numbers of plants may fluctuate substantially, without disturbance, over periods of several years, which complicates the interpretation of observed responses to logging. Although the data on the combined effect of logging and fire are very limited, net recruitment may not occur, or may be slower to develop, in areas which are both logged and burnt.

Table 1. Summary of responses of individual tagged plants.

Numbers for Scotchman 106 for post-burning are based on the combined effect of logging and burning. Two plants in Tuckers Knob SF 2 died of natural causes but were not damaged by logging and have been excluded from the 'total killed' column. One tagged plant in Viewmont SF was inadvertently omitted from post-logging assessment.

	Removed or destroyed	Major damage	Minor to moderate damage	Recovered	Total killed	Total assessed
Scotchman106, post-log, pre- burn	5	2	2	-	-	10
Scotchman106, post-log, post- burn	5	5	0	4	6	10
Scotchman107	1	2	3	5	1	10
Tuckers Knob	6	0	0	0	6	20
Viewmont	9	2	0	2	9	19
Tamban	1	3	0	3	1	10

Private Native Forestry

The PNF Code:

Exclusion of specified forestry activities from 100% of individuals and no buffer

Individuals of the threatened species or protected native plants to which this condition applies must not be picked in the course of carrying out specified forestry activities

Proposed Coastal IFOA

Under the new Coastal IFOA Milky Silkpod is classed as "Flora species requiring a species management plan".

The Endangered Milky Silkpod is covered by the 2010 Northern Rivers Regional Biodiversity Management Plan, which is its generic Recovery Plan, though provides little direction. It is also subject to a 2008 Conservation Advice. Forestry is an identified threat, with implementation, monitoring and improvement of prescriptions as actions. The current TSL class it as one of the 11 plants that can be logged indiscriminately subject to the undertaking of a Monitoring Program. Monitoring of Milky Silkpod (*Parsonsia dorrigoensis*) was not written up until 2009, up to 5 years after monitoring was complete. The monitoring covered 69 plants across 4 State Forests, finding "Logging results in a large proportion (41-64%) of plants, or at least their above-ground parts, being damaged, destroyed or removed. Although all plants damaged by logging survived, a high proportion (19-41%) of plants is destroyed or removed". The PNF Code requires protection of all individuals with no buffers. The new Coastal IFOA proposes more of the same, with a Management Plan required. It is outrageous that this species has been allowed to be subject to indiscriminate logging for the past 20 years with no protection, despite the evidence that logging has a significant impact. This contravenes both the Recovery Plan and Conservation Advice.

Narrow-leaved Melichrus

Narrow-leaved Melichrus (*Melichrus sp. Gibberagee*) is listed as 'Endangered' under the EPBC Act. It is yet to be formally described.

This species was discovered during pre-logging surveys brokered with the Minister for Forests by NEFA in 1997. The Forestry Corporation identified an exclusion zone, included it in a draft harvesting plan, and this was approved by the then Regulatory and Public Interest Committee (RaPIC) subject to the condition "No new roads/dumps be constructed or reopened within interim exclusion zones for new plant species".

NEFA attended a site inspection on 17 December 1997 where botanists identified individuals outside the interim exclusion zone which Forestry Corporation agreed to protect. When the Forestry Corporation and NPWS were in the process of developing an agreed management plan in January 1998 the Forestry Corporation used a bulldozer to reopen and widen a track through the middle of their interim exclusion zone for the newly discovered population. resulting in the Forestry Corporation (Doug Binns) admitting 23 Narrow-leaf Melichrus were eliminated by grading, and another 7 plants damaged. NEFA's audit identified an additional 194 individuals that had disturbance (tree heads and machinery disturbance) within 10m (10m buffers were all that was required back then).

State Forests blamed the contractor for not following instructions and suspended him. The contractor in turn claimed he was following State Forests' instructions and, with the backing of the Forest Products Association, commenced legal proceedings to be reinstated. State Forests gave in without a fight, implying they were in the wrong. In March the NPWS approved them to upgrade the illegal road and to log within 10m of Narrow-leaf Melichrus. They got away with it scot free.

The Recovery Plan relied upon is the 2010 Northern Rivers Regional Biodiversity Management Plan, National Recovery Plan for the Northern Rivers Region. OEH have a Narrow-leaf Melichrus - profile that identifies 'Timber harvesting activities' and 'Road-works' as a threat, with an assistance being "Protect known habitat from timber harvesting activities".

The weed Lantana, Lantana camara, is an identified threat to the Narrow-leaf Melichrus.

There is no approved Conservation Advice for this species.

Current Threatened Species Licence

Compartments 117 and 118 of Giberagee (and some adjacent private lands) are the only places in the world where the Endangered Narrow-leaf Melichrus (*Melichrus sp.* gibberagee) is found. In 2017 NEFA undertook a number of inspections of compartment 118 and part of 117 of Gibberagee State Forest when logging was underway. See Preliminary Audit of Gibberagee State Forest (NEFA 2017).

NEFA undertook a preliminary assessment of a small part of the area on 6 February 2017, identifying a variety of problems and providing a "Preliminary Audit of the Endangered Narrow-leaf Melichrus in Gibberagee SF" to both Fisheries NSW and the Environment Protection Authority (EPA) on 8 February 2017, identifying problems with the management of the nationally endangered Narrow-leaf Melichrus (*Melichrus sp.* gibberagee), habitat trees and unmapped drainage lines.

There followed a ludicrous process where EPA invited us out to the forest on 10 March to show them breaches of Narrow-leaf Melichrus buffers. When they arrived they had the Forestry Corporation with them, who immediately ordered us out of the forest without even allowing us to show them more breaches we had just found nearby.

The Forestry Corporation then sent a backdated letter to me threatening legal action if I returned to the forest on the grounds that it is a "closed" forest. From previous experience NEFA had no confidence that either the EPA or Fisheries would attempt to identify any additional breaches aside from those we had initially reported. We have long given up on the assumption that if we highlighted problems this would initiate a thorough investigation by the regulatory agencies.

Over 3 visits NEFA identified 15 Endangered Narrow-leaf Melichrus that have had forestry operations conducted within their 50m exclusion zones. Eight had roading conducted within their buffers, often within a few metres of the plants, one had a log dump within its buffer and 6 have had logging operations extend within what should be exclusion zones, by up to 18 and 22m in the worst cases. It is evident that exclusion zone boundaries, at least at some sites, have not been marked on the ground in accordance with TSL.



Log dump situated within buffer of Narrow-leaf Melichrus. with marked logs subsequently erected to show exclusion zone by the Forestry Corporation.



The arrow indicates the location of a Melichrus immediately adjacent to a newly constructed road.

On our last visit it was found that individuals of the Endangered Narrow-leaf Melichrus situated near roads used during logging were found to have coatings of dust, sufficient to significantly impair their functioning and compound the effects of a prolonged dry period.



LEFT: Melichrus immediately adjacent to road with dense covering of dust RIGHT: Melichrus about 10m in from road with covering of dust.

Private Native Forestry

The Private Native Forestry Code of Practice for Northern NSW requires A. Threatened flora: 50-metre exclusion zone, all individuals:

- (a) An exclusion zone with at least a 50-metre radius must be implemented around all individuals.
- (b) An exclusion zone at least 50 metres wide must be implemented around all groups of individuals. A group is defined as more than one individual located less than 20 metres apart.

Proposed Coastal IFOA

Under the new Coastal IFOA Narrow-leaved Melichrus is classed as "Flora species that require a 20-metre exclusion zone around all individuals". This is a major reduction in protection from the current 50m buffers, representing an 84% decline in buffers from 0.785ha 0.126ha.

The Recovery Plan relied upon for the Endangered Narrow-leaved Melichrus is the 2010 Northern Rivers Regional Biodiversity Management Plan which is its generic Recovery Plan that provides little direction. It identifies forestry as a threat, requiring "Develop appropriate criteria and indicators to review the effectiveness of threatened species protection measures". There is no approved Conservation Advice for this species. The current TSL requires 50m buffers. In 2017 NEFA identified 15 Endangered Narrow-leaf Melichrus that have had forestry operations conducted within their 50m exclusion zones, 8 had roading conducted within their buffers, often within a few metres of the plants, one had a log dump within its buffer and 6 have had logging operations extend within what should be exclusion zones, and a number of buffers were not marked as required. The PNF code requires 50m buffers. The new Coastal IFOA proposes reducing the buffer to 20m. This is apparently a political decision (all 50m buffers have been reduced to 20m) without any monitoring or review in contravention of the Recovery Plan.

Onion Cedar

Onion Cedar (*Owenia cepiodora*) is listed as 'Vulnerable' under the EPBC Act. The 2010 *Border Ranges Rainforest Biodiversity Management Plan - NSW & Queensland* is relied upon as the Recovery Plan. There is a 2008. *Approved Conservation Advice for* Owenia cepiodora (*Onionwood*).

The Border Ranges Rainforest Biodiversity Management Plan is the Recovery Plan relied upon for the Vulnerable Onion Cedar. It includes a variety of objectives and actions that are relevant to Onion Cedar.

Objective 4 of the Plan is "To protect rainforest and related vegetation from fragmentation, modification and degradation", with relevant actions being:

- Promote the rehabilitation and management of rainforest and related vegetation on public land through plans of management, pest strategies and restoration and rehabilitation plans.
- Ensure that buffers are included in approvals for new developments or activities that occur in close proximity to rainforest or related vegetation.

Objective 10 of the Plan is "To minimise the impacts of human interference", with relevant actions being:

• To reduce access for pest animals and weeds, discourage the construction of new roads and tracks in priority areas.

The Recovery Plan identifies Cherry Tree State Forest as a "Conserve" and "Repair" priority area.

The Conservation Advice identifies that the NSW population is "about 40 mature individuals and at least 400 immature individuals, including seedlings", with:

The main identified threats to Onionwood include habitat clearing; weed infestation; and stochastic events. The current low population is attributable to heavy logging in the past (Floyd, 1989; Sheringham & Westaway, 1995). Lantana (Lantana camara) has been reported as a threat to NSW sites (McKinley et al., 1995) and is present at both the Queensland sites (Ryan et al., 2003).

Identified recovery actions in the Conservation Advice include:

Habitat Loss, Disturbance and Modification

- Monitor known populations to identify key threats.
- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.
- Identify populations of high conservation priority.
- Manage threats to areas of vegetation that contain populations/occurrences/remnants of Onionwood.
- Investigate formal conservation arrangements such as the use of covenants, conservation agreements or inclusion in reserve tenure.

Invasive Weeds

- Identify and remove weeds in the local area, which could become a threat to the species, using appropriate methods.
- Manage sites to prevent introduction of invasive weeds, which could become a threat to Onionwood, using appropriate methods.

Current Threatened Species Licence

The original TSL identified Onion Cedar as covered by 6.22 Threatened Flora: 50 metres Exclusion Zone, all individuals:

Where there is a record of any of the species listed in Table 1 or Table 2 below within the compartment or within 50 metres outside the boundary of the compartment, the following must apply:

- a) An exclusion zone of at least 50 metres radius must be implemented around all individuals.
- b) An exclusion zone of at least 50 metres wide must be implemented around all groups of individuals. A group is defined as more than one individual located less than 20 metres apart

In 2013 the exclusion zone required around Onion Cedar was reduced from 50m down to 20m, without notification, no justification, and no consultation with the Commonwealth. It is now listed under the TSL 6.23 Threatened and Protected Flora: 20 metres Exclusion Zones, all individuals.

Currently surveys are required for Onion Cedar and 20m exclusion zones created around all individuals. An added requirement for surveys is imposed by TSL when constructing roads through IFOA rainforest that is identified as part of the informal reserve system. A field assessment is required that includes:

(d) ii. An assessment and description of any threatened flora that will or is likely to be directly or indirectly affected by construction, or occurs within 50 metres of the construction area.

On NEFA's first inspection of Cherry Tree State Forest we identified 8 vulnerable Onion Cedars *Owenia cepiodora* which the Forestry Corporation had constructed a track through and logged amongst. This was part of a brief preliminary visit, which we reported in the hope it would cause the EPA to fully assess the extent of the breach, require pre-logging assessments by competent botanists and lead to rehabilitation of the affected plants.

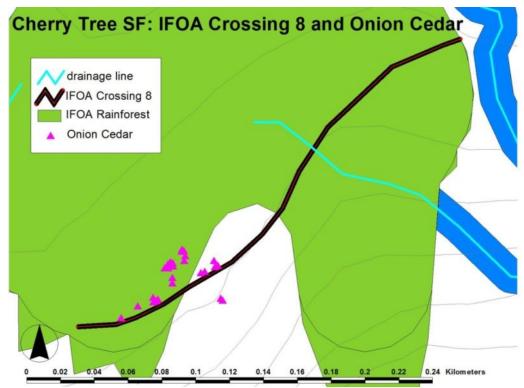
During subsequent inspections a more thorough investigation of the Onion Cedar area was undertaken to better document the number of individuals affected by the track construction (it is emphasised that this was not comprehensive). A total of 26 Onion Cedars were identified within 20m of the track. Two of these (2 and 3m from track) had their tops knocked off during road construction and 2 were bulldozed over amongst logging debris. 19 of the affected Onion Cedars are within the IFOA rainforest and 7 within the nett harvest area.

The IFOA mapped rainforest was identified as the NSW Endangered Ecological Community (EEC) Lowland Rainforest and it was later revealed that the nett harvest area in this vicinity is within the EEC Grey Box-Grey Gum Wet Sclerophyll Forest. So all 26 offences occurred within EECs.



Onion Cedar in roading debris. BOTTOM LEFT: a 6m Onion Cedar is one of two pushed over amongst logging debris, 6 months later they were still alive but nothing had been done to remove the debris and give them a chance of surviving. A year later they were dead.

Given their distribution on both sides of the track and into the logging area, it is most probable that additional Onion Cedars were killed in the construction of the road and associated logging operations. Subsequent inspections revealed more Onion Cedars in the vicinity.



Locations of Onion Cedar documented within 20m of track.

When inspected in August the 2 bulldozed trees were still alive but very sick, with the debris still left around them. This was raised in a complaint handed to the Minister for the Environment on 29 August. When last inspected at the end of October, there had still been no attempt to recover any of the trees.

Onion Cedar is a distinctive and obvious plant and could not be missed by any competent botanist, or even a well trained forester, particularly as they were the only threatened plant being specifically targeted in surveys. Many of the individuals were young trees with leaves at eye height - you would have to be blind to miss them. It is evident that the Forestry Corporation did not have "an adequately trained person" "conduct a thorough search" for threatened plants in contravention of both TSL 5.2.1 (a) (xiv) and Schedule 6 (d) (ii) . We tagged the plants so they could be relocated by the EPA. Due to the EPA's apparent inability to identify the additional Onion Cedars it is apparent that they do not have the required expertise or will either.

NEFA (Pugh 2015) submitted their <u>audit of Cherry Tree State Forest</u> to the EPA in December 2015 identifying that the construction of IFOA crossing 8 through a population of the vulnerable Onion Cedar is in contravention of TSL Schedule 6 (d) (ii) (v), while the undertaking of forestry operations within 20m of these plants, and the subsequent damaging and killing of individuals, is a breach of TSL 5.1 (b), 5.2.1 (a) (xiv), 5.4 (e)(iv) and "6.23 Threatened and Protected Flora: 20 metres Exclusion Zones, all individuals".

Though given that all of these breaches occurred in the EECs, their roading and logging is not permitted by the TSL, so they are direct contraventions of the NPW Act 118(a) and (d).

The EPA (15 January 2016) subsequently prepared a response that only considered NEFA's initial complaint (RECKY OF CHERRY TREE STATE FOREST, 9 March 2015), which they claimed had been fully responded to, though ignored most complaints to primarily focus on the damage to the Onion Cedar. They refused to consider NEFA's further complaints that an additional 18 Onion Cedars had roading within 20m. They also refused to consider that the offences occurred within the EECs Lowland Rainforest and Grey Box-Grey Gum Wet Sclerophyll Forest. From their limited assessment they concluded:

Two Penalty Notices issued for unlawfully picking threatened plants - Onion Cedar

We issued two penalty infringement notices to the Forestry Corporation of NSW (FCNSW) for breaching section 118(A)(2) of the *National Parks and Wildlife Act 1974 ("NPW Act")*. We found that FCNSW planned, instructed and supervised forestry operations, including parts of the operation that failed to comply with conditions of the Threatened Species Licence for the Upper North Region ("TSL"). Ultimately, as the TSL was not complied with, section 118(A)(2) of the NPW Act was breached when eight threatened Onion Cedar plants (*Owenia cepiodora*) were picked. The level of damage to these plants ranged from minor to severe. The picked plants are directly adjacent to a constructed snig track and are within both rainforest areas (2 plants), and the net logging area (6 plants). FCNSW was fined \$1000 for each offence.

Penalty enforcement action is appropriate

In taking enforcement action, we gave consideration to all the matters surrounding this forestry operation. We are mindful that the actions that caused the breaches should have been avoided. The EPA considers that the root cause of this harm was that FCNSW failed to identify Onion Cedar plants and assess forestry impacts. FCNSW had expertise and resources to execute this operation in a manner that would have prevented these breaches.

Official caution issued for failing to comply with Threatened Species Licence

We has reasonable grounds to believe that FCNSW committed other offences under section 133(4) of the NPW Act as a result of four non-compliances with the TSL. These offences related to a failure to prepare a report addressing all matters in accordance with Schedule 6 (TSL condition 5.4e(ii)); failing to conduct compartment mark-up searches in advance of harvesting operations (TSL conditions 5.2.1.a) and also operating in areas not subject to compartment marking up (TSL conditions 5.2.1b; 5.1h). We issued an official caution for these matters.

Removal of debris against Onion Cedar plant

As part of its short term corrective actions, FCNSW committed to removing the logging debris placing pressure on one *Owenia cepdiodora* plant along snig track adjacent to IFOA crossing 8. We requested this action be timely and undertaken in a manner that does not further risk or harm the individual plant or surrounding individual *Owenia cepdiodora* plants.

Corrective Action Request to remediate roads and drainage through rainforest areas

On 2 April 2015, the EPA issued a corrective action request for remedial works to be undertaken along IFOA crossing 7 and 8 as a result of excessive soil disturbance during wet weather. This request required specialist soil conservationist advice. It also mandated no further damage to Onion Cedars and for the drainage to comply with Environment Protection Licence requirements. The works were satisfactorily completed in a timely manner to minimise the risk of water pollution.

On 19 January 2016 NEFA complained to the Minister for Environment about the EPA's incomplete response, with 19 issues ignored and 2 only partially considered, stating:

The gross inadequacy of the EPA's "investigation" is astounding. Even the two issues they dealt with have been considered incompletely and extremely incompetently. From out brief visit on 9 March 2015 we identified and tagged 8 Onion Cedar near the road which had been affected by roading, with 4 seriously damaged. Our subsequent investigations identified a total of 26 Onion Cedars in that vicinity that had roading undertaken within 20m of them, with some of the additional ones next to the road, and considered others were likely to have been bulldozed out in track construction. We provided the EPA with details of these offenses on 15 December.

It beggars belief that the EPA did their own "investigation" and failed to identify any more Onion Cedar than those 8 we had tagged. A professional body would have checked for any other affected plants in the vicinity - and even a half-competent investigator should have identified the additional Onion Cedars near the road once they had their "eye in".

The Minister (7 March 2016) responded that he had asked the EPA to contact NEFA regarding their "regulatory response relating to the onion cedar allegations that NEFA made, including the additional matters raised". On 8 April NEFA subsequently attended a site inspection with EPA, at their request to show them to rainforest breaches that they claimed to be unable to find. NEFA wrote to the Environment Minister (Dailan Pugh11 April 2016):

On the site inspection I showed the EPA many of the additional Onion Cedars they had failed to identify, and they accepted these were Onion Cedars (I had a botanist with me to confirm it), these included a number readily visible from the track, some only a metre or so from those few identified by the EPA. I showed them two beside the track which had their tops knocked out in track construction, and during the inspection identified an additional one (which I had not previously documented) that had been damaged during track construction and had debris still pushed on to it.

The EPA had not bothered to further investigate the Onion Cedars, or bothered to investigate the additional locations I had provided co-ordinates for, and made it clear to me that they had no intent to do so. It was clear on the site inspection that there are still undocumented affected plants. My concern that they were not going to fully investigate my complaint was verified. They are going to let the FC off the additional offences scot free, and not even acknowledge the true magnitude of the offences.

...

The EPA claimed on the 18 January 2016 that "as part of its short term corrective actions" they have requested that the Forestry Corporation remove debris from one Onion Cedar in a "timely" manner. We requested the EPA, Forestry Corporation and the Minister for the Environment to take remedial action for this and other plants in March 2015, and repeatedly since. When inspected on Friday nothing had been done, and despite recent site inspections the EPA had not realised this. To me this displays complete contempt for the survival of an illegally damaged threatened species and the belated meaningless restoration directive of the EPA. A year after NEFA complained to the Environment Minister, this vulnerable species still has roading debris piled around it, as do others, and is extremely vulnerable to burning and weed invasion.

...

To our view the fact that over 20 of the affected Onion Cedars were in an EEC should have increased the severity of the offenses, though the EPA only admit to 2 plants being in the rainforest and issued fines and remediation requirements for two that were not in the EEC, the EPA ignored the EEC when considering the significance of the offense and appear intent on intentionally downplaying the extent and significance of the damage to Onion Cedar within the EEC.

The EPA provided NEFA with their final report on 21 December 2016. As we expected, in their final report the EPA failed to consider any of the additional Onion Cedar, with the additional 18 Onion Cedars simply claimed to have been dealt with under the general "Official Caution". Regarding rehabilitation they claim:

Removal of debris against Onion Cedar

The EPA requested the FCNSW removed debris placing pressure of Onion Cedar T4-235 (above). FCNSW removed a log placing pressure against this tree on 1 February 2016. The EPA was not informed of this action by FCNSW until 28 April 2016. The EPA was not satisfied with the action that FCNSW took. The EPA issued a follow up request for FCNSW to implement an action plan to ensure the long term survival of the Onion Cedar plant affected by the operations. The action plan required:

That FCNSW prepare an action plan in consideration of the long term protection, health and survival of all affected Onion Cedar plants at Cherry Tree State Forest. This action plan should be prepared with practical measures to, at least:

- Periodically monitor the plants and surrounding environment;
- Take necessary actions to maintain an optimum growing environment;
- Prevent further disturbance and damage;
- Consider relevant risks and threats (eg fire and weed invasion);
- Consider all Onion Cedars in the area, so that both individuals (known, damaged or otherwise), and the broader immediate population are included;

- Consider the surrounding communities, especially rainforest;
- Exclude all types of machinery from the process ie hand tools only

The EPA is awaiting final confirmation from FCNSW confirming actions against this request.

When the site was inspected over a year later the required remedial works had still not been undertaken and the Onion Cedars specifically identified for remediation were dead.

While the Border Ranges Rainforest Biodiversity Management Plan - NSW & Queensland is relied upon as the Recovery Plan the EPA dismissed our concerns that it had not been complied with on the grounds that "The harvesting operations were undertaken under the authority of the Upper North East region Integrated Forestry Operations Approval". They considered it irrelevant that these offences had occurred within Conserve and Repair Priority Areas.

As well as contravening the Recovery Plan the Forestry Corporation clearly breached the Conservation Advice requirements to:

- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.
- Manage threats to areas of vegetation that contain populations/occurrences/remnants of Onionwood.
- Manage threats to areas of vegetation that contain populations/occurrences/remnants of Onionwood.
- Identify and remove weeds in the local area, which could become a threat to the species, using appropriate methods.
- Manage sites to prevent introduction of invasive weeds, which could become a threat to Onionwood, using appropriate methods.

Private Native Forestry

The Private Native Forestry Code of Practice for Northern NSW requires A. Threatened flora: 50-metre exclusion zone, all individuals:

- (a) An exclusion zone with at least a 50-metre radius must be implemented around all individuals.
- (b) An exclusion zone at least 50 metres wide must be implemented around all groups of individuals. A group is defined as more than one individual located less than 20 metres apart.

As there is no requirement for surveys there is little chance that this requirement will have any effect in practice.

Proposed Coastal IFOA

Under the new Coastal IFOA Onion Cedar is classed as "Flora species that require a 20-metre exclusion zone around all individuals".

The Border Ranges Rainforest Biodiversity Management Plan is the Recovery Plan relied upon for the Vulnerable Onion Cedar, relevantly it focuses the protection of rainforest and its buffers. The 2008 Conservation Advice focuses on monitoring and adapting management actions. In 2013 the exclusion zone required by the TSL around Onion Cedar was reduced from 50m down to 20m, without any apparent assessment. In 2015 in Cherry Tree State Forest NEFA found that a road had been constructed through the NSW TEC Lowland Rainforest within a Recovery Plan "Conserve" and "Repair" priority area, and within the 20m buffers of at least 26 Onion Cedars, in the process 2 of these (2 and 3m from track) had their tops knocked off during road construction and 2 were bulldozed over amongst logging debris, with others likely killed by the road construction. The EPA issued Forestry Corporation with 2 Penalty Notices, each with a \$1,000 fine, though took no legal action for the roading through the Lowland Rainforest and considered the Recovery Plan

requirements irrelevant. The PNF Code requires 50m buffers. The proposed Coastal IFOA proposes retaining the 20mbuffers. It is significant that the EPA thought that the Recovery Plan requirements for this species were irrelevant.

Red Bopple Nut

Red Bopple Nut (*Hicksbeachia pinnatifolia*) is **listed** as Vulnerable under both NSW's Threatened Species Conservation Act and the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999*. Identified threats include clearing associated with roadworks, habitat degradation, weed invasion, and inappropriate burning regimes.

A Recovery Plan is identified as not required.

The Approved 'Conservation Advice for Hicksbeachia pinnatifolia (Monkey Nut)' (16/6/2010) identifies:.

Regional and Local Priority Actions

Habitat Loss, Disturbance and Modification

- Implement appropriate buffer zones at strategic locations to protect the species' habitat (DECC, 2005b).
- Undertake roadside management in a manner consistent with the conservation of the species (DECC, 2005b).
- Ensure there is appropriate site specific management, including assessment of relevant land use planning options, at strategic sites (DECC, 2005b).
- Undertake survey work in suitable habitat and potential habitat to locate any additional populations/occurrences/remnants.
- Undertake survey and mapping of relevant roadsides (DECC, 2005b).
- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.
- Identify populations of high conservation priority.

Current Threatened Species Licence

The TSL identifies Red Bopple Nut as "Threatened and Protected Flora: 20 metres Exclusion Zones, all individuals".

Private Native Forestry

The PNF Code requires that "An exclusion zone with at least a 20-metre radius must be implemented around all individuals".

NEFA found that in a private property operation at Whian Whian undertaken by the Forestry Corporation (who were supposedly trained in threatened plant identification) that threatened plants were ignored.

Red Bopple Nut *Hicksbeachia pinnatifolia* (AKA Monkey Nut) is a small tree growing to 12 m high with distinctive large leaves, heavily scented flower spikes on its trunk, and eye catching large red fruit. It is one of the most distinctive threatened plants in the region. There can be no excuse for not identifying it, particularly as it occurs at an unusually high density on the property.



Despite having usual large leaves, distinctive fruit sprouting from the trunk, and strongly and distinctively scented flowers – all often at eye height – the Forestry Corporation's highly trained ecologists were unable to identify a single one until they were pointed out by NEFA

NEFA have identified 27 Red Bopple Nuts (about half tagged) that have had the logging road constructed through their buffers, with one injured. The extraction track was constructed through exclusion zones for at least 8 Red Bopple Nuts that had been identified and tagged by FC prior to the track's construction. One Red Bopple Nut had logging within its exclusion zone.

When the Forestry Corporation constructed their main access road they did so within what should have been exclusion zones for numerous Red Bopple Nuts if the FC could be bothered identifying them. Without searching hard NEFA have so far located 27 individuals 3-20m from the road, with one damaged. As Red Bopple Nuts are very distinctive, it is obvious that the Forestry Corporation did not bother even undertaking a cursory look for them.

On the 22 September, when the FC were about to construct a new access road, NEFA identified over 60 Red Bopple Nuts in the vicinity of the marked route. A cluster of over 30 Red Bopple Nuts (christened Bopple Grove) had the road marked right through their centre. Most of these were marked with flagging tape by NEFA and key GPS points were provided to the FC and EPA. At that time NEFA did not find any Red Bopple Nuts that had been marked, though this did not deter the FC from later claiming they had already found some of these, with Greg Lollback from the EPA going so far as to claim it was understandable for the FC to mark the route for their new track through Bopple Grove even though they really had no intention of constructing it there!



LEFT: Damaged Red Bopple Nut adjacent to main access road that apparently had a tree pushed onto it. RIGHT: Red Bopple Nut (foreground) near the constructed extraction track with nearby debris.



"Bopple Grove", showing trees flagged by our botanist, note the distinctive leaves at eye height and the low and distinctive flowers sprouting from the trunk. RIGHT The pink mark on the trunk is the route of the proposed road, the pink flagging tapes are on identified Red Bopple Nuts in the road's path.

Numerous Red Bopple Nuts were known to be in the vicinity of the extraction track before Forestry Corporation constructed it, undaunted and under the supervision of the EPA they went ahead and constructed the track within what should have been exclusion zones for at least 8 individuals. A

cluster of 6 tagged Red Bopple Nuts had debris from the road nearby, extending up to the base of one individual. Another close by had debris within 3m and extensive debris within 6m. Another tagged nearby was measured as 15m from road debris. Given that these were all tagged the Forestry Corporation and the EPA were aware of their locations before the track was constructed.



Two of the numerous Red Bopple Nuts known to be in the vicinity before the Forestry Corporation constructed a track within what should have been exclusion zones for at least 8 individuals. LEFT (530063 6834673): Note the extensive debris from the track in the background (6m away) and the palm head at the base of the Bopple Nut (centre foreground) RIGHT This tagged one (on left) had debris within 1m and the track was 16m away A tagged Arrow-head vine (on right) was mixed up with the debris towards the track and later died.

As part of this audit another Red Bopple Nut was located to the north-east of the logging area, with debris up to 2.5 metres away and extensive logging within 20m. This area was logged after the community survey, in an area not then searched. Even after all the controversy and the Community Surveys the FC appear incapable of identifying and protecting even the most obvious threatened species.

As the outcome the EPA issued an Official Caution for violating buffers of 4 Red Bopple Nuts.



Even after all the controversy a Red Bopple Nut was located to the north-east of the logging area with debris up to 2.5 metres away and extensive logging within 20m.

Proposed Coastal IFOA

Under the new Coastal IFOA Red Bopple Nut is classed as "Flora species that require a 20-metre exclusion zone around all individuals".

A Recovery Plan is identified as not required for the Vulnerable Red Bopple Nut, with the 2010 Conservation Advice identifying requirements for surveys, buffers, monitoring and adaption. The TSL requires 20m buffers. The PNF Code requires 20m buffers. During a logging operation undertaken by the Forestry Corporation on private land in 2013 NEFA identified 27 Red Bopple Nuts (about half tagged) that had logging roads constructed through their require buffers, and one with logging within its exclusion zone, and one injured. Of particular concern was that NEFA identified a road proposed to be constructed though a grove of over 60 Red Bopple Nuts, after we requested the EPA stop work the route was changed, though was still constructed through exclusion zones for at least 8 Red Bopple Nuts that had been identified and tagged by FC prior to the track's construction. Even though it was a deliberate act the EPA only issued an Official Caution for violating buffers of 4 Red Bopple Nuts. The new Coastal IFOA proposes retaining 20m buffers. It is apparent that that the Conservation Advice is being systematically ignored on private lands, even by Government agencies.

Sandstone Rough-barked Apple

Sandstone Rough-barked Apple (*Angophora robur*) is listed as Vulnerable at both State and Federal levels. The online OEH Profile (20 Aug 2018) identifies it occurs in a band from around Glenreagh,

north-west of Coffs Harbour, to the Coaldale area north-west of Grafton, with an isolated occurrence farther west near Nymboida, where it can be locally common.

The Forests NSW's 2006 Flora Management Program report identifies that it can grow up to 20m high and 40cm dbh. It identifies 51 separate records comprising 30 populations, with some populations estimated to be less than a hundred plants and the largest up to 6,000 plants. It occurs on National Parks and private lands, and that "twenty seven percent of the total documented population occur in State forest".

OEH identifies threats as including:

- Widening of roads and roadside maintenance activities.
- Timber harvesting and forestry activities.

The Commonwealth's (3 July 2008) 'Approved Conservation Advice for *Angophora robur'* identifies principal threats as "clearing of habitat for development or agriculture; too frequent fires, which may suppress regeneration; widening of roads; and timber harvesting". The identified 'Regional and Local Priority Actions' include:

Habitat Loss, Disturbance and Modification

- Monitor known populations to identify key threats.
- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.
- ..
- Consider A. robur in the Code of Practice for Private Native Forestry where it occurs in areas where logging on private land may occur (DECC, 2005b).
- Ensure road widening and maintenance activities (or other infrastructure or development activities) involving substrate or vegetation disturbance in areas where A. robur occurs does not adversely impact on known populations.

The accepted Recovery Plan is Department of Environment, Climate Change and Water NSW (2010). Northern Rivers Regional Biodiversity Management Plan, National Recovery Plan for the Northern Rivers Region.

Current Threatened Species Licence

Sandstone Rough-barked Apple is identified in the current TSL as one of the 11 plants that require Monitoring Programs be prepared under condition 6.27 of the Threatened Species Licence for the Upper North East and Lower North East Regions of the Forest Agreement:

In September 2006 the Flora Monitoring Program (FMP) as per Condition 6.27 of the UNE TSL was approved. Under the Flora Monitoring Program three sites were identified for monitoring, in October 2006 monitoring plots were established at just one site in Newfoundland SF.

The "Angophora robur Flora Monitoring Program, First report" was prepared on 7 August 2008. It identifies a total of 35 mature (10 cm dbhob or greater) trees were assessed a year after logging, with eight mature trees (23%) subject to severe damage potentially capable of causing mortality, and 5 of these "lost to the mature size class due to the main stem being severed or destroyed".

Private Native Forestry

The PNF Code requires:

Exclusion of specified forestry activities from 100% of individuals and no buffer.

Individuals of the threatened species or protected native plants to which this condition applies must not be picked in the course of carrying out specified forestry activities

As there is no requirement for surveys there is little chance that this requirement will have any effect in practice.

Proposed Coastal IFOA

Under the new Coastal IFOA Sandstone Rough-barked Apple is classed as "Flora threatened species considered adequately protected by the multi-scale protection measures".

The limited monitoring for this species identified that the species was significantly damaged during logging, despite it being apparent that the foresters supervising the operation (and likely the contractors) were aware they were logging in a trial area and thus needed to minimise damage to Sandstone Rough-barked Apple.

The Vulnerable Sandstone Rough-barked Apple is covered by the 2010 Northern Rivers Regional Biodiversity Management Plan, which is its generic Recovery Plan, which identifies logging as a threat though provides little direction. It is also subject to a 2008 Conservation Advice identifying requirements for monitoring and adaption. The current TSL classes it as one of the 11 plants that can be logged indiscriminately subject to the undertaking of a Monitoring Program. The only monitoring report for Sandstone Rough-barked Apple (*Angophora robur*) was prepared in 2008 with just 35 trees assessed of which 23% suffered significant damage (5 killed). The PNF Code requires protection of all individuals with no buffers. The new Coastal IFOA proposes removing all protection for this species. The removal of protection for this species is inconsistent with the RecoveryPlan and Conservation Advice, particularly given the intention to significantly increase logging intensity.

Slaty Red Gum

Slaty Red Gum (*Eucalyptus glaucina*) is listed as Vulnerable at both State and Federal levels. The online OEH Profile (01 Dec 2017) identifies it as a medium-sized tree to 30 m tall "*Found only on the north coast of NSW and in separate districts: near Casino where it can be locally common, and farther south, from Taree to Broke, west of Maitland". The Forests NSW 2000 Monitoring Plan identifies that it grows to 35m tall with diameters over 120 cm, claiming that there are estimated to be 17,000 mature trees, mostly on State forests.*

OEH identify as a threat "Timber harvesting activities".and as a management activity "Protect areas of habitat from timber harvesting activities".

The 'Approved Conservation Advice for Eucalyptus glaucina (Slaty Red Gum)' (3/7/2008) states "The main identified threats to Slaty Red Gum include clearing and fragmentation of habitat for agriculture and development, timber harvesting activities, and lack of regeneration through grazing pressure (DECC, 2005)". Identified "Regional Priority Actions" include:

Habitat Loss, Disturbance and Modification

- Monitor known populations to identify key threats.
- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.
- ..
- Ensure agriculture and timber harvesting activities (or other infrastructure or development activities involving substrate or vegetation disturbance) in areas where Slaty Red Gum occurs do not adversely impact on known populations.

There is no adopted or made Recovery Plan for this species and none required.

Current Threatened Species Licence

Slaty Red Gum is identified in the current TSL as one of the 11 plants that require Monitoring Programs be prepared under condition 6.27 of the Threatened Species Licence for the Upper North East and Lower North East Regions of the Forest Agreement:

The Forests NSW 2000 Monitoring Plan proposed selecting one of every 3 compartments where >100 Slaty Red Gum occurs for establishment of 10 monitoring plots, with compartment 28 in Braemar and compartment 43 in Bungawalbin State Forests selected initially. Results were to reviewed after 18 months.

The 'Eucalyptus glaucina Flora Monitoring Program First report' was prepared in 2012 and is the only one prepared. The report identifies that:

Overall, 30% (95% Cl 24-36%) of trees up to 60 cm dbhob were damaged by logging (Table 1). Most of these recovered (Table 2), either by branch epicormic growth or by basal coppice. Seven percent of trees in this size category were killed or removed. ... Five trees over 30 cm dbhob were felled as sawlogs. ... There is moderately strong evidence that the proportion of plants which were damaged was significantly greater for smaller size classes.

... There was an increase in the 2 m to 5 cm size class three years after logging, but this was predominantly due to coppice following damage to larger plants. The hypothesised post-disturbance recruitment was lower than predicted and the results provide no evidence that the decrease in the number of medium to large trees is adequately compensated by recruitment.

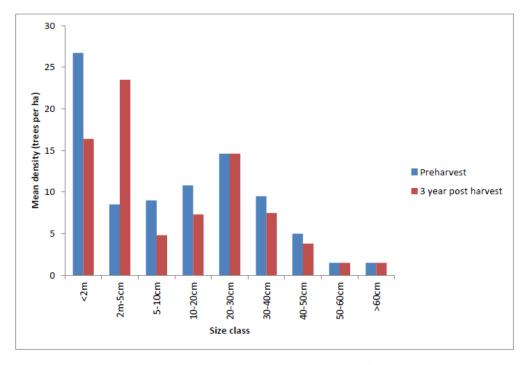


Figure 3. Mean density of E. glaucina plants pre-logging and 3 years post-logging

For compartment 15 of Royal Camp State Forest that was logged in 2012 the Ecology Report identifies 8 records of the Slaty Red Gum (*Eucalyptus glaucina*), with six of these cited as being made by Robert Kooyman on 08/12/1998. Forester Robert Kooyman undertook 7 Flora Traverse Surveys in compartment 15 for Forests NSW on 7-9 of December 1998. His record sheets identify >128 records of Slaty Red Gum (that are also mapped). The questions are why did Forestry Corporation ignore over 120 of their own records (which they are legally required to document) and why did they only pick up two individuals in their more recent assessment. Forests NSW apparently made no attempt to avoid logging this species with a number of individuals found logged.

Private Native Forestry

For the Northern Rivers population the PNF Code requires: Exclusion of specified forestry activities from 100% of individuals and no buffer. Individuals of the threatened species or protected native plants to which this condition applies must not be picked in the course of carrying out specified forestry activities

For the Hunter–Central Rivers population the PNF Code requires:

Threatened and protected flora: 20-metre exclusion zone, all individuals Where there is a record of a species to which this condition applies:

- (a) An exclusion zone with at least a 20-metre radius must be implemented around all individuals.
- (b) An exclusion zone at least 20 metres wide must be implemented around all groups of individuals. A group is defined as more than one individual located less than 20 metres apart.

As there is no requirement for surveys there is little chance that these requirements will have any effect in practice.

Proposed Coastal IFOA

Under the new Coastal IFOA Slaty Red Gum is classed as "Flora species that require protection for mature individuals or populations", which applies to trees over 30cm dbh.

The limited monitoring for this species identified that the species was significantly damaged during logging, despite it being apparent that the foresters supervising the operation (and likely the contractors) were aware they were logging in a trial area and thus needed to minimise damage to Slaty Red Gum.

No Recovery Plan is proposed for the Vulnerable Slaty Red Gum, the 2008 Conservation Advice identifies forestry as a threat requires monitoring and that logging "not adversely impact on known populations". The current TSL classes it as one of the 11 plants that can be logged indiscriminately subject to the undertaking of a Monitoring Program. The only monitoring report for Slaty Red Gum (Eucalyptus glaucina) was not prepared until 2012, finding 30% of trees up to 60 cm dbhob were damaged by logging (5 logged) and 3 years after logging there was a population decline. For northern populations the PNF Code requires protection of all plants with no buffer, and for southern populations 20m buffers. The proposed Coastal IFOA proposes limiting protection to trees over 30 cm dbh with no buffers. With the intent being to significantly increase logging intensity beyond that applied in the single trial the impacts are similarly likely to increase. Removing protection for smaller individual of this species is clearly in contravention of the Conservation Advice given that these have been found to be most significantly impacted.

Square-fruited Ironbark

Square-fruited Ironbark (*Eucalyptus tetrapleura*) is listed as Vulnerable under both NSW's Threatened Species Conservation Act and the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999*. It may grow to over 30 m tall and is restricted to the coastal lowlands and foothills of northern NSW around Casino and Grafton.

The OEH Profile (20 Aug 2018) identifies Threats as including 'Timber harvesting activities' and 'Road construction and maintenance'. Activities to assist this species 'include 'Identify and protect populations in timber harvesting areas and along roadsides' and 'Protect individuals from road maintenance activities'.

The Commonwealth's 'Conservation Advice for Eucalyptus tetrapleura (Square-fruited Ironbark)' (3/7/2008) identifies:

Threats

The main identified threats to Square-fruited Ironbark include loss of habitat through clearing for agriculture, timber harvesting activities, road construction and maintenance; grazing of young plants by domestic stock; and too-frequent fires that inhibit regeneration (DECC NSW, 2005). The Square-fruited Ironbark is also under threat from Lantana (Lantana camara) (DECC NSW, 2006).

Regional and Local Priority Actions

Habitat Loss, Disturbance and Modification

- Identify and protect populations in timber harvesting areas and along roadsides.
- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.
- Ensure road widening and maintenance activities (or other infrastructure or development activities as appropriate) in areas where Square-fruited Ironbark occurs do not adversely impact on known populations.

The Recovery Plan is identified as Department of Environment, Climate Change and Water NSW (2010). Northern Rivers Regional Biodiversity Management Plan, National Recovery Plan for the Northern Rivers Region.

Square-fruited Ironbark is one of those species identified as affected by forestry. In relation to Recovery Actions for Forestry it is noted:

Impacts on biodiversity from forestry can be directly linked to harvesting intensity and frequency. The protection of non-wood biodiversity values requires a balance between maximum potential harvest regimes and the retention and management of key biodiversity features within the landscape.

'OUTCOME 7.1: Impacts of forestry operations on biodiversity are minimised' identifies:

- Develop criteria and indicators to measure, monitor and report on ecologically sustainable forest management practices for forestry operations on private lands, to ensure sustainability of the full range of wood and non-wood values of forests.
- Develop appropriate criteria and indicators to review the effectiveness of threatened species protection measures currently employed in public and private native forestry activities. Strengthen threatened species protection measures where they are shown to be inadequate.

Current Threatened Species Licence

The current TSL requires:

Threatened and Protected Flora: protection of 90% of individuals Where there is a record of any of the species listed in Table 9 or Table 10 within the compartment, the following must apply:

a) A minimum of 90% of individuals must be protected from specified forestry activities. During harvesting operations, the potential for damage to these plants must be minimised by utilising techniques of directional felling.

Private Native Forestry

The PNF Code requires:

Threatened and protected flora: protection of 90% of individuals Where there is a record of a species to which this condition applies:

Compliance of NE NSW Forestry with Commonwealth Threatened Species Requirements

(a) A minimum of 90% of individuals must be protected from specified forestry activities. During forest operations, the potential for damage to these plants must be minimised by the use of directional felling techniques.

As there is no requirement for surveys there is little chance that this requirement will have any effect in practice.

Proposed Coastal IFOA

Under the new Coastal IFOA Square-fruited Ironbark is classed as "Flora threatened species considered adequately protected by the multi-scale protection measures".

There has apparently been no assessment of the effectiveness of the current prescription for this species. With the extensive damage to Slaty Red Gum and Sandstone Rough-barked Apple identified in their controlled logging operations it can similarly expected that Square-fruited Ironbark will be significantly damaged in logging operations.

For the Vulnerable Square-fruited Ironbark is covered by the 2010 Northern Rivers Regional Biodiversity Management Plan, which is its generic Recovery Plan, which identifies logging as a threat though provides little direction. It is also subject to a 2008 Conservation Advice identifying requirements for surveying, monitoring, adaption and protecting populations in timber harvesting areas. The current TSL requires the protection of 90% of individuals with no buffers. The new Coastal IFOA proposes the removal of all protection. Contrary to the Recovery Plan and Conservation Advice there has been no monitoring to assess the effectiveness of current prescriptions to justify the removal of protection.

Appendix 1: Changes to prescriptions for nationally threatened fauna proposed in new IFOA for north-east NSW.

Common Name	Scientific Name	Commonwealth Status	Current Prescription	Proposed Change
Black-breasted	Turnix			
Button-quail	melanogaster	Vulnerable	Site Specific Condition	Remove
l	Cyclopsitta			
Coxen's Fig-	diopthalma			_
Parrot	coxeni	Endangered	Site Specific Condition	Remove
	Erythrotriorchis			_
Red Goshawk	radiatus	Vulnerable	Site Specific Condition	Remove
		0 1/1 11	10 euc. Feed trees/2ha,	5
Regent	Anthochaera	Critically	active feed trees, Nest	Remove,
Honeyeater	phrygia	Endangered	20m	retain nest
Rufous Scrub	Atrichornis	For days we de-	300m record -	Databa
Bird	rufescens	Endangered	Microhabitat+20m	Retain
Coult Damet	Lathamus	Critically	10 euc. Feed trees/2ha,	Remove,
Swift Parrot	discolor	Endangered	active feed trees	retain nest
Fleay's Barred	Missanhssan flagssi	- Codenacio d	200m of record - 30m	Damaya
Frog Giant Barred	Mixophyes fleayi Mixophyes	Endangered	stream buffers 200m of record - 30m	Remove
Frog	iteratus	Endangered	stream buffers	Remove
Giant Burrowing	Heleioporus	Lituarigereu	Stream bullers	Remove
Frog	australiacus	Vulnerable	Monitoring Program	Retain
Green and	austranacus	Vulliciable	50m	Retain
Golden Bell Frog	Litoria aurea	Vulnerable	records/dams/wetlands	Remove
Littlejohn's Tree	Litoria adrea	Valificiable	50m	TOHOVO
Frog	Litoria littlejohni	Vulnerable	records/dams/wetlands	Remove
1.09	Mixophyes	Valiforable	200m of record - 30m	110111010
Stuttering Frog	balbus	Vulnerable	stream buffers	Remove
- committee of the comm			suitable habitat outside	
Broad-toothed	Mastacomys		exclusion zones-20m	
Rat	fuscus	Vulnerable	exclusion	Remove
Hastings River	Pseudomys			
Mouse	oralis	Endangered	12ha around records	Retain
				Reduce, no
				KHUA, 10
			Koala High Use areas	trees/ha High
			+20m buffer,	QH, 5
l., .	Phascolarctos		intermediate- 10 primary	trees/ha Med
Koala	cinereus	Vulnerable	browse/2ha	QH
	D		8 hollow-bearing trees/ha	
Crooter Olister	Petauroides	\/lm.o.== - -	where >1GG/ha, within	Domestic
Greater Glider	volans	Vulnerable	3km Powerful Owl	Remove
l ong possid	Deterous		where there is a record,	
Long-nosed	Potorous	Vulnerable	5m buffers around 12	Pomovo
Potoroo	tridactylus	vuirierable	trees/2ha	Remove
Spotted-tailed Quoll	Dasyurus maculatus	Endangered	Maternal Den sites-12ha,	Retain
QUUII	เมลงนเสเนร	Endangered	Den sites-3.5ha, latrines-	REIdIII

Compliance of NE NSW Forestry with Commonwealth Threatened Species Requirements

			12ha	
Eastern	Maccullochella			Reduce -
Freshwater Cod	ikei	Endangered		Remove
			Class 1&2 buffer	Class 2.
			unmapped streams,	Buffers
Oxleyan Pygmy	Nannoperca		Class 1 improve stream	10>5m 20ha
Perch	oxleyana	Endangered	crossings.	catchments.

Appendix 2: Changes to prescriptions for nationally threatened flora proposed in new IFOA for north-east NSW.

Buffers measured as exclusions around each individual plant, where specified it is only applied to 90% of individuals. Other prescriptions require protection of 90% of individuals (no buffers), preparation of management plans or preparation of site plans. The new prescriptions have done away with the 90% requirement as it was not able to be readily audited, limited all buffers to 20m radius, and only require the protection of mature individuals of a variety of eucalypts.

		Current	Proposed
Species	Federal Status	Prescription	Changes
Acacia bynoeana	Vulnerable	20m/90%	20m
Acacia courtii	Vulnerable	20m/90%	Remove
Acacia flocktoniae	Vulnerable	20m/90%	Remove
Acacia macnuttiana	Vulnerable	20m	Remove
Acacia pubescens	Vulnerable	20m	Remove
Acacia pubifolia	Vulnerable	20m	Remove
Acacia pycnostachya	Vulnerable	20m	Remove
Acacia ruppii	Endangered	Man Plan	Remove
Acronychia littoralis	Endangered	50m	Site Plan
Allocasuarina defungens	Endangered	20m/90%	Remove
Allocasuarina simulans	Vulnerable	20m	Remove
Almaleea cambagei	Vulnerable	20m	Remove
Amyema plicatula	Endangered	50m	Remove
Angophora inopina	Vulnerable	20m	20m/mature
Angophora robur	Vulnerable	Man Plan	Remove
Arthraxon hispidus	Vulnerable	20m	Remove
Asperula asthenes	Vulnerable	20m	Remove
Asterolasia elegans	Endangered	20m/90%	Remove
Baloghia marmorata	Vulnerable	50m	Remove
Bertya ingramii	Endangered	20m	Remove
Boronia granitica	Endangered	20m	Remove
Boronia repanda	Endangered	20m	Remove
Boronia umbellata	Vulnerable	90% plants	Remove
Bosistoa transversa	Vulnerable	50m	Remove
Bulbophyllum globuliforme	Vulnerable	50m	Remove
Cadellia pentastylis	Vulnerable	50m	Remove
Caladenia tessellata	Vulnerable	20m	Remove
Callitris oblonga	Vulnerable	20m/90%	Remove
Clematis fawcettii#	Vulnerable	20m/90%	Remove
Commersonia rosea	Endangered	90% plants	Remove
Corchorus cunninghamii	Endangered	90% plants	Man.Plan
Corokia whiteana	Vulnerable	20m/90%	Remove
Corynocarpus rupestris subsp.			
rupestris	Vulnerable	50m	Remove
Cryptocarya foetida	Vulnerable	50m	Remove
Cryptostylis hunteriana	Vulnerable	20m	20m
Cynanchum elegans	Endangered	20m/90%	Remove
Cyperus semifertilis	Vulnerable	20m	Remove

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Darwinia biflora	Vulnerable	20m/90%	Remove
Davidsonia jerseyana	Endangered	50m	Remove
Davidsonia johnsonii	Endangered	50m	Remove
Desmodium acanthocladum	Vulnerable	90% plants	20m
Dichanthium setosum	Vulnerable	20m/90%	20m
Diospyros mabacea	Endangered	50m	Remove
Diploglottis campbellii	Endangered	50m	Remove
Diuris eborensis	Endangered	NA	20m
	Critically		
Diuris flavescens	Endangered	20m	20m
Diuris pedunculata	Endangered	20m	Remove
Diuris praecox	Vulnerable	20m/90%	20m
Diuris venosa	Vulnerable	20m	20m
	Critically		
Eidothea hardeniana	Endangered	50m	Remove
Elaeocarpus sedentarius	Endangered	50m	Remove
Elaeocarpus williamsianus	Endangered	50m	Remove
Endiandra floydii	Endangered	50m	Remove
Endiandra hayesii	Vulnerable	50m/90%	Remove
Eucalyptus caleyi subsp. ovendenii	Vulnerable	20m/90%	Remove
Eucalyptus camfieldii	Vulnerable	20m/90%	20m/mature
Eucalyptus glaucina - Northern			
Metapopulation Unit *	Vulnerable	Man Plan	20m/mature
Eucalyptus glaucina - Southern			
Metapopulation Unit	Vulnerable	20m	Remove
Eucalyptus mckieana	Vulnerable	20m/90%	20m/mature
Eucalyptus nicholii	Vulnerable	20m	Remove
Eucalyptus pachycalyx subsp.			
banyabba	Endangered	50m	Remove
Eucalyptus parramattensis subsp.	9		
Decadens	Vulnerable	20m	Remove
Eucalyptus pumila	Vulnerable	20m	Remove
Eucalyptus rubida subsp.			
barbigerorum	Vulnerable	20m	20m/mature
Eucalyptus scoparia	Vulnerable	20m	Remove
Eucalyptus tetrapleura	Vulnerable	90% plants	Remove
	Critically		
Euphrasia arguta	Endangered	90% plants	Man.Plan
Euphrasia bella	Vulnerable	50m	Remove
Euphrasia collina subsp. muelleri	Endangered	50m	Remove
Floydia praealta	Vulnerable	50m	Remove
Fontainea australis	Vulnerable	50m/90%	Road Plan
Fontainea oraria	Endangered	50m	Remove
Gaultheria viridicarpa subsp.		33.11	7.0111040
Viridicarpa	Vulnerable	20m	Remove
Genoplesium baueri	Endangered	20m	Site Plan
Conopicalin baden	Critically	20111	Site i iaii
Genoplesium insignis	Endangered	20m	20m
Gentiana wissmannii	Vulnerable	50m	Remove
Gingidia rupicola	Endangered	20m	Remove
Gossia fragrantissima	Endangered	50m	Remove
Grevillea banyabba	Vulnerable	20m/90%	Remove
Grevillea banyabba Grevillea beadleana			
Grevillea beaulearia	Endangered	20m/90%	20m

Cravilla a avenciona	\/lmanalala	00/000/	D =
Grevillea evansiana	Vulnerable	20m/90%	Remove
Grevillea guthrieana	Endangered	20m/90%	Remove
Grevillea guthrieana - Booral			
Metapopulation	Endangered	20m	20m
Grevillea masonii	Endangered	20m	20m
Grevillea mollis	Endangered	20m	Remove
Grevillea obtusiflora spp. Obtusiflora	Endangered	50m	Remove
Grevillea parviflora	Vulnerable	20m/90%	Remove
Grevillea quadricauda	Vulnerable	Man Plan	20m
Grevillea rhizomatosa	Vulnerable	90% plants	20m
Grevillea scortechinii subsp.			
sarmentosa		20m/90%	Remove
Grevillea shiressii	Vulnerable	20m/90%	Remove
Hakea archaeoides	Vulnerable	none	20m
Hakea fraseri	Vulnerable	20m	Remove
Haloragis exalata subsp. exalata	Vulnerable	90% plants	Remove
Haloragis exalata subsp. velutina	Vulnerable	90% plants	Remove
Hibbertia marginata	Vulnerable	Man Plan	20m
Hicksbeachia pinnatifolia - Northern			
Metapopulation Unit	Vulnerable	50m/90%	Remove
Hicksbeachia pinnatifolia - Southern	Vaniorabio	00111/0070	rtomovo
Metapopulation Unit	Vulnerable	20m	20m
Homoranthus lunatus	Vulnerable	20m	Remove
Homoranthus prolixus	Vulnerable	20m/90%	Remove
Isoglossa eranthemoides	Endangered	20m	Remove
Kardomia granitica	Vulnerable	20m	Remove
	Vulnerable	20m/90%	
Kunzea rupestris			Remove
Lasiopetalum longistamineum	Vulnerable	20m/90%	Remove
Lepidium hyssopifolium	Endangered	50m	Remove
Lepidium peregrinum	Endangered	50m	Site Plan
Leptospermum deanei	Vulnerable	20m/90%	Remove
Leucopogon confertus	Endangered	20m	Remove
Macadamia tetraphylla	Vulnerable	50m	Remove
Marsdenia longiloba	Vulnerable	90% plants	20m
Melaleuca biconvexa	Vulnerable	20m	20m
Melaleuca deanei	Vulnerable	20m	Remove
Melichrus hirsutus (syn. M. sp. A)	Endangered	20m	20m
Melichrus sp. Gibberagee	Endangered	50m	20m
Myrsine richmondensis	Endangered	50m	20m
Neoastelia spectabilis	Vulnerable	50m	20m
Ochrosia moorei	Endangered	50m	20m
Olax angulata	Vulnerable	50m	Remove
Olearia cordata	Vulnerable	20m	20m
Olearia flocktoniae	Endangered	90% plants	Road Plan
Owenia cepiodora	Vulnerable	20m	20m
Ozothamnus tesselatus	Vulnerable	20m	Remove
Parsonsia dorrigoensis *	Endangered	Man Plan	Man.Plan
Paspalidium grandispiculatum	Vulnerable	90% plants	Remove
Persicaria elatior	Vulnerable	50m	Road Plan
1 CIGIOGIIA CIALIOI	Critically	30111	TOGG FIGH
Persoonia pauciflora	Endangered	20m	Remove
Phaius australis	Endangered	50m	Remove
	Vulnerable		
Phebalium glandulosum subsp.	vuillelable	20m	Remove

eglandulosum			
Philotheca ericifolia	Vulnerable	20m/90%	Remove
Picris evae	Vulnerable	20m	Remove
Pimelea venosa	Endangered	20m	Remove
Plectranthus nitidus	Endangered	20m/90%	Remove
Pomaderris brunnea	Vulnerable	20m	20m
	Critically		
Pomaderris reperta	Endangered	20m	Remove
Prostanthera askania	Endangered	50m	Remove
Prostanthera cineolifera	Vulnerable	20m	Site Plan
Prostanthera cryptandroides	Vulnerable	20m	Remove
Prostanthera densa	Vulnerable	20m/90%	Remove
Prostanthera palustris (sp.			
Bundjalung)	Vulnerable	50m	Remove
Prostanthera staurophylla	Vulnerable	20m/90%	Remove
Pterostylis cucullata	Vulnerable	20m	Remove
Pterostylis gibbosa (LNE)	Endangered	20m	Remove
Pterostylis riparia	Vulnerable	NA	20m
Quassia sp. Moonee Creek (syn. Q.			
sp. B)	Endangered	20m/90%	20m
Randia moorei	Endangered	50m	Remove
Rhizanthella slateri	Endangered	20m	20m
Rutidosis heterogama	Vulnerable	20m	Remove
Sarcochilus fitzgeraldii	Vulnerable	50m	Remove
Sarcochilus hartmannii	Vulnerable	50m	Remove
Sarcochilus weinthalii	Vulnerable	50m/90%	Remove
Solanum sulphureum	Endangered	NA	Road Plan
Sophora fraseri	Vulnerable	20m	Road Plan
Styphelia perileuca	Vulnerable	20m	20m
Symplocos baeuerlenii	Vulnerable	50m/90%	Remove
Syzygium hodgkinsoniae	Vulnerable	50m	Remove
Syzygium moorei	Vulnerable	50m	Remove
Syzygium paniculatum	Vulnerable	50m	Remove
Tasmannia glaucifolia - North		50	_
Metapopulation Unit	Vulnerable	50m	Remove
Tasmannia glaucifolia - Southern	\/lm.a.mah.la	20 /000/	Damaya
Metapopulation Unit	Vulnerable	20m/90%	Remove
Tetratheca juncea	Vulnerable	20m/90%	20m
Thelymitra en 'aderete'	Critically	20m	Pomovo
Thelymitra sp. 'adorata' Thesium australe	Endangered Vulnerable	20m/90%	Remove Remove
Triplarina imbricata	Endangered	20m	Remove
Tylophora linearis	Endangered	20m	Remove
Tylophora woollsii	Endangered	20m	20m
Uromyrtus australis	Endangered	50m	Remove
Velleia perfoliata	Vulnerable	20m/90%	Remove
Zieria floydii	Endangered	50m	Remove
Zieria involucrata	Vulnerable	20m/90%	Remove
Zieria Involuciata Zieria lasiocaulis	Endangered	20m	20m
Zieria lasiocaulis Zieria prostrata	Endangered	50m	Remove
Ziena prostiala	Liluariyered	JUIII	IZCITIONS