

INQUIRY INTO PERFORMANCE OF THE NSW ENVIRONMENT PROTECTION AUTHORITY

Organisation: North East Forest Alliance

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North East Forest Alliance submission to:

Performance of the NSW Environment Protection Authority (Inquiry)

(vi) the regulation of forestry practices in Royal Camp State Forest

Prepared by Dailan Pugh, August 2014

In 2012 NEFA investigated logging operations in Royal Camp State Forest near Casino. We found numerous breaches of the Forestry Corporation's legal obligations, including Koala High Use Areas being logged, a logged Yellow-bellied Glider sap-feed tree, inadequate marking and retention of habitat trees, logging of hollow-bearing trees, illegal stream crossings and logging of dieback forest.

They were just the latest examples of the consequences of the Forestry Corporation's ongoing refusal to meet their legal obligations to look before they logged. They were serial offences that we had been trying to stop for years. We reported the breaches to the responsible Ministers and logging within the area we had assessed was stopped while the Environment Protection Authority (EPA) investigated, though resumed a few days later in another part of the forest where the same offences were repeated because, despite the presence of the EPA, the Forestry Corporation still refused to look before they logged.

The EPA declined to investigate many of the breaches we had identified, deciding to just focus on the logging of a Koala High Use Area, while undertaking a cursory assessment of tree retention and a desk-top review of burning of exclusion areas. The EPA decided to let the Forestry Corporation get away with clear breaches, without even an admonishment, which the EPA tried to justify by claiming they were unable to find breaches they were shown and ignoring expert evidence. The EPA took token regulatory action for some offences, but the Forestry Corporation remained in denial and refused to change their methods to rectify the problems. There was no contrition.

Royal Camp State Forest demonstrates that the EPA's regulation of the operations of the Forestry Corporation of NSW under the Integrated Forest Operations Approval (IFOA) is inadequate and ineffective. That, after 15 years of operation of the IFOA, the minimal measures applied to reduce logging impacts on a suite of our most vulnerable forest plants, animals, and streams are still being frequently and systematically abused is testament of the EPA's failure as a regulator.

The events in Royal Camp particularly highlight the ongoing failure to protect core Koala habitat. Koalas in the region encompassing Royal Camp SF have been assessed as being in significant decline and eligible for listing as an Endangered population. Compartments 13, 14, 15 and 16 of Royal Camp SF have all been found to contain Koala high use areas and to support a resident population with breeding females. It is of regional importance for Koalas.

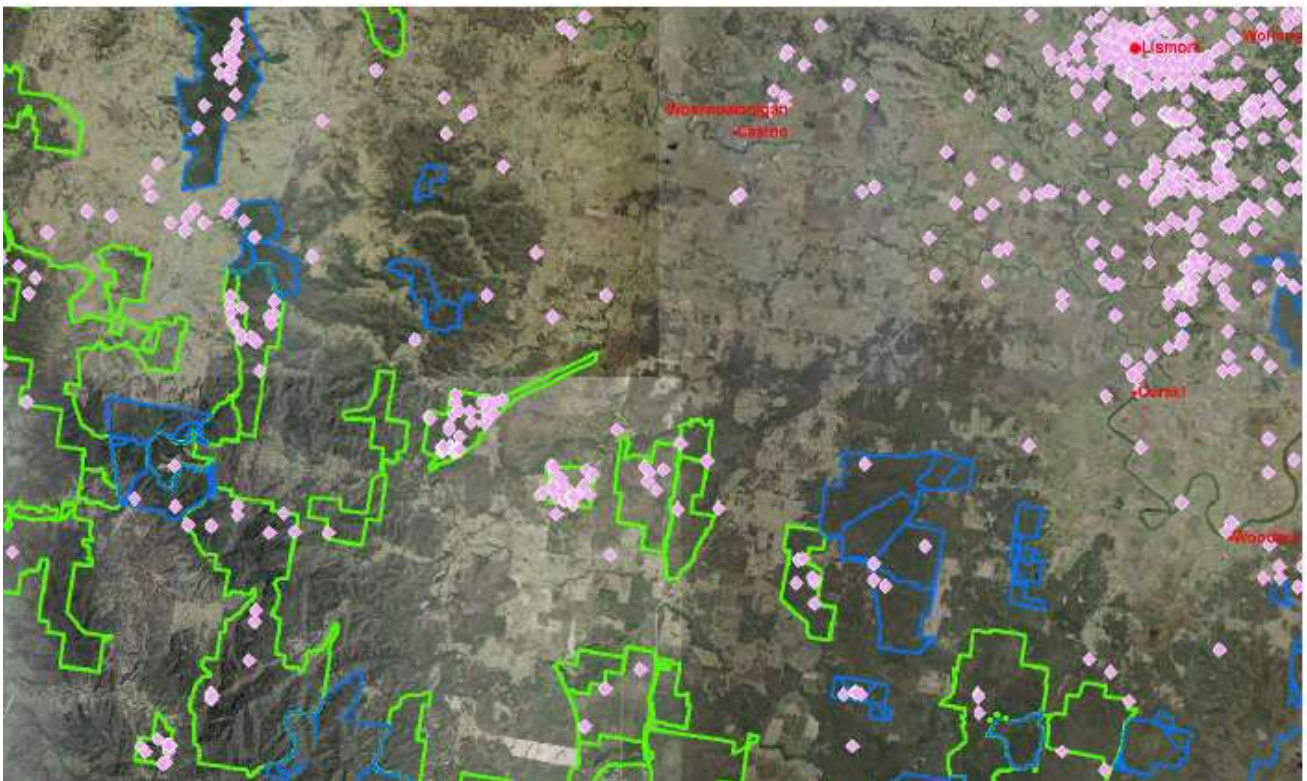
One of the key requirements of the TSL is the undertaking of the Mark Up Surveys necessary to identify and protect essential habitat requirements for an array of threatened species, notably habitat trees, Koala High Use Areas and Yellow-bellied Glider feed trees. Royal Camp highlights the Forestry Corporation's ongoing failure to undertake adequate Mark Up Surveys and Koala Mark Up Searches due to the EPA's poor and ineffective regulatory responses to what are widespread and continuing problems.

One of the key requirements of the IFOA is to implement Ecologically Sustainable Forestry by maintaining forest health. Royal Camp illustrates the EPA's ongoing refusal to take meaningful action to stop the spread of Bell Miner Associated Dieback through our forests.

There are many licence requirements that are not enforced because of poor wording, and only a very small number of the Forestry Corporation's operations are ever audited, it is thus important that appropriate action is taken when repeated and clear breaches are found. The findings from audits are indicative of far more widespread problems that are not being effectively managed. The Forestry Corporation have exhibited a long history of avoidance of their legal obligations, in part because they usually get away with it due to ineffective regulation.

Royal Camp exposes the need for the EPA to:

- Comprehensively deal with complaints;
- Ensure that field staff are sufficiently trained in identifying threatened species features requiring protection;
- Undertake more rigorous assessments;
- Prepare professional Audit Reports in a timely manner and make them publicly available; and,
- Take strong, consistent and effective regulatory responses, particularly for repeat offences.
- Be proactive in identifying special wildlife areas and constraining activities that cause environmental degradation.



Koala records in vicinity of Royal Camp.

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Documents relating to NEFA's complaints are attached:

NEFA Audit of Royal Camp State Forest. 20 August 2012.

http://nefa.org.au/audit/RoyalCamp/NEFA_Audit_Royal_Camp_SF.pdf

NEFA letter to Ministers, 24 September 2012

NEFA Inspection of Royal Camp State Forest, Compartment 13, 8 July 2013.

http://nefa.org.au/wp-content/uploads/2013/07/NEFA-Inspection-of-Royal-Camp-SF_Cmpt-13.pdf

NEFA Complaint to Mark Gifford, 19 August 2013

http://nefa.org.au/wp-content/uploads/2013/08/EPA_Royal-Camp_NEFA-Review.pdf

1. INTRODUCTION

The current reserve system in north-east NSW does not satisfy the national reserve criteria, with those forests excluded from logging by the IFOA counted as contributing to the national reserve system. Even then rigorous off-reserve management is essential to provide needed protection for the numerous inadequately reserved plants and animals that are threatened with extinction, including by logging.

The March 1999 the NSW Government's Forest Agreement For Upper North East brought into force the Integrated Forestry Operations Approval (IFOA) and its Threatened Species (TSL), Environment Protection (EPL), and Fisheries Licences (FL). Regulation of the TSL was originally the responsibility of the National Parks and Wildlife Service and the EPL was the responsibility of the Environment Protection Authority (EPA), the responsible units have undergone various amalgamations and name changes though have been effectively carried through to the new EPA and thus have been responsible for implementation of the IFOA since its inception.

The Threatened Species Licence (TSL) has been applied as an outcome of the Interim Assessment Process since 1997 with the intent to reduce logging impacts on threatened plants and animals. It evolved during the licencing process initiated in 1991. The Environment Protection Licence was also applied as an outcome of the Interim Assessment Process since 1997 with the intent to reduce logging impacts on erosion and streams. Its genesis dates back to the 1975 Standard Erosion Mitigation Conditions for Logging, and was an outcome of attempts by the EPA to introduce a licencing system since 1992.

The need for external regulation of forestry activities has long been recognised. For example, in his judgement on 29 October 1990 (Corkill vs Forestry Commission of NSW, 1990) granting an injunction preventing further logging of rainforest in North Washpool, Justice Hemmings commented:

... Regrettably, there is conceded to be a history of departure by the Commission from not only its own approvals in the logging of this area, but apparently a continuous avoidance of the obligations imposed by the E.P.&A.Act. In such circumstances, it is difficult to have confidence that, unless restrained, the Commission will observe its statutory duties.

That this need is ongoing is exemplified by Justice Pepper (2011) of the NSW Land and Environment Court comments after reviewing the Forestry Corporation's history of convictions (after it burnt an exclusion area for the Smokey Mouse in south-east NSW):

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 ...

In various incarnations, the forestry unit of the EPA have now been overseeing implementation of the IFOA for the past 15 years. Royal Camp provides an insight as to how effective that regulation has been.

A weekend audit by NEFA of logging operations underway in Royal Camp State Forest on 4 and 5 August 2012 located 4 Koala High Use Areas in compartment 15, with one actively being logged, one about to be logged and two scheduled for logging in the near future. A potential Koala High Use Area was also identified in a logging area in compartment 16.

On 6 August NEFA publicly called on the Forestry Corporation, the EPA and the responsible Ministers to immediately stop the illegal logging of the Koala High Use Areas, and logging was suspended that afternoon. The EPA began investigating compartment 15. Logging resumed days later in compartment 16.

NEFA considered that they had found a good breeding Koala population. The Forestry Corporation was not undertaking the thorough searches required for Koala scats ahead of logging and were thus not identifying and protecting Koala High Use Areas as required by the TSL. NEFA also identified other breaches, including logging of a Yellow-bellied Glider sap-feed tree, logging of hollow-bearing and recruitment trees, failing to adequately mark and retain habitat trees, and logging of a dieback area (particularly in compartment 14). Other complaints related to illegal stream crossings, rutting of riparian zones and inadequate aquatic habitat assessments. See **NEFA Audit of Royal Camp State Forest, 20 August 2012**

While the EPA was in the field auditing, the Forestry Corporation burnt off part of the logged area in compartment 15, destroying any Koala scats and thus evidence of Koala high use areas present, and illegally bulldozed 2 tracks across creeks in riparian exclusion areas close to the EPA auditors. The EPA refused to take any action. In the area of compartment 16 that the Forestry Corporation resumed logging in, NEFA subsequently found that the Forestry Corporation were still not searching for Koala scats and had logged 2 Koala high use areas, supposedly under the supervision of the EPA. See **NEFA letter to Ministers, 24 September 2012**.

On 4 July 2013 NEFA inspected compartment 13 where logging was scheduled to begin and located 2 Koala high use areas. NEFA called for logging to be suspended and a moratorium was agreed. It has become apparent to NEFA that, even if faithfully and fully applied, the current criteria only protect fragments of a Koala's home range and thus provide inadequate protection for such an important population. See **NEFA Inspection of Royal Camp State Forest, Compartment 13, 8 July 2013**.

On 15 August 2013, a year later, the EPA responded to our complaints over compartments 14, 15 and 16. They had verified all the Koala High Use Areas we had identified, issued the Forestry Corporation 3 Penalty Notices (a \$900 fine) for failing to look for and protect a Koala High Use area and its buffer (near log dump 20), and a warning letter for failing to retain and mark the required habitat trees (near log dump 20) and for burning numerous exclusion areas in a hazard reduction burn (comp 14). In a sample area where the Forestry Corporation were required to mark and retain 42 hollow-bearing Trees, 42 Recruitment Trees, 42 Eucalypt Feed Trees and 42 Koala Feed Trees they had only marked 2 Hollow-bearing Trees and 3 Recruitment Trees, and were found to have inadequately searched.

Despite verifying our complaints of logging continuing with inadequate Koala scat searches and logging of a Koala High Use Area (near log dump 7) in compartment 16, the EPA had failed to intervene, take any regulatory action aside from reminding the Forestry Corporation of their legal obligations, or report their findings. The subsequent complaint of yet another Koala High Use area being logged was not investigated.

In what appeared to be an act of pique at being made to inspect breaches with NEFA, the EPA refused to investigate any of the breaches we had shown them in compartment 14, claiming they were unable to find breaches we had shown them and dismissing expert evidence.

On the 9 August 2012 NEFA had attended an arranged meeting with the EPA outside the forest on the understanding that we would be going on a site inspection to show the EPA a variety of breaches we had identified, but not yet provided GPS localities for. Having made us drive to the site the EPA refused to allow us to show them the breaches, notably those around log dump 22 and the Yellow-bellied Glider sap-feed tree in compartment 14. Following our complaints to Barry Buffier the EPA agreed to another site inspection on 24 August where they were shown a variety of breaches, including those in compartment 14, with the Yellow-bellied feed tree confirmed by a reputable expert on site. Despite this, the EPA now claimed they *"could not locate the alleged location"* of the breaches we showed them around log dump 22. For the Yellow-bellied Glider breach they also ignored the expert evidence to claim they *"could not determine beyond reasonable doubt whether the incisions had been made by a yellow bellied glider"*.

On 19 August 2013 NEFA complained to the EPA about their misrepresentation of NEFA's complaints, misrepresentation of evidence, refusal to investigate key complaints, failure to report findings on key complaints, claims that they never found breaches that were clearly documented and shown to them in the field, failure to duly consider evidence available to them, inadequate expertise, and unprofessionalism. . See **NEFA Complaint to Mark Gifford, 19 August 2013**.

The EPA's response was clearly ineffective. The Forestry Corporation showed no remorse, dismissing the need for better Koala surveys, and denying they had done anything wrong, commenting in the media *"The reality is that the fines reflect the environmental outcome ...they're administrative, they're like staying in a parking lot for a little bit too long, ... there has been no environmental harm to koalas in that area."*

As an outcome of NEFA's proactive audit and media on compartment 13 the Minister for the Environment directed the EPA assess the regional significance of the Royal Camp Koala population. As an outcome the region's Koalas were identified as being in significant decline, and compartment 13 was found to have a resident Koala population, leading EPA Chief Environmental Regulator, Mark Gifford (1 July 2014) to write to Forestry Corporation CEO, Nick Roberts, to provide them with a copy of Dr.Phillips report, noting:

The EPA recommends that no forestry activities occur in Royal Camp State Forest until such time as:

- 1. Appropriate mitigation measures are developed for the consolidated Coastal IFOA and*
- 2. Regional refinement of the EPAs koala habitat mapping project is undertaken in the Royal Camp area.*

The EPA will consider any other information that FCNSW can supply which clearly demonstrates how this important and declining koala population would be adequately protected from future forestry operations in Royal Camp State Forest.

NEFA has concluded that compartments 13-16 of Royal Camp State Forest support a core breeding group of Koalas that should be protected from the Forestry Corporation, and other direct threats to their survival, by inclusion in a reserve.

It is an indictment of the EPA that, after 15 years of inept regulation of their activities, the Forestry Corporation continue to log without looking, protecting required habitat or retaining needed habitat trees. **NEFA would like to see as an outcome of the Inquiry:**

1. **A transparent and repeatable process and criteria for identifying and protecting core and potential Koala habitat across all tenures;**
2. **An independent process for assessing forests well in advance of logging to identify Koala habitat, with an aim to complete the delineation of Koala habitat on public lands within 3 years;**
3. **A requirement that trees required to be retained for fauna habitat have their GPS localities recorded when marking to better facilitate implementation, auditing and ongoing protection;**
4. **The mapping of areas affected by, and vulnerable to, Bell Miner Associated Dieback in harvest plans and the exclusion of logging from affected and vulnerable stands;**
5. **Penalties that reflect the seriousness of the offence and that are progressively increased for repeat offences;**
6. **Dealing with breaches consistently and transparently, with predictable consequences that are escalated for repeat offences;**
7. **Not treating repeat breaches at separate sites at different times as a single offence;**
8. **Removal of a cap on the issuing of Penalty Notices, and their issuing for all significant offences and repeat offences, with the most significant breaches routinely prosecuted.**
9. **Requirements for rehabilitation of illegally logged sites and the provision of compensatory habitat;**
10. **A requirement for the EPA to prepare professional and comprehensive reports documenting their investigations and justifying their conclusions from significant investigations, rather than just sending letters to complainants;**
11. **A requirement for EPA auditors to have appropriate training and environmental expertise in what they investigate;**
12. **A requirement that all investigation reports be completed within 3 months and made publicly available on the web;**
13. **A proactive approach from the EPA when areas with exceptional value for threatened species are found or when there is a high risk of significant environmental harm;**
14. **An independent mechanism to investigate complaints against the EPA;**
15. **Reinstatement of 3rd party enforcement rights for breaches of the IFOA; and,**
16. **A recommendation that Royal Camp be made into a Koala sanctuary.**

Section 2 of this submission provides an overview of the EPA's responses to our complaints. Sections 3 and 4 examine the EPA's responses to the specific issues of Habitat Trees, Koalas, Yellow-bellied Gliders and Forest Health in more detail. Appendix 1 provides a timeline of events and documents. Appendix 2 provides a summary of the EPA's responses to each of NEFA's complaints. Highlighted NEFA documents are included as attachments.

2. ISSUES WITH EPA RESPONSES

The EPA failed to deal with most of NEFA's complaints, only focussing on Koala searches and tree marking in compartment 15 . The EPA refused to investigate problems associated with tree marking and retention, along with BMAD, in compartment 14, even going so far as to deny they were able to find breaches shown to them. They refused to investigate a logged Yellow-bellied Glider feed tree. They ignored a burning operation conducted in Compartment 15 that burnt Koala scats and involved illegal tracks through stream exclusion zones while the EPA were auditing. The regulatory action was limited and tokenistic, proving ineffective in changing the behaviour of the Forestry Corporation who continued to deny they had done anything wrong while they logged more Koala High Use Areas.

By the time of the Royal Camp breaches the Forestry Corporation had been operating under their current Threatened Species Licence (TSL) for some 13 years, and various prescriptions for far longer than that. NEFA had had a concerted push to highlight non-compliance in the vicinity for the previous 2 and a half years. The Forestry Corporation thus had no excuse for failing to implement the requirements of the TSL.

It needs to be recognised that only a small percentage of forestry operations are audited by the EPA, or by the NEFA and other community groups. NEFA has limited time for audits and are thus only able to audit limited aspects of a small part of any operation. As representative samples, our findings from random audits are indicative of far more widespread problems.

The EPA responded quickly to our complaint that a Koala High Use Area was being logged, with a person on the ground the next day. Though while they were present the Forestry Corporation burnt off part of the evidence and constructed two illegal stream crossings, and then resumed logging nearby in Koala habitat without doing the required Koala searches. It is astounding that this was allowed to happen under the EPA's nose without comment.

For their part, the Forestry Corporation denied there was any problem. In relation to the Koala High Use Area we had identified actively being logged, Forestry Corporation's spokesperson Dean Kearney told ABC Radio on the 7th August 2012:

"When we've looked at where they were, they were well in front of where the harvesting was, so we're going to go out to those areas and start inspecting them now."

"We probably would have got there prior to harvesting, but it's just we hadn't actually moved into those areas yet."

NEFA had identified active logging of a Koala High Use Area in an area the Forestry Corporation claimed to have completed their Mark Up Surveys and Koala Mark-up Searches for weeks before without finding any Koala scats. On the same day the Forestry Corporation were denying they were anywhere near the Koala High Use Area they found their own Koala High Use Area near where they had been logging from log dump 20, with an additional 6 high use trees around the "trigger" high use tree.

On the same day the EPA had also confirmed that the Forestry Corporation had been logging a Koala High Use Area and claimed to have completed all searches without finding any Koala scats. Scats were now being found in abundance in areas where NEFA hadn't looked as well as where we said. The EPA then started treating it as a breach, later identifying the felling of 61 trees and the construction of 405m of snig tracks in the koala high use exclusion zone around this high use area.

Separate searches by the Forestry Corporation and the EPA confirmed the presence of Koala High Use Areas at the three other locations in compartment 15, and likely location in compartment 16, we had identified.

Logging had resumed in compartment 16 in an area *“not subject to EPA/NEFA Koala data”* on 9 August.. On the 20 August NEFA reported our findings of scats, high use trees and a Koala High Use Area within areas in compartment 16 logged since 9 August. NEFA had undertaken the audit because it feared that the Forestry Corporation had not learnt from its mistakes and were likely to still be ignoring their responsibilities to Koalas unless forced to. The EPA later confirmed that Forestry Corporation Koala scat surveys had been inadequate and that a Koala High Use Area had been logged with 6 trees removed.. The Forestry Corporation told the EPA that they would not change their methods, they said they did not document any of the outcomes from their Koala scat searches on the grounds that they did not find more than 20 scats anywhere.

Despite NEFA's renewed call for logging to be stopped while adequate surveys were undertaken logging continued, moving to near log dump 5 until ceasing on the 7 September. When NEFA later audited this logging we again found no evidence that the Forestry Corporation had undertaken thorough Koala scat searches, as well as finding further high use trees and another logged Koala High Use Area. The Forestry Corporation had just continued blithely on ignoring their responsibilities to the Koala without anyone bringing them to heel. The EPA never audited this repeat of a repeat offence.

The EPA invited us to show them breaches we had identified, only to refuse to allow us to accompany them once we had driven there. We complained to Mr. Gifford, EPA Acting Chief Regulator, that we came away from this encounter feeling that the EPA had no intent of fully or fairly investigating our complaints and feeling that we had been treated with contempt and deliberately inconvenienced. In response to our complaints another site inspection was undertaken when we were allowed to show the EPA a variety of the breaches we had found.

On 24 August EPA officers finally accompanied Dailan Pugh and on a site inspection of Royal Camp and are shown a variety of breaches. In compartment 14 the EPA were shown representative examples of the problems we had found and documented in our audit report:

- the dense bell miners birds in the logging area around log dump 22 and the adjacent BMAD with numerous sick and dead Flooded Gum,
- the modified harvest zone around a Yellow-bellied Glider record in the same vicinity, with the limited number of potential feed trees left in the vicinity and the lack of any marking of feed trees emphasised,
- a marked Recruitment tree and unmarked hollow tree with excessive debris around their bases,
- six trees with obvious hollows that had been marked as Recruitment trees (with one unmarked), along with 3 R trees near log dump 22 with obvious hollows we showed the EPA a cluster of 5 clearly senescent trees of similar size and age near log dump 24, of which 2 had been marked as H trees, 2 as R trees and one was unmarked. We emphasised the low densities of hollow-bearing trees and the consequent need to identify all hollow-bearing trees as H trees, that the outcome of marking every second hollow-bearing tree as a recruit is that none of the genuine recruitment trees were identified for retention, that many of the required

- recruitment trees (ie the next largest trees) were being logged in the vicinity, and that there are extensive areas elsewhere within the compartment with very few hollow-bearing trees..
- the felled Yellow-bellied Glider sap-feed tree near log dump 24, with the feed marks was closely examined and discussed with [redacted] the stump was located and the missing trunk identified, with the lack of other sap-feed trees in the vicinity and a likely nearby den tree emphasised.

In compartment 15 the Koala high use area near log dump 20 was inspected with scats, Koala high use trees and logging intrusions observed. Inadequate tree marking was emphasised. On the way back to the car, on the ridge and within 30m of the log dump, [redacted] randomly checked under an unmarked tree that it was obvious no one had searched under before, amongst the leaf litter he quickly located over 50 koala scats.

The EPA (Mr. Gifford 13 September 2012) responded to NEFA's complaint about the earlier aborted inspection:

I would also like to reassure you that the matters the North East Forest Alliance (NEFA) have raised in relation to Royal Camp State Forest are being actively and independently investigated.

To this end I understand that you have more recently met with [redacted], EPA Manager Crown Forestry and [redacted] in Royal Camp State Forest to confirm the locations of various allegations and clarify some of the details in relation to NEFAs allegations and the EPA investigation to date.:

Little did we realize that this meant the EPA would ignore all our complaints in compartment 14. Going so far as to claim that they couldn't locate many of those breaches they were shown.

During the course of their investigations the EPA found that the Forestry Corporation had burnt an Endangered Ecological Ecosystem, a Koala High Use Area and a variety of other exclusion areas in compartment 14 which they decided to actively investigate by way of a desktop audit.

In 2013 NEFA became alarmed that the Forestry Corporation was proposing to commence logging in Compartment 13. 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 young. Within both the areas inspected, our findings demonstrate that extensive sections qualify as Koala High Use Areas. Leading NEFA to conclude.:

NEFA have formed the opinion that the 1,500ha comprising Compartments 13, 14, 15 and 16 of Royal Camp State Forest is of such importance for Koalas that further logging should not occur in these compartments and that they should be protected as a Nature Reserve specifically for Koalas. Most of the forest ecosystems represented within the compartments have not met their national reserve targets and thus 94% of the forest deserves protection just to contribute to attaining the national ecosystem targets for the State's reserve system.

A subsequent inspection by the EPA confirmed NEFA's Koala High Use Areas and located abundant additional high use tree locations. Leading the EPA ([redacted] 24 July 2013) 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.

At their Minister's insistence the EPA finally decided to undertake proactive action by undertaking an assessment of the regional significance of the Royal Camp Koala population. The region's Koalas were identified as being in significant decline, and compartment 13 was found to have a resident population, leading EPA Chief Environmental Regulator, Mark Gifford (1 July 2014) to write to Forestry Corporation CEO, Nick Roberts, to provide them with a copy of Dr. Phillips report, noting:

The EPA recommends that no forestry activities occur in Royal Camp State Forest until such time as:

- 1. Appropriate mitigation measures are developed for the consolidated Coastal IFOA and*
- 2. Regional refinement of the EPAs koala habitat mapping project is undertaken in the Royal Camp area.*

The EPA will consider any other information that FCNSW can supply which clearly demonstrates how this important and declining koala population would be adequately protected from future forestry operations in Royal Camp State Forest.

2.1.1. Regulatory response

It was apparent from early on that the EPA only wanted to take regulatory action in relation to NEFA's complaints regarding Koalas. Marking of habitat trees was added when it became clear that the marking was grossly inadequate, and even then it was only partially investigated. When the EPA became aware that an Endangered Ecological Community had been burnt in the Compartment 14 fire they began investigating this and the potential burning of other exclusion areas, including the Koala High Use Area, Ridge and Headwater Habitat, Harvesting Protection Zone (Riparian), High Conservation Value Oldgrowth, and Giant-barred Frog protection area. These burn issues had not been identified by NEFA.

On 15 October 2012 the EPA requested further documents from the Forestry Corporation on the grounds that "*potential offences include, but are not limited to, the following:*

Contravene licence condition under the TSL

- i. Condition 6.14 – Specified forestry activities within koala high use areas*
- ii. Condition 5.6g – Failure to mark up trees for retention*
- iii. Condition 5.7 – failure to protect riparian features*
- iv. Condition 5.22 – failure to conduct searches consistent with licence conditions*
- v. Condition 5.8 – failure to protect ridge and headwater zones*
- vi. Condition 6.3 – failure to protect Giant Barred Frog exclusion zone*
- vii. Condition 6.14 (c) ii – failure to comply with Koala feed tree retention requirements*

Contravene the NPW Act

- i. Clauses 118 (D) – damage/harm of endangered ecological communities*
- ii. Clause 133 (4) – contravene conditions of a licence.*

The EPA considered that the Forestry Corporation had not followed proper procedures when planning their burn-off in compartment 14 and had scheduled it between two high risk days. 5 of the alleged breaches related to the hazard reduction burn in compartment 14 burning a variety of exclusion areas from which burning is meant to be excluded. The Forestry Corporation had

effectively pleaded guilty to four of these offences so the EPA issued a Warning Letter for undertaking hazard burning of a variety of exclusion areas.

Though they did not pursue the offence of burning an Endangered Ecological Community. The EPA (18 March 2013) identify that 30 hectares of EEC(characterised by Paperbark and swamp sclerophyll forest type 31) in compartment 14 of Royal Camp State Forest was burnt, noting *“The EPA notes that FCNSW initiated a hazard reduction burn on 10 January 2012 which subsequently turned into a wildfire on 11 January 2012 ...The EPA considers that the harm to the EEC could have been prevented if the hazard reduction burn was undertaken during and around times of favourable environmental conditions that were consistent with the FCNSW fire planning guide”*. Despite this the EPA later fail to take any action in relation to this.

On 18 March 2013 the EPA () wrote a Show Cause Letter to Forestry Corporation identifying 11 alleged breaches of the Threatened Species Licence and one of the Protection of the Environment Operations Act (the later relating to the failure to produce requested documents).

On 28 June 2013 the EPA issued FCNSW three penalty notices for contravening their threatened species licence (TSL) covering Royal Camp State Forest, principally for logging the Koala High Use area near log dump 20 in compartment 15 in August 2012, specifically for:

- 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)

On 13 August 2013 the EPA issued FCNSW an Official Caution in relation to their failure to “mark and retain trees” as required by the TSL (with specific reference to the EPA’s 8.4 ha sample) and for undertaking hazard reduction burning in a Koala High Use Area, an exclusion zone for a Koala High Use Area, Ridge and Headwater Habitat, Harvesting Protection Zone (Riparian), and Giant-barred Frog protection area . The caution states:

The EPA has reasonable grounds to believe the FORESTRY CORPORATION OF NEW SOUTH WALES committed seven (7) offences under section 133(4) National Parks and Wildlife Act by contravening conditions of the Upper North East region Threatened Species Licence and one (1) offence under section 211 of Protection of Environment Operations Act 1997. Further, the EPA believes that there is sufficient evidence to prove the alleged offences.

2.1.2. Response to NEFA complaints

On 15 August 2013 the EPA finally provide response to some of NEFA’s complaints of 2012, noting *In summary, the EPAs investigation determined that FCNSW had not adequately implemented koala protection prescriptions in parts of the operations, particularly around log dump 20 in compartment 15. The EPA identified that compartment mark up and searching was not conducted in adherence with the TSL in this area. The EPA also identified that timber harvesting had been conducted within areas considered to be koala high use”*

The EPA considered that these breaches were significant and could have been prevented. As noted above the EPA issued FCNSW three penalty notices in relation to these matters.

The EPA's investigation also determined that FCNSW had not marked or retained trees as required by the TSL. The EPA assessed an area of 8.4 hectares and found 2 hollow bearing trees (H) and 3 recruitment trees (R) trees that had been marked. The TSL requires around 42 H trees and 42 R to be marked for such an area. While the EPA notes that H and R trees are not necessarily evenly distributed across the landscape, the EPA would have expected to find more of such trees marked and retained in the area inspected. The EPA issued FCNSW an Official Caution on 13 August 2013 in relation to these matters.

It is apparent that the EPA never had any intent of investigating all of our complaints, as they had gone out of their way to avoid being shown the breaches near log dump 22 and were now claiming they were unable to find them, they had totally ignored the problem of BMAD, and they denied the accuracy of the Yellow-bellied Glider record near log dump 24 and that there was any problem identifying the hollow-bearing trees as recruitment trees. They also ignored our complaints of the illegal stream crossing in a stream exclusion zone along with the hazard reduction burning apparently undertaken while the EPA were auditing in compartment 15, and the consequent burning of Koala scat evidence. They had made no attempt to pursue any of these issues with the Forestry Corporation.

The only issues actively pursued by the EPA were those relating to Koala prescriptions, marking of habitat trees within compartment 15, and the burning of exclusion areas in compartment 14. They had followed up on our complaint of logging of a Koala High Use area near log dump 7 in compartment 16, though made no mention of confirming this complaint and took no action on it. They apparently made no attempt to investigate our complaint of another Koala High Use Area being logged near log dump 5 subsequent to our previous complaint. When the Forestry Corporation told the EPA they had not kept records of any searches for Koala scats, and had no standard method, and not found any trees with more than 20 scats in their Mark Up surveys in compartment 16, the EPA failed to pursue the ongoing failure to thoroughly search for Koala scats.

For some unexplained reason the EPA downgraded the offences relating to the failure to undertake Koala Mark Up Searches in accordance with section 5.2.2, down to the more generic failure to undertake Mark Up Surveys under 5.1. This is a significant difference as it is all the requirements of 5.2.2 that were the focus of our complaint and the EPA's investigation. This key problem was not dealt with specifically in the end for what could only be a political reason.

On 19 August 2013 NEFA wrote to Mark Gifford of the EPA disputing 5 of their findings as being factually incorrect, most concerning being their claims that they were unable to find the locations of numerous breaches we had shown them on the ground and their refusal to accept evidence on the obvious feeding marks of the Yellow-bellied Glider. (see Appendix 2A).

NEFA also complained that the EPA:

- did not assess 11 of our complaints, or intentionally omitted them from their audit report
- failed to report on whether Forestry Corporation had thoroughly searched for Koala scats ahead of logging;

- refused to report on our complaint of 20 August of logging in a Koala High Use Area in compartment 16 near log dump 7;
- refused to assess our complaint of 23 September of another logged Koala High Use Area near log dump 5;
- refused to investigate two illegal crossings within riparian exclusion zones of first order streams which occurred while they were auditing in the same compartment;
- ignored our complaint of the use of harvesting machinery in the riparian special operational zone (10m around buffer zones) when the soil was saturated; and,
- ignored our complaint that Forestry Corporation misled the public by failing to acknowledge that a Koala High Use Area was being logged.

See Appendix 2B.

NEFA concluded:

NEFA do not consider that the EPA have dealt with our complaints on logging operations in Royal Camp State Forest in a fair, balanced or competent manner. The EPA has suppressed audit results relevant to complaints, claimed that they couldn't find trees they were shown, ignored expert evidence, and refused to audit significant breaches. This is either a deliberate attempt to hide the nature and extent of breaches or an extremely shoddy, unprofessional and incompetent job.

In response to our complaints about the EPA's response on Royal Camp, Mark Gifford (13 September 2013) responded, in part:

...EPAs investigation investigations into these allegations was detailed and robust in the main, however the approach of the EPA officers involved could have been more helpful, one allegation was missed and some responses in subsequent correspondence from the EPA were not correct or clear. I am of the view that some actions can be taken to improve the EPAs response to any allegations of potential breaches of forestry licences in the future. ...

In response to our complaint that many issues had been ignored, Mark Gifford (13 September 2013) notes:

Reviewing Attachment 1 in your complaint letter, there are 13 rows where you state "Not mentioned by EPA", "Not mentioned in EPA report" or "Ignored by EPA". I wish to apologise for the fact that the EPA response was unclear or silent on these points. This response was not of a standard that I would expect from the EPA and I have asked the Forestry section to be sure that future responses address all allegations in an appropriate manner.

In response to our complaint about the EPA denying they could find trees we had shown them, Mr. Gifford responded *"The EPA was aware of the location of these trees. In preparing the letter of 15 August 2013 the EPA officer involved confused two different log dumps, which led to us supplying the wrong information. A subsequent check of records has shown that the EPA did indeed visit this location in your company"*.

We found no evidence that the EPA had investigated any of these complaints, and only took action on the debris around the R tree after we complained to Mr. Gifford. We do not accept Mr. Gifford's excuse of confusing log dumps. The EPA apparently never had any intention of dealing with these complaints. Whether this was an act of pique at being made

to visit them or genuinely because of other priorities we don't know, though their intent to deny them is worrying.

Regarding the fraudulent marking of hollow-bearing trees as recruitment trees, Mr. Gifford responded:

I consider the EPA understood the substance of your complaint regarding recruitment trees with hollows, that is, that when there are few hollow-bearing trees present they should all be retained as habitat trees and other recruitment trees selected to be retained. The EPA agreed with your allegations in this matter and issued FCNSW with an official caution.

...

The EPA should have investigated the specific allegation of selection of recruitment trees. It should be noted that the general issue of recruitment tree selection now forms one of the EPAs Crown forestry compliance priorities.

The EPA had made no attempt to investigate this issue, and he still maintained that it was alright to mark hollow-bearing trees as recruits near log dump 24. Contrary to Mr. Gifford, no official caution or any other reprimand was issued to the Forestry Corporation over this issue. NEFA has identified this problem elsewhere, it is a serial offence that is intended to reduce tree retention (in the "regrowth" zone where only remnant hollow-bearing trees require protection) and should not have been ignored.

In giving his reason for not responding to our complaint of the EPA's claim they "could not determine beyond reasonable doubt whether the incisions had been made by a yellow bellied glider", Mr Gifford responded:

I consider the EPA's decision in this matter was primarily related to a prioritisation of part of the investigation. ...We acknowledge the expertise of _____ and do not contest this advice, however given the prioritisation, a regulatory decision was made not to issue a penalty notice in this instance. The EPA has also noted your ongoing concern about the protection of these feed trees in harvesting operations and will monitor this aspect in future.

This breach occurred just after the EPA (3 July 2012) had informed NEFA they were making the "marking and protection of yellow-bellied glider sap feed trees as one of its priorities" in response to our frequent findings that Yellow-bellied Glider sap-feed trees were not being identified and protected. Gifford's response contradict the EPA's previous claim that they could not determine if the feed marks had been made by a yellow bellied glider. Such a clear and obvious breach should have been recognisable to someone whose job it is to audit prescriptions, a failure to recognise it displays the inadequate expertise of EPA field staff. To do nothing about a clear and obvious breach is reprehensible.

In response to our complaint that the EPA had not taken action against the Forestry Corporation for failure to undertake Koala Mark-up Searches (TSL 5.2.2), Mr. Gifford responded "The EPA investigated this allegation and concluded that there was a failure to undertake adequate koala searches, which led to inadequate protection of koala habitat". He failed to recognise that the EPA had only taken action under the more general issue of failure to undertake mark-up surveys and had been silent about Koala Mark-up Searches.

In their Show Cause Letter the EPA (18 March 2013) identified the offences of failing to conduct koala mark up searches in accordance with licence conditions 5.2.2 a and 5.2.2 b. There is no explanation of why these were later reduced to far less specific and relevant offences under conditions 5.1 and 5.2.1. It seems to have been a political decision to not take specific regulatory action on the failure to undertake Koala Mark-up Searches.

Mr. Gifford claimed:

The EPA shares your concerns about the thoroughness of FCNSW searches and has raised this with them, resulting in their staff being retrained. The EPA will continue to monitor this aspect and pursue FCNSW to achieve adequate compliance.

Despite the EPA finding that the Forestry Corporation continued to undertake inadequate searches in compartment 16, while EPA were auditing compartment 15, it is astounding that they had not mentioned this or taken any regulatory action.

NEFA considered the failure of the EPA to report on the logging of Koala High Use Areas in compartment 16 particularly significant because it occurred after our initial complaint and because it was apparent that the Forestry Corporation had not thoroughly searched for Koala scats where we found the Koala High Use Area. For log dump 7 Mr. Gifford responded *"EPA officers determined the presence of one koala high use area. The EPA determined that six trees had been removed from within this koala high use area and exclusion zone"*. On the 18 March 2013, in a Show Cause Letter to the Forestry Corporation, the EPA note:

The EPA further alleges that timber felling and the construction and operation of snig tracks were conducted within Koala High Use Areas and within the 20 metre wide exclusion zone south-west of log dump 7 in compartment 16 of Royal Camp State Forest. The EPA alleges that 7 trees were removed within koala high use areas. ... The EPA also alleges that 230m of snig tracks have been constructed and operated within the same koala high use area. The EPA has considered various evidence that supports this allegation.

The EPA recognised 3 offences for undertaking *"timber felling, construction and operation of snig tracks and bushfire hazard reduction work within Koala High Use Areas and within 20 metre wide exclusion zone in three areas"*. A penalty notice was eventually issued for the offence in compartment 15 and a Warning Letter for the burning offence in compartment 15, though the offence in compartment 16 was not pursued further.

In regards to our complaint of logging a Koala High Use Area near log dump 5 Mr. Gifford responded *"The EPA also investigated log dump 5, including undertaking a star search, which was inconclusive. As a result the EPA was not in a position to demonstrate beyond reasonable doubt that it was a koala high use area"*. No results were supplied, so we question whether this refers to the work done before our complaint and identification of a high use area.

While the EPA followed up on the earlier fire in compartment 14 (which was identified as an issue by them), they failed to investigate the burning and roading across a creek that apparently occurred nearby while the EPA were auditing in compartment 15. Mr. Gifford's claims that they did investigate this complaint and found it *"Not compliant"* and issued an *"official caution"* are incorrect, as he appears to be confusing the burns. We have yet to see any evidence that it was investigated. In an undated response to the EPA the Forestry Corporation stated *"Please note that some hazard reduction burning was also attempted in compartment 15 (dumps 6&7) but this was unsuccessful due to unfavourable weather conditions and high fuel moisture contents. Forests NSW can provide*

further details of this work if required". The EPA apparently didn't require any details because they did not want to investigate it. This is surprising given that this involved destruction of evidence and illegal roading through riparian exclusion zones.

Neither did the EPA follow up on the failure to remediate "rutting" in the riparian zone, despite the Forestry Corporation informing them that they had recognised "significant rutting" problems in contravention of the EPL on 18 February 2012, a week before NEFA observed it. The Forestry Corporation's reported response was to *"Stop work and rehabilitate snig tracks when area dries out"* and speaking to the contractor but not giving any warning. The rutting had still had not been remediated 6 months later when NEFA reported it to the EPA. This was one of the issues EPA chose to ignore.

The EPA's (Mr. Gifford 13 September 2012) assurance *"that the matters the North East Forest Alliance (NEFA) have raised in relation to Royal Camp State Forest are being actively and independently investigated"* was not honoured.

NEFA's reported breaches and the EPAs responses to them are detailed in Appendix 2.

Mr Gifford excuses the EPAs failure to address many issues on "prioritisation", and their refusal to take action on multiple offences as representation:

... the EPA used its regulatory discretion to target its response to particular breaches. The EPA issues penalty notices to send strong messages of specific and general deterrence to those who may offend the law in the future. We use these messages to drive change for environmental improvements....

In the Royal Camp State Forest incident, we determined that there were multiple areas where there was a failure to search for Koalas thoroughly and multiple areas where specified forestry activities were done in Koala high use areas. Here, we chose to apply the penalty notices to those areas where we had the most solid evidence to support those notices. Issuing penalty notices sends a message about the need for compliance generally and we will continue to use them as means to drive improved environmental performance specific to the operation and more generally to other operations in the region and in NSW

Contrary to the EPA's pretence that Penalty Notices are an effective form of regulation, in reference to the 3 fines of \$300 each the Regional Forester told ABC North Coast (12 July 2013) 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."

It is evident that the 3 PNs and fines imposed by the EPA were treated by the FCNSW as paltry and inconsequential, The Forestry Corporation never showed any remorse or contrition for their actions and remained in denial. They continued to refuse to change their survey methodology. The EPA's response was thus ineffective and did not result in behavioural change.

The ineffectiveness of the EPA's approach is exemplified by the Forestry Corporation's ongoing logging of Koala High Use Areas in compartment 16 and their refusal to change their methods to thoroughly search for Koala scats, as exemplified by Regional Forester, email to CEO Nick Roberts on 7 November 2012:

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 EPA (11/2/13) interviewed foresters responsible for the operation around log dump 20, who told the EPA that they hadn't changed the way they searched for Koala scats or recognise anything that would stand out in a negative light or acknowledge any problems.

The failure to mark and retain habitat trees was repeatedly denied to the EPA by the Forestry Corporation and on 17th Jul 2013 the Northern Star newspaper reported Regional Forester as stating *"that before harvesting started, trees with hollows were marked and saved along with recruitment trees that could be used to take the place of those older, hollow trees that support wildlife."*

In 15 years of regulation, it is apparent the EPA have made little progress as their findings and recommendations are treated with contempt by an unrepentant Forestry Corporation. What is needed is a more comprehensive and thorough approach where quantitative results are collected and published in professional reports. Breaches need to be dealt with clearly, consistently and transparently, with predictable consequences that are escalated for repeat offences. Repeat breaches at separate sites at different times should not be treated as a single offence.

Further details of some of these and other shortcomings with EPA's response are documented in subsequent sections. Marking Up focuses on marking up for Habitat Trees, Koala Mark-up Searches and the Yellow-bellied Glider sap-feed tree. Forest Health focuses on BMAD.

3. MARKING UP

Mark Up Surveys are required to be undertaken ahead of logging to identify, mark and protect an array of areas and habitat components essential to reduce logging impacts on a suite of threatened species. They provide the only mechanisms to reduce logging impacts on numerous species, most notably the Koala. As found at Royal Camp, the Forestry Corporation often do not undertake Mark Up Surveys, or do token assessments, meaning the required mitigation measures are often not applied.

There are many rare and threatened features that the Threatened Species Licence (5.2.1, 5.2.2) requires *Mark Up Surveys* for to identify and protect them ahead of logging. Experts with the required specific expertise are needed to identify an array of features requiring protection, including hollow-bearing and recruitment trees, Koala scats, Koala High Use Areas and feed trees, Yellow-bellied Glider and Squirrel Glider den and feed trees, Brush-tailed Phascogale dens, Tiger Quoll latrine sites, nests and roosts of forest owls and bats, Glossy-black Cockatoo feed trees, Swift Parrot and Regent Honeyeater nectar feed trees, soaks and seepages for Philoria frogs, and locations of threatened plants. Adequate mark-up surveys are essential to identify such features and provide them with the protection identified as required. It is also during mark up that the boundaries of exclusion areas are required to be marked.

As noted by the EPA *“The licence has numerous environmental features which are to be searched for during compartment mark up and with no compartment mark up effort there is significant risk to these environmental features. Furthermore, this provision has been designed to ensure that any species not located during ecological surveying are captured during or shortly before the time of harvesting operations”*.

When NEFA began our systematic auditing program in late 2009 it quickly became apparent to us that the Forestry Corporation was not doing the required mark-up surveys. At both Yabbra and Girard SFs it was apparent that only token marking up was happening in the vicinity of tracks and that this meant there were no searches being conducted for an array of threatened species and habitat features. And it was apparent that the EPA was not bothering to redress the problem.

In response to our complaints to the EPA (then DECCW) about the failure to do the required Mark Up Surveys and protect the required features in Yabbra SF (Pugh 2009) and Girard SF (Pugh 2010) the EPA claimed that the surveys were not necessary because of the *“thick impenetrable vegetation”* which meant *“Forests NSW is not required to mark up the harvest area (including in advance of the operation in preferred koala habitat) due to occupational health and safety considerations”*. While NEFA accepts that some parts had impenetrable understories (mostly of lantana resulting from past logging), most of the areas not marked up did not have impenetrable understories. Our appeals for the EPA to institute alternative protection measures when the understorey was genuinely impenetrable were ignored.

In our audit of Doubleduke (Pugh 2010b) we caught the Forestry Corporation actively logging in Compartment 146 without hollow-bearing and recruitment trees being marked. They had only marked the boundary of the logging area and not bothered to undertake any of the assessments required within the logging area. This confirmed our conclusions from inspections of the adjoining compartment 145 that much of the marking up had taken place after logging was complete. This time they could not claim the understorey was impenetrable.

This time on the evening of 20 June 2010 we immediately wrote to the Ministers, rang the EPA and put out a press release calling for the logging in compartment 146 to immediately stop. This was the only way that we could shame the EPA into taking action. The outcome was that the EPA issued the Forestry Corporation a caution for failing to adequately mark up an area prior to logging. When we returned after logging had finished we found that the hollow-bearing trees that had survived had subsequently been marked.

The EPA has failed to deal with the problem of lack of assessment and protection of key fauna and flora requirements at the compartment mark-up stage for many years. The EPA's poor regulatory response has been clearly inadequate and ineffective in generating the needed change to ensure routine application of the suite of the TSL's prescriptions required to be applied for threatened species during compartment mark-up.

Eventually the EPA decided to check for themselves, noting on their website:

In June 2012, the EPA instigated a campaign to check Forestry Corporation of NSW compliance with mark-up requirements. The campaign clustered a number of audits over a week on north coast NSW forests from Sydney to the Queensland border.

The EPA identified that in some areas, mark-up complied with licence requirements, and in other areas the EPA identified the need for improvements. In some areas, marking had not been performed ahead of operations, or was incomplete.

It was in this context that the breaches at Royal Camp State Forest were found by NEFA. While this time some marking-up had taken place, it was readily apparent that marking of habitat trees and searches for fauna features, such as Koala scats, Yellow-bellied Glider Feed Trees and threatened plants was grossly inadequate. While the limited investigations by the EPA confirmed our findings, their poor regulatory response failed to result in organisational change, as has been the case for 15 years.

3.1. Habitat Trees

Minimum numbers of habitat trees are required to be retained across logging areas in order to reduce logging impacts on a wide diversity of forest animals, most notably those with requirements for essential resources provided by older eucalypt trees. As exemplified at Royal Camp, the marking, retention and protection of required habitat trees is often deficient because Marking Up is undertaken in a careless and tokenistic manner. Aside from finding that marking and retention of habitat trees was grossly deficient in compartment 15, for which the EPA issued a Warning Letter, the EPA failed to investigate most aspects of our complaints regarding selection and retention of habitat trees, going so far as to deny they could find examples we had shown them. Like the Forestry Corporation's implementation, the EPA's regulation of habitat tree requirements is tokenistic and ineffective.

There are various Threatened Species Licence (5.6) requirements aimed at identifying and protecting a sample of important habitat trees, including hollow-bearing trees and recruitment trees to replace them when they die, and significant food trees such as key nectar providing species. These are required to be identified and marked during compartment Mark Up Surveys.

It has long been recognised that to mitigate the impact of logging operations upon some hollow-dependent fauna it is necessary to manage for provision of habitat trees in perpetuity (i.e. Saunders

1979, Recher, Rohan-Jones and Smith 1980, Mackowski 1984, 1987). This requirement focuses on the need to retain the big old trees with abundant and large hollows suitable for denning and nesting by a plethora of vulnerable fauna (such as owls, cockatoos, parrots, possums and gliders), along with sufficient mature trees (likely to survive and develop hollows in the future) to replace the old trees when they die. It has been recognised as being of such significance that the NSW Scientific Committee has identified *Loss of Hollow-bearing Trees* as a Key Threatening Process, and the retention of appropriate recruitment trees as the key action.

In order to provide for hollows through time it is necessary to protect those trees with existing large hollows, as well as sufficient trees in the next age class to replace them when they die, and trees in the next age class to replace the replacements. Successional planning is an essential requirement of ecologically sustainable forest management, particularly as most logged forests have a deficit of large hollow-bearing trees and the next age class required to replace the few that are left as they die out.

Despite requirements being specified for the retention of hollow-bearing trees, and recruitments to grow into the hollow-bearing trees to replace them when they die, the achievement of requirements are often grossly inadequate and there appears to be a war of attrition being waged against hollow-bearing trees.

In Royal Camp State Forest it is apparent that there are no large old trees in extensive areas (particularly in compartments 15 and 16) and extremely low numbers across most of the forest, with remnant large trees mostly clustered near riparian areas.

3.1.1. Legal Requirements

For habitat tree retention, in summary for Compartment 15 the Threatened Species Licence requires that the marking-up of trees requiring retention **must be** conducted at least 300 metres in advance of harvesting operations and must retain.

- 10 koala grey gum and Forest Red Gum feed trees per 2 hectares,
- 10 eucalypt feed trees in every 2 hectares,
- 10 of the largest trees per two hectares as current or future hollow-bearing trees and
- 10 mature trees per 2 hectares as recruitment hollow-bearing trees.

For Compartments 14 and 16 (where no Brown Treecreepers were recorded) only the current density of hollow-bearing trees needed to be retained, where less than 10 per 2 hectares remained, with a corresponding number of mature recruitment trees.

“Hollow-bearing tree” means a tree where the base, trunk or limbs contain hollows, holes and cavities that have formed as a result of decay, injury or other damage. The retained hollow-bearing trees are supposed to be the largest trees in the stand. “Recruitment tree” means a mature or late mature tree that appears to have good potential for hollow development and long term survival. Recruitment trees must not be suppressed, that is a tree whose growth has been significantly inhibited by surrounding trees or overstorey. Both “should have good crown development and minimal butt damage”.

For the records of the endangered 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 nectar producing species, for Royal Camp focussing on ironbark species, forest red gum, box species and spotted gum 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.

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.

Forests NSW Forests Practices Circular 2003/1 is for Monitoring and Measuring Compliance of Operations. It identifies standard auditing procedures to assess compliance. The “Compliance check sheet - Tree retention” involves undertaking 2 transects 250mx40m to assess compliance with tree retention prescriptions. This is two areas of 1 hectare.

3.1.2. NEFA’s Complaints.

The NEFA complaint specifically identified inadequate marking and retention of required habitat trees from two traverses in Compartment 15 (one covering 5ha and one 2.3ha), the locations of 4 hollow-bearing trees that were felled in Compartment 16, one marked hollow-bearing and one marked recruitment tree with excessive debris left around them, and the locations of 8 hollow-bearing trees that were marked as recruitment trees (mostly in Compartment 14) to significantly reduce retention of the mature and late-mature trees needed as future hollow-bearing trees. GPS locations for these were identified to both EPA and Forestry Corporation.

NEFA only reported a sample of what we observed as we were attempting to highlight problems rather than undertake a comprehensive audit ourselves.

NEFA’s audit sampled a 2.3ha area to assess tree retention from a randomly chosen multi-aged part of the stand, finding that only 4 out of the 11 required hollow-bearing trees were marked and only 5 out of the 11 required recruitment trees were marked, and that none were marked as eucalypt feed or Koala feed trees, commenting *“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”*.

Within, and adjacent to, the Koala High Use Area that we identified near log dump 20 (i.e. an area of approximately 5ha) we observed a single tree marked for retention as an “R” tree or recruit hollow-bearing tree. 50 hollow-bearing and recruitment trees should have been marked and retained. No attempt had apparently been made to mark any of the other required trees. We took this to be a representative sample of retention in stands with low numbers of large hollow-bearing trees.

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, breaches of 7 licence conditions were specifically identified in our August 2012 audit report:

1. *inadequate numbers of trees have been retained and marked as hollow-bearing trees and recruitment trees meant to be retained for hollow-dependant animals throughout the forest; (breaches TSL 5.6(c)(d) and the site specific prescription for Brown Treecreeper);*

2. *trees required to be retained as hollow-bearing trees have been wrongly marked as recruitment trees to reduce retention of mature and late-mature recruitment trees (breaches TSL 5.6(c)(d));*
3. *trees with obvious hollows that should have been retained as hollow-bearing trees have been logged (breaches TSL 5.6(c));*
4. *some trees marked for retention as recruits do not have good crown development or have butt damage or are suppressed and are thus unlikely to develop into hollow-bearing trees (breaches TSL 5.6(d));*
5. *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); and,*
6. *some trees marked for retention have large amounts of debris left stacked around their bases which may result in their being killed in post-logging burns (breaches TSL 5.6.(g)).*

3.1.3. EPA Response

An EPA assessment confirmed our findings of grossly inadequate habitat tree marking in compartment 15 and found inadequate retention of eucalypt feed trees. Though the EPA apparently made no attempt to assess the adequacy of retention of hollow-bearing and recruitment trees or the reported hollow-bearing trees felled. NEFA did show them 4 of the hollow-bearing trees marked as recruitment trees and the recruitment tree with debris left around it, only to have the EPA later claim they were unable to find them. The EPA therefore failed to investigate most of our complaints regarding habitat trees.

The EPA 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 around 42 H trees and 42 R to be marked for such an area, along with 42 Eucalypt Feed Trees and 42 Koala Feed Trees (the later which can count as H and R trees). The TSL thus required that a minimum of 84 H and R trees should have been assessed, identified and marked for retention as fauna habitat before logging commenced. The Forestry Corporation thus marked for retention less than 6% of the required trees. 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 (a shortfall of 24 trees) and that adequate unmarked Koala Feed Trees were retained (as there is no minimum size limit this is readily achieved). There was no reported assessment of how many trees qualifying as H, R or Eucalypt Feed Trees were felled, thus the EPA apparently made no attempt to assess the numbers of hollow-bearing and recruitment trees that were felled that should have been retained.

The EPA failed to inspect the locations of 4 hollow-bearing trees that were reported by NEFA (with GPS localities) felled in Compartment 16 or complaints of hollow-bearing trees being marked as recruitments to reduce tree retention requirements in Compartment 14.

In response to our complaint about the EPA's failure to deal with the issue of marking hollow-bearing trees as recruits, Gifford responded (13-9-13), *"when there are few hollow-bearing trees present they should all be retained as habitat trees and other recruitment trees selected to be retained. The EPA agreed with your allegations in this matter and issued FCNSW with an official*

caution” and “The EPA should have investigated the specific allegation of selection of recruitment trees”.

The most astounding EPA responses were their pretence that they could not find habitat tree breaches we took them to and showed them. For example 3 hollow-bearing trees that had been marked as recruitment trees (near log dump 22) were reported (with photos and GPS localities) and shown to the EPA on the ground. Only for the EPA to later claim that they *“could not locate the alleged location, no GPS data was provided”* and that *“The EPA searched the area described but did not identify any suitable H trees marked as R trees”*. In the same area, the EPA were shown an unmarked hollow-bearing tree and a marked recruitment tree with debris left stacked around them, which were also reported (with photos and GPS localities), only to have the EPA later claim *“Officers could not locate the alleged location, no GPS data was provided”* and *“The EPA searched the area described and did not identify any H or R trees with excessive debris”*. In one case the EPA even photographed the breach and recorded its GPS locality while with NEFA.



Photos of hollow-bearing tree marked as a recruitment tree, and recruitment tree with debris around base shown to the EPA, who later claimed they were unable to find them (NEFA Audit Report)

In response to NEFA’s complaint to Mark Gifford about this gross misrepresentation, he claimed “incorrect” information was included because when *“preparing”* the letter to NEFA *“the EPA officer involved confused two different log dumps”*. Given the specifics of the breaches this excuse is unbelievable. If it was only a typo, it doesn’t make sense that EPA didn’t apparently request FCNSW to take action to remove debris around the recruitment tree until 10 September 2013, after

NEFA's complaint to Mark Gifford. Prior to this the EPA had made no attempt to pursue any of the habitat tree issues identified to them by NEFA in compartment 14 with the Forestry Corporation.

As well as the rorting of tree retention by falsely identifying hollow-bearing trees as recruitment trees in order to reduce overall tree retention, a professional organisation would also have investigated the reported logged hollow-bearing trees, assessed how many habitat trees were felled illegally within their audit area, and not have pretended they could not find habitat tree breaches shown to them. A professional organisation would also have recognised when their regulation was being ineffective and started implementing penalties a long-time ago.

Based on the findings from compartment 15, on 13 August 2013 the EPA issued FCNSW an Official Caution in relation to their failure to mark and retain trees as required by the TSL in Royal Camp. The EPA found that the Forestry Corporation had failed to mark Hollow-bearing and Recruitment trees in accordance with TSL 5.6(g) iii, failed to mark koala feed trees in compliance with the TSL 6.14(c) ii and failed to mark an adequate number of eucalypt feed trees for retention in accordance with TSL 6.11(c).

Though given the Forestry Corporation's repeated failure to show any contrition and the ongoing history of routinely breaching this requirement, it is doubtful that this had any effect. The EPA's responses did not apparently result in any behavioural change on behalf of the Forestry Corporation as they remained in denial that they did anything wrong.

On 17th Jul 2013 the Northern Star newspaper reported Regional Forester [redacted] as stating *"that before harvesting started, trees with hollows were marked and saved along with recruitment trees that could be used to take the place of those older, hollow trees that support wildlife."*

The Forestry Corporation ([redacted] 19 April 2013) responded to EPA's "Show Cause Letter" that *"FCNSW contends that, across the 751 hectares of the net harvest area ... sufficient trees were marked and retained"*. The Forestry Corporation did not apparently undertake any sampling in accordance with their own Forests Practices Circular 2003/1 for Monitoring and Measuring Compliance of Operations, or make any attempt to justify this assertion. They just assumed that a blanket denial would suffice.

3.1.4. Context.

Since the late 1980s the Forestry Corporation has been required to retain habitat trees in some Management Areas. Earlier versions of the current prescription were first applied as an outcome of the Minister for Planning's determination of the Wingham EIS in 1994. The current version was first applied in 1997. So it should be concerning that after decades of implementation that the prescriptions were being found to be routinely and flagrantly abused. Unfortunately the EPA's pathetic responses to flagrant and deliberate breaches of these prescriptions means that in many of the Forestry Corporation's operations these requirements continue to only be given token consideration.

In Doubleduke SF NEFA (Pugh 2010c) found that an average of 1.9 hollow-bearing trees, and 1.3 recruitment trees, per hectare had been marked for retention. In an area at Girard (Pugh 2010d) only three hollow-bearing trees and two recruitment trees were marked for retention in a 3.7 ha area, giving a retention rate of one hollow-bearing tree per 1.2ha and one recruitment tree per 1.4ha.

As an example, even after the findings at Royal Camp, the EPA's June 2012 "blitz" and the other examples cited above, in October and November 2012 the EPA audited Wang Wauk State Forest Compartment 116 and found the same suite of marking-up problems were still persisting, stating:

EPA field observations detected areas of logging activity which appears not to have been subject to compartment mark up surveys, as evidenced by the lack of H, R, K and E tree retention mark up. EPA officers noted that any marking present generally was in close proximity to forest roads and snig tracks, with limited mark up beyond these areas.

*The area assessed was found to be **non compliant**.*

EPA officers detected 2 marked hollow bearing trees and one marked recruitment tree throughout the sample area of 4.5 hectares.

Further observation: In addition to those trees marked as mentioned above, EPA officers detected 9 trees which were deemed as suitable for retention as hollow bearing trees, however these trees were unmarked. Corresponding recruitment trees were also detected and available for marking, however these were unmarked. Given the availability of hollow bearing resources detected across the sampling areas the EPA considered that any hollow bearing resources should have been subject to marking. Not compliant.

*This area was found to be **non compliant** with primary browse koala feed trees mark up requirements with an average of the area assessed yielding 1.7K trees/ha.*

The EPA's response was once again inadequate, requesting of FCNSW that "An action plan must be developed and implemented to ensure that appropriate trees are selected to fulfil licence condition requirements, including a monitoring program to ensure future compliance." So despite the failure to undertake compartment mark-up before logging, and thus implement the required mitigation measures for numerous threatened plants and animals, being an ongoing issue for many years, and being the subject of a targeted EPA blitz, the Forestry Corporation continued to ignore this fundamental requirement and the best the EPA could come up with was a requirement for an "action plan".

As a result of NEFA's audit of Koreelah State Forest In June 2013, where it was found that the Forestry Corporation had yet again retained inappropriate trees to satisfy Hollow-bearing and Recruitment tree requirements and had not retained the required numbers of Recruitment trees, we commented:

Forestry Corporation has not implemented the intent or the letter of Condition 5.6 of the TSL. The problem is that we have found this same situation in every forest we have audited. This is the most critical prescription for a range of forest fauna and yet the EPA repeatedly refuses to take any meaningful action to rectify it. That their softly-softly approach is not working is self evident

3.2. Koalas

In preferred forest types where there is sufficient evidence of Koalas the Forestry Corporation is required to protect minimum feed trees and to thoroughly search for Koala scats ahead of logging in order to identify and protect Koala High Use Areas. At Royal Camp the Forestry Corporation were not undertaking adequate Markup Surveys or Koala Markup Searches, were not thoroughly searching for Koala scats, and were not identifying and protecting Koala High Use Areas. The EPA found that adequate scat searches were not being undertaken, and confirmed extensive logging and snig track construction within what

should have been two Koala High Use Areas, issuing 3 Penalty Notices for offences within one of these. The Forestry Corporation have belligerently maintained they have done nothing wrong, that there is no problem with logging Koala habitat, and that refuse to change their ways.

The Koala is identified in NSW as a Vulnerable species. The NSW Recovery Plan for the Koala (DECCW 2008) identifies that the loss and degradation of habitat is the most significant threat facing NSW koala populations. Koalas have been found to have a preference for mature trees of specific species in the size range 30-80cm (DECCW 2008). 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”*.

Stable breeding aggregations of Koalas are comprised of individuals with overlapping home ranges of around 5 ha. Koalas show strong fidelity for their home ranges throughout their lives, which may be 8-10 years. The size and viability of a Koala's home range is dependent on the availability of resources within it.

At Royal Camp Koalas were found to preferentially use larger (over 30cm diameter) individuals of Grey Gum, various Red Gums, and Grey Box for feeding, though also utilised other species. They have additional requirements for other trees in gullies and the understorey to shelter in.

The triggering of Koala protection is dependent upon Koala Mark Up Searches to find sufficient Koala scats (faecal pellets) to identify Koala “high use” and “intermediate use” areas. If there is no mark up surveys then there is no protection for Koalas. The TSL requires the Forestry Corporation to thoroughly search trees for Koala scats, at 10m intervals, at least 300m ahead of logging, in suitable habitat. Given the frequent failure to undertake mark-up surveys found in our audits it is apparent that no attempt is being made to minimise impacts on Koalas in many logging operations.

At Royal Camp State Forest NEFA (Pugh 2012e) found logging of Koala High Use Areas were occurring due to a failure of Forestry Corporation to search for Koala scats ahead of logging, with one Koala High Use Area actively being logged and three other proposed for logging. The forest had an open understorey, though there was leaf litter and bark under most trees and dense grass in places – it was easy to tell whether trees had been searched. In one area being logged NEFA identified 23 high use Koala feed trees (as defined by having >20 Koala scats beneath them) where Forestry Corporation had not identified any. Even after our initial complaint Forestry Corporation only identified 7 of these trees. While logging was stopped in one area while the EPA investigated some of our complaints, NEFA found that in the area where logging continued Forestry Corporation failed to search for Koala scats and continued to log Koala High Use Areas, with 2 more being found by NEFA after logging.

3.2.1. Legal Requirements

The Threatened Species Licence 5.2.2 requires that in compartments which contain preferred forest types, marking-up must be conducted at least 300 metres in advance of harvesting operations, with primary browse trees inspected at ten metre intervals with **thorough** searches around the base of trees for Koala scats (faecal pellets). Royal Camp SF is comprised of “preferred forest types” for Koalas, with two identified primary browse trees occurring: Grey Gum *E. spp.* and Forest Red Gum *E. tereticornis*.

The identification of an “intermediate use area” for Koalas is, in part, defined as *“a single compartment where Koala scats have been detected under two of any ten consecutive trees searched within that single compartment”*. The Harvesting Plan for compartment 15 states *“Compartment 15 is an intermediate use area. 10 primary browse trees must retained per 2 hectares where available. These trees must marked for retention”*. This is as required by the Threatened Species Licence 6.14 (c)(ii) and is a legal obligation.

The identification of a “Koala high use area” effectively requires the trigger of a high use Koala tree and then the location of three consecutive trees with Koala scats within 100 metres:

“Koala high use area” means an area where any of the following features are located:

i. Three out of any ten consecutive trees inspected are found to have Koala scats beneath them; OR

ii. a sighting of Koala; OR

iii. a tree with more than 20 Koala scats beneath; OR

iv. any trees with Koala scats of two distinctly different sizes beneath;

AND

i. where the subsequent star search locates at least an additional three out of any ten consecutive trees inspected as having Koala scats beneath them.

The Threatened Species Licence (5.2.2(c)) requires that Forests NSW must conduct “star searches” for a 100 metre radius around high use trees to delineate Koala High Use Areas. Star searches involve thoroughly searching for Koala scats along eight transects radiating out from a Koala high use tree (i.e. >20 scats) for at least 100m.

The Threatened Species Licence 6.14 (c)(i) states *“Specified forestry activities are prohibited from within all Koala high use areas. A 20 metres wide exclusion zone must be implemented around the boundary of Koala high use areas”*.

3.2.2. NEFA’s Complaints.

On NEFA’s 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 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.



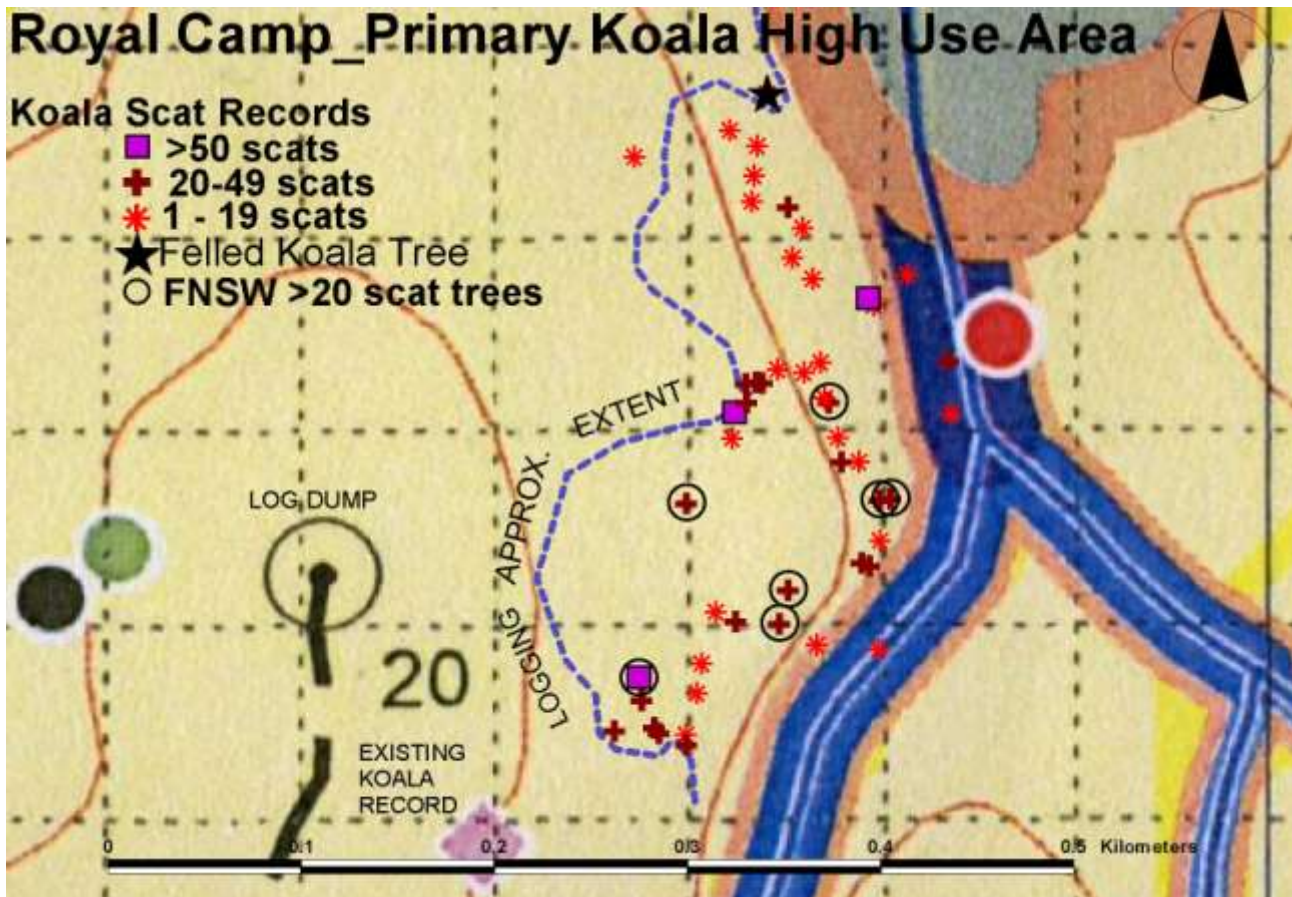
Edge of Koala High Use Area found on 5th August, the Forest Red Gums in the background had all been used by Koalas, many of them designated High Use Trees due to the presence of >20 scats about their bases, none of them had been identified by the Forestry Corporation.

NEFA 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.

NEFA provided GPS co-ordinates for all Koala records obtained on the 4th and 5th August to both EPA and Forests NSW (in the early hours of the morning of the 6 August), along with a map clearly showing their location. We phoned the EPA on the evening of the 5th. We wrote to the Ministers and issued a media release calling on logging of the Koala High Use Area to be stopped. Logging stopped the afternoon of the 6th.

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. Despite days of searching by both Forestry Corporation and EPA it was apparent to us by the lack of disturbance to leaf litter and grass that numerous trees we searched had still not been searched before us.



Map showing locations of trees beneath which Koala scats were recorded and those identified by Forests NSW for star searches (K >20) in the Koala High Use Area east of Log Dump 20 from NEFA Audit Report..

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. One Koala High Use Area was found to have had logging within it. 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 K trees and those with >20 scats). In the older logged area no Koala feed trees had been marked, though many Koala feed trees were marked in recently logged areas.

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. Given that the EPA undertook a post-logging assessment in the vicinity of Log Dump 5 we assume the limited evidence of searching we found was undertaken by them. It thus appears that Forests NSW again logged without making any attempt to thoroughly

search for Koala scats, and that the token EPA audit was inadequate to identify either Koala high use trees or High Use Areas.

For Koalas, NEFA's Audit Report identified that the Forestry Corporation had failed to meet the legal requirements of their Threatened Species Licence:

1. to identify, protect and mark 10 Koala feed trees per 2 hectares (TSL 6.14(c));
2. to thoroughly search for Koala scats 300m ahead of forestry operations when undertaking mark-up (TSL 5.2.1(b), 5.22 (a)(b));
3. to undertake "star searches" around high use Koala trees (TSL 5.22 (c)); and
4. to delineate and protect Koala High Use Areas (TSL 6.14(c)).

In 2013 NEFA became alarmed that the Forestry Corporation was proposing to commence logging in Compartment 13. 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 young. Within both the areas inspected, our findings demonstrate that extensive sections qualify as Koala High Use Areas. Leading NEFA to conclude:.

NEFA have formed the opinion that the 1,500ha comprising Compartments 13, 14, 15 and 16 of Royal Camp State Forest is of such importance for Koalas that further logging should not occur in these compartments and that they should be protected as a Nature Reserve specifically for Koalas. Most of the forest ecosystems represented within the compartments have not met their national reserve targets and thus 94% of the forest deserves protection just to contribute to attaining the national ecosystem targets for the State's reserve system.

3.2.3. EPA Response

The EPA responded quickly by having officers on site on 7 August. Though they apparently took no action when the Forestry Corporation burned a large part of compartment 15 and bulldozed tracks across 2 creeks. They also made no attempt to assess areas, particularly to ensure that adequate searches were being made for Koala scats, before the Forestry Corporation resumed logging in compartment 16.

The Forestry Corporation maintained that they had undertaken the required Markup Survey (5.1., 5.2.1.) and Koala Markup Search (5.2.2) two weeks earlier and not found any Koala scats, though admitted under questioning that they did not understand that the increased hollow-bearing tree prescription applied and that the marking up in that area had been cursory.

The EPA investigations confirmed the four Koala High Use Areas we had identified in compartment 15. Both the EPA and the Forestry Corporation focussed on the area near log dump 20 which was being actively logged. This was the area we reported on 6 August when we had only assessed its presence, but not extent. A subsequent inspection by us on 9th August located 23 Koala high use trees and 22 additional trees with 1-19 Koala scats beneath them. It is apparently a core breeding area with high usage by males, females and juveniles. The range of ages of scats showed long-term usage, with both old and numerous fresh scats.

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. They later undertook a number of star surveys which identified numerous high use trees and Koala High Use Areas. The following two maps are examples of the Forestry Corporation's star surveys that show that after our complaint the Forestry Corporation themselves recorded numerous high use trees within the vicinity of log dump 20 and active logging, with each "star search" being triggered by a high use tree.

The "star searches" themselves revealed numerous other high use trees, for example the second map is based on a Koala High Use Area first identified by the Forestry Corporation on 7 August (and reaffirmed on 14 August) that identified 6 additional high use trees were found in one star search within 200m of log dump 20: None of the additional trigger trees were subject to their required star searches.

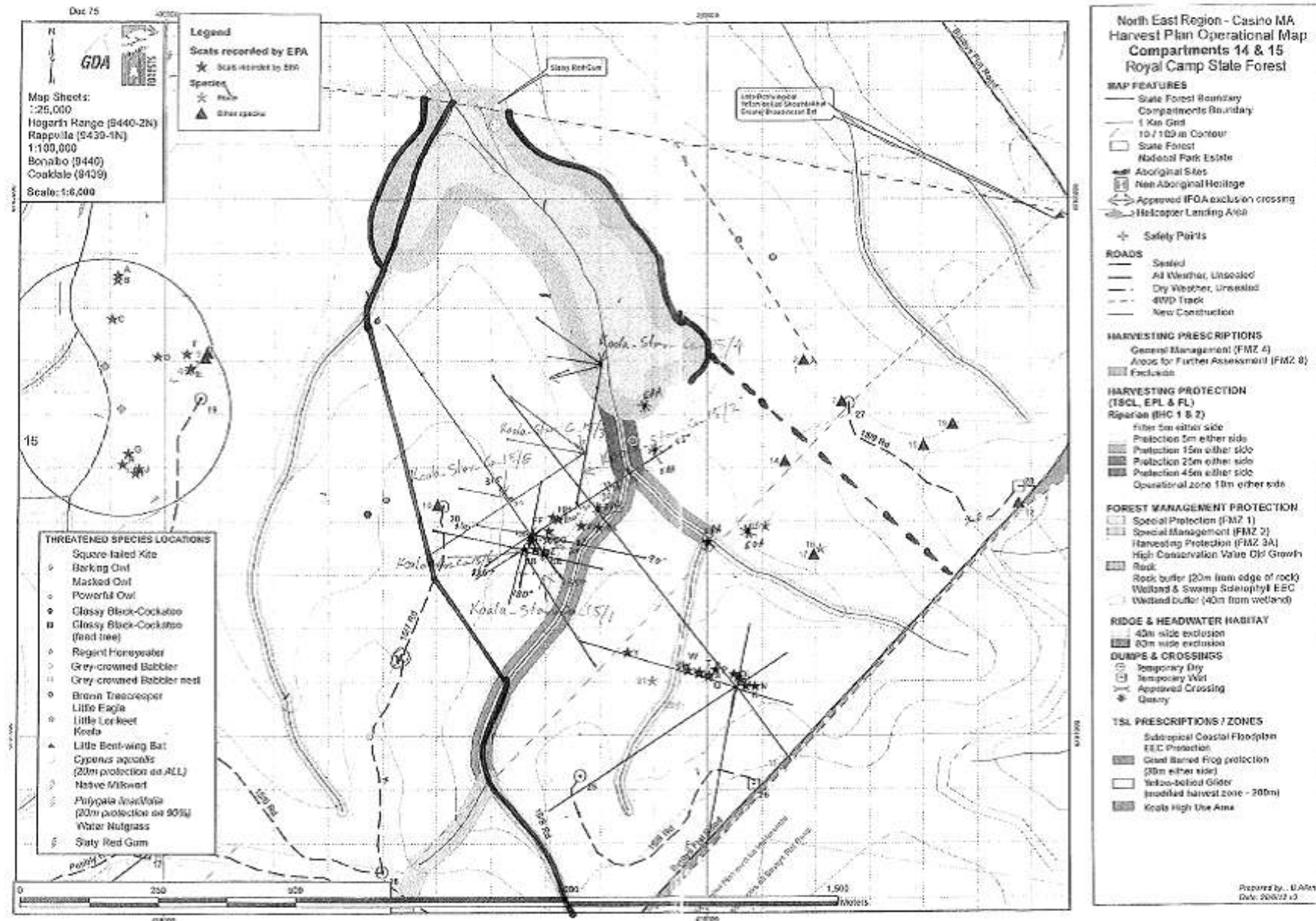
The agencies confirmed that there were numerous fresh Koala scats readily observable on the surface, without having to thoroughly search amongst the leaf litter and grass, though thorough searching amongst the litter and grass was necessary to locate most scats. It is thus inconceivable that the Forestry Corporation could have undertaken even a cursory search for Koala scats prior to logging without finding any.

Both the EPA and Forestry Corporation surveys confirmed that the Forestry Corporation were actively logging a Koala High Use Area near log dump 20 (and about to log other KHUAs) when NEFA intervened on 6 August 2012. This was within 300m of the log dump and was claimed to have been subject to a Mark Up Survey and Koala Mark-up Search. Both the EPA and Forestry Corporation surveys also confirmed the presence of Koala High Use Areas at all the sites identified in NEFA's Audit Report.

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 did not proceed to take any regulatory action over the logging of the Koala High Use Area in compartment 16 on the grounds that the logging in compartment 15 was a stronger case and they would only pursue one example.

KOALA SCAT RECORDS BY EPA AND STAR SURVEYS BY FORESTRY CORPORATION COMPARTMENT 15



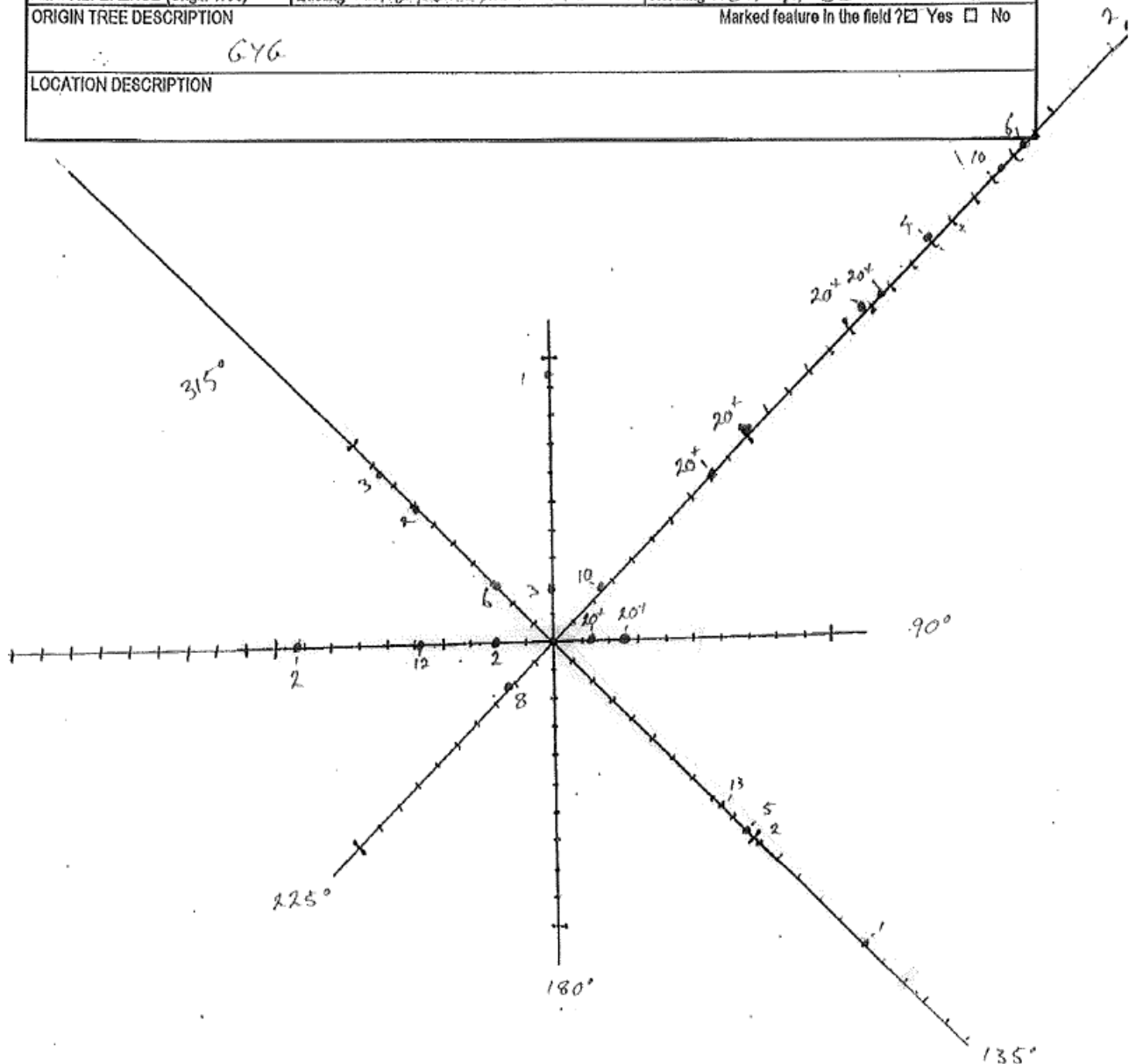
EXAMPLE OF KOALA STAR SURVEY: First identified by Forestry Corporation on 7 August within 200m of log dump 20, note finding of 6 additional trees with >20 Koala scats.

Doc 73



KOALA STAR SURVEY DIAGRAM – NORTH EAST REGION

M.A. <i>Casino</i>	CPT. Co. <i>15</i>	S.F. <i>Royal Camp</i>	DATE <i>14 Aug 2012</i>
OBSERVER(S)			
SURVEY CODE <i>KOALA STAR CA 15/6</i>		SURVEY TRIGGER <input checked="" type="checkbox"/> >20 scats	<input type="checkbox"/> scats of various size <input type="checkbox"/> Koala observed
AMG REFERENCE (Origin Tree)	Easting <i>489657</i>	Northing <i>6791351</i>	
ORIGIN TREE DESCRIPTION			Marked feature in the field? <input type="checkbox"/> Yes <input type="checkbox"/> No
<i>GYG</i>			
LOCATION DESCRIPTION			



Despite these findings the Forestry Corporation (Craig Busby, 19 April 2013) denied they had not searched the area before logging, responding to the EPA "Show Cause Letter":

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.

In February 2013 EPA (11/2/13) interviewed foresters responsible for the operation around log dump 20, who told the EPA that they hadn't changed the way they searched for Koala scats or recognise anything that would stand out in a negative light or acknowledge any problems.

The EPA (18 March 2013) identified 3 potential offences in Koala High Use Areas and 2 for failure to undertake Koala Mark Up Searches (TSL 5.2.2a and 5.2.2b). Inexplicably the offences of failing to conduct koala mark up searches in accordance with licence conditions 5.2.2 a and 5.2.2 b were later reduced to far less specific and relevant offences under conditions 5.1 and 5.2.1.

The EPA informed the Forestry Corporation on the 28 June that the “*EPA investigation identified significant breaches in contravention to the TSL. Specifically, EPA officers identified that:*

- a. 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
- b. 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.
- c. 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.

Despite the Forestry Corporation displaying no remorse or contrition, on 28 June 2013 the EPA issued FCNSW three penalty notices (and fines on \$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 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 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," 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."

It took a year for the EPA to respond to our complaints (a frequent problem). The EPA's (2013) belated report states:

In summary, the EPA's investigation determined that FCNSW had not adequately implemented koala protection prescriptions in parts of its operations, particularly around log dump 20 in compartment 15. The EPA identified that compartment mark up and searching was not conducted in adherence with the TSL in this area. The EPA also identified that timber harvesting had been conducted within areas considered to be koala high use.

The EPA considered that these breaches were significant and could have been prevented. As noted above the EPA issued FCNSW three penalty notices in relation to these matters.

One of the EPA's PNs was for *"failing to conduct a thorough search for, record and appropriately mark koala high use and intermediate use areas"* which related to their failure to undertake mark up surveys in accordance with TSL 5.2.1(a)(b) in the vicinity of log dump 20. They failed to address the Forestry Corporation's failure to undertake the more specific Koala Mark-up Searches required by 5.2.2 which were the substance of NEFA's complaint. These are the requirements for undertaking thorough searches for Koala scats 300m ahead of logging to identify Koala High Use Areas. Neither did they respond to NEFA's complaint that the Forestry Corporation had continued logging in compartment 16 without undertaking the Koala scat searches required by 5.2.2 and had consequently still logged Koala High Use Areas.

The EPA did investigate the Koala High Use Area we reported on 19 August 2012 in compartment 16, and told us on the site inspection of 24 August 2012 that their inspection confirmed it was a likely Koala High Use Area. The EPA (18 March 2013) recognise 3 offences for undertaking *"timber felling, construction and operation of snig tracks and bushfire hazard reduction work within Koala High Use Areas and within 20 metre wide exclusion zone in three areas"*. A penalty notice was eventually issued for the offence in compartment 15 and a Warning Letter for the burning offence in compartment 15, though the offence in compartment 16 was not pursued further. In relation to compartment 16 the EPA note:

The EPA further alleges that timber felling and the construction and operation of snig tracks were conducted within Koala High Use Areas and within the 20 metre wide exclusion zone south-west of log dump 7 in compartment 16 of Royal Camp State Forest. The EPA alleges that 7 trees were removed within koala high use areas. ... The EPA also alleges that 230m of snig tracks have been constructed and operated within the same koala high use area. The EPA has considered various evidence that supports this allegation.

In response to NEFA's complaint, the EPA (Gifford 13-9-13) responded: *"The EPA investigated this allegation and concluded that there was a failure to undertake adequate koala searches, which led to inadequate protection of koala habitat... Once again I acknowledge that the EPA failed to clearly explain its response to your allegation in this instance"*. NEFA finds the EPA's failure to

respond to the need for Koala Mark-up Searches and take any regulatory action unacceptable. This is the fundamental requirement for implementing Koala protection.

Despite the claim *“The EPA shares your concerns about the thoroughness of FCNSW searches and has raised this with them, resulting in their staff being retrained”*, the EPA’s inadequate reaction and the retraining did not result in identified improvements, as exhibited by the continued logging of Koala High Use Areas and Regional Forester, email to CEO Nick Roberts of 7 November 2012:

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 2013 NEFA became alarmed that the Forestry Corporation was proposing to commence logging in Compartment 13. 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 young. Within both the areas inspected, our findings demonstrate that extensive sections qualify as Koala High Use Areas. Leading NEFA to conclude:.

NEFA have formed the opinion that the 1,500ha comprising Compartments 13, 14, 15 and 16 of Royal Camp State Forest is of such importance for Koalas that further logging should not occur in these compartments and that they should be protected as a Nature Reserve specifically for Koalas. Most of the forest ecosystems represented within the compartments have not met their national reserve targets and thus 94% of the forest deserves protection just to contribute to attaining the national ecosystem targets for the State’s reserve system.

A subsequent inspection by the EPA (24 July 2013) of the two Koala High Use Areas found on 4 July 2013 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.

At their Minister’s insistence the EPA finally decided to undertake proactive action by undertaking an assessment of the regional significance of the Royal Camp Koala population. The region’s Koalas were identified as being in significant decline, and compartment 13 was found to have a resident population, leading EPA Chief Environmental Regulator, Mark Gifford (1 July 2014) to write to Forestry Corporation CEO, Nick Roberts, to provide them with a copy of Dr. Phillips report, noting:

The EPA recommends that no forestry activities occur in Royal Camp State Forest until such time as:

- 1. Appropriate mitigation measures are developed for the consolidated Coastal IFOA and*
- 2. Regional refinement of the EPAs koala habitat mapping project is undertaken in the Royal Camp area.*

The EPA will consider any other information that FCNSW can supply which clearly demonstrates how this important and declining koala population would be adequately protected from future forestry operations in Royal Camp State Forest.

3.2.4. Context.

NEFA had long been concerned with how adequately Koalas were being identified and protected during logging operations. We had identified our concerns that records were being ignored and that the apparent failure to undertake Mark Up Surveys most likely meant that Koalas were not being given the required protection at Yabbra, Girard and Wedding Bells SFs.

At Girard (Pugh 2010d) the Koala was not considered in the Threatened Species Survey Report and Harvesting Plan, despite the Harvest Plan Operational Map showing a Koala record in the adjacent compartment less than a kilometre away and the “Koala Fire Trail” being located within the harvestable area of Compartment 46. To confirm our fears our audit located a mother Koala with a baby on its back in compartment 55 on the edge of a heavily logged area with logging still underway.

It wasn't until our audit of Royal Camp SF, where we chanced upon a good breeding population of Koalas with numerous Koala High Use Areas, that we obtained the experience to audit for this species.

Even after our exposure of the problems at Royal Camp, in October-November 2012 the EPA audited Wang Wauk State Forest Compartment 116 and 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.

Logging operations commenced in Koreelah State Forest on 11 March 2013. On 9 April an injured Koala that “*seemed to have a very bad ear infection*” was found at the base of a tree while marking-up, it was left there and found dead the next day. The infection could have been of a wound caused by logging. Rather than being taken to a vet to determine whether it had been injured during logging it was buried on site.

NEFA were unaware of this when we briefly visited the area in May 2013 and, in the area we inspected, we saw no sign that anybody had inspected trees at ten metres intervals and thoroughly searched around their bases for Koala scats, and observed a large number of primary browse trees (in this case Tallowwood) that had been cut down with no evidence of searching around their bases. In response to our complaints the Forestry Corporation responded that they had been looking and only found low numbers of scats and that even though it was not identified as a Koala intermediate use area “*koala feed trees have been identified and marked for retention in the current harvest area despite there being no requirement to do so under the TSL*”. The EPA also investigated the area and, despite seeing a Koala apparently found no scats and no problems.

In our June 2013 audit NEFA assessed a randomly chosen 1 ha logged plot for tree retention and Koala searches. While logging debris and soil disturbance hampered searching for scats, all but 2 potential feed trees were able to be searched around a significant portion of their bases by us. It was evident that, as far as we could tell, not a single one of the trees we located had been searched by anyone before us - as evidenced by the intact litter. In one part of the transect we found 4 Tallowwoods with Koala scats (30, 5, 4, and 2) under them. The high use tree with 30 scats under it also had 2 smaller scats indicating the presence of a mother and juvenile. So in one randomly chosen small sample we found sufficient evidence to trigger a star survey and have the compartment identified as an intermediate use area. Given these results, and the observations of Koalas, we find it inconceivable that Koala High Use Areas were not present.

The most recent example of the Forestry Corporation’s unwillingness to protect threatened plants and Koalas was on private property at Whian Whian. The operation was undertaken by the same Forestry Corporation staff who oversaw logging operations in Royal Camp SF. The forester in charge of the operation, _____ had previously accompanied EPA on their searches for Koala scats in August 2012 and July 2013 during EPA investigations of NEFA’s reported Koala High Use Areas in compartments 15 and 13 of Royal Camp SF.

For private property the prescription is to exclude logging from within 20m of trees with 20 or more Koala scats under them. On NEFA’s first visit we found a Koala high use tree immediately adjacent to a new road. The tree was shown to both the Forestry Corporation and the EPA but they refused to mark the required exclusion zone around it.

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 after a NEFA survey found a road marked for construction through what should have been 20m exclusion zones for 8 Koala high use trees, over 60 Red Bopple Nut *Hicksbeachia pinnatifolia*, and 3 Slender Marsdenia *Marsdenia longiloba*.

The EPA sent a team in to help the Forestry Corporation, though refused to stop work. Three days after our request the track was constructed within what should have been 20m exclusion zones for 3 Koala high use trees, 7 endangered Slender Marsdenia, 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 Slender Marsdenia were killed, one injured and 3 are missing. One Arrow-head Vine later died. The fact that these breaches of the threatened species provisions of the PNF Code were knowingly committed by the Forestry Corporation, and under the supervision of the EPA after they had refused NEFA's request for a Stop Work Order, is reprehensible.

A community survey undertaken with the Forestry Corporation subsequently identified another 2 Koala high use trees that had the main access road constructed, and logging, within 20m, making a total of 8 Koala high use trees found within 20m of roads and tracks. The EPA's training and supervision seem to have had no beneficial effect.

3.3. Yellow-bellied Glider

Yellow-bellied Glider den and sap-feed trees are required to be protected, around these, and records of Yellow-bellied Gliders, 15 feed trees are required to be retained. As exemplified by Royal Camp, the Forestry Corporation rarely find the sap-feed trees that are present and often do not mark or protect the required feed trees. This time the Forestry Corporation had cut down an unmistakable Yellow-bellied Glider sap-feed tree and the EPA refused to investigate it. After rejecting expert evidence and denying they were able to recognise such a clear example, the EPA finally admitted it was a breach but still refused to do anything about it.

The Yellow-bellied Glider is a Vulnerable species. On DECCW's Threatened Species website identifies loss of hollow-bearing and feed trees as threats. Identified recovery actions include retaining den trees and recruitment trees, as well as food resources, particularly sap-feeding trees. The Comprehensive Regional Assessment expert panel (Environment Australia 1997) identified the principal threat to this species as *"Logging that fails to retain a high proportion of large trees and hollows"*.

Yellow-bellied Gliders live in family groups with home ranges of 30-60ha. They den in large tree hollows and forage over eucalypts for nectar and insects. They chose special trees to tap for sap by chewing, often V shaped, channels into the bark to concentrate sap for feeding.

It is an inadequately reserved species as in the CRA it was set a reserve target for 9,240 breeding females distributed across 8 populations (of 1,155 females each). The outcome was the reservation of a total of 1,636 breeding females, with 18% of the mean target achieved (6-33%).

3.3.1. Legal Requirements

An adequately trained person must conduct a thorough search for, record and appropriately mark all Yellow-bellied Glider sap-feed trees prior to logging during Mark Up Surveys. Within 100 metres of sap-feed trees and 200m of call-detection sites where Yellow-bellied Gliders have been previously recorded, 15 potential feed trees (trees that shed their bark in long strips) must be retained.

Retained feed trees must be mature and late mature trees with good crown development, and must be marked for retention.

3.3.2. NEFA's Complaints.

The felling of an obvious Yellow-bellied sap-feed tree occurred in the vicinity of log dump 24. The sap-feed tree had been logged for timber with its trunk removed and only the tree head remaining. In Royal Camp no other sap-feed trees were observed in the vicinity of this tree, indicating that it would have been of exceptional importance to the family group that tapped it. The feed marks were large and obvious, and are likely to have extended down the trunk that was removed.



Yellow-bellied Glider sap-feed tree felled for timber. (NEFA Audit Report)

Below logging dump 22 there is a call detection site for Yellow-bellied Glider. Within this area not a single tree was marked as a feed tree. The call detection site was within an exclusion area, though logging extended to within 150m of the record. It is unlikely that the required feed trees were retained as the exclusion area is suffering from dieback (BMAD) and the bark shedding eucalypts within it do not have good crown development, and retained trees in the logging area are mostly spotted gum and therefore do not satisfy criteria for feed trees, with a number of potential feed trees logged.

NEFA complained that Forests NSW had failed to meet the legal requirements of their Threatened Species Licence for Yellow-bellied Glider by:

1. failing to identify, mark, and retain an obvious Yellow-bellied Glider sap-feed tree and instead cutting it down (breaches TSL 5.2.1, 5.6 (f) iv, 6.17 (f));
2. failing to identify and mark 15 feed trees within 100m of the sap-feed tree (breaches TSL 6.17 (g)); and,
3. failing to identify and mark 15 feed trees within 200m of a call-detection record (breaches TSL 6.17 (g)).

3.3.3. EPA Response

NEFA first reported (along with a photo) the logged Yellow-bellied Glider sap-feed tree to the EPA at a meeting on 31 July 2012. NEFA met with EPA outside the forest on 9 August 2012 on the understanding that we were going to show them a variety of breaches, including the felled Yellow-bellied Glider sap-feed tree (for which we had not yet provided a GPS locality). When they refused

to let us accompany them we described the location of the tree and they assured us it would be investigated. The GPS locality for these breaches were provided to the EPA in our report of 20 August.

We succeeded in showing this tree to the EPA on our second attempt on 24 August 2012. Fauna expert [redacted], who has extensive field experience with Yellow-bellied Gliders, was engaged by NEFA to attend and confirmed to the EPA that there was no doubt that the feeding marks were made by a Yellow-bellied glider, discussing in detail the characteristic signs and method of Yellow-bellied Glider sap feeding, showing them the obvious chewing and claw marks, and pointing out a likely nearby den tree.

NEFA considered this a major licence breach as we were frequently finding that the Forestry Corporation were not finding and protecting sap-feed trees, and subsequently raised this tree on a number of occasions in discussions with the EPA, who never said they doubted [redacted]'s identification – we would have obtained corroborating evidence had we thought it was required. Our understanding was that EPA accepted our evidence and were going to take action on it. We were thus shocked when a year later the EPA stated *“EPA officers found that the tree referred to by NEFA had been felled. Whilst EPA officers observed incisions as described by NEFA, the EPA could not determine beyond reasonable doubt whether the incisions had been made by a yellow bellied glider. As such no regulatory action was taken”*.

NEFA complained to Mark Gifford about the EPA claims, including a response from [redacted]

I have had considerable experience with Yellow-bellied Gliders and their sap-feeding methods, both in northern-eastern and south-eastern NSW and in the Victorian Central Highlands and East Gippsland areas over the past four decades and the incisions on the Royal Camp State Forest tree were among the clearest and most readily identifiable that I have seen.

... I find it inconceivable that the EPA was unable to positively identify the subject tree as a Yellow-bellied Glider sap feed tree from the incisions present, and as defined in the prescription for this species under the terms of the NSW Forestry Corporation's Threatened Species Licence



Photo provided to EPA by [redacted] with clear evidence of chewing and obvious claw marks.

Mark Gifford responded that *“We acknowledge the expertise of [redacted] and do not contest this advice, however given the prioritisation, a regulatory decision was made not to issue a penalty notice in this instance”*. The EPA never raised this issue with the Forestry Commission and did not apparently make any attempt to investigate this matter. The EPA claimed not to accept [redacted] advice in their first response, and it is revealing that the EPA are now, once again, (after

doing nothing about it) claiming they accept that it was a Yellow-bellied Glider sap-feed tree and are claiming they *“will monitor this aspect in future”*.

The EPA are obviously inadequately trained if they were unable to recognise such distinctive Yellow-bellied Glider feeding marks for themselves, which renders them incapable of auditing this prescription. In this case they could easily have had the photos verified if required.

The cutting down of this sap feed- tree should have been treated as a serious offence. It is the latest in a succession of failures by the Forestry Corporation to identify and protect Yellow-bellied Glider feed trees. They should be prosecuted as serial offenders. Last time the EPA assured us they would be making the *“marking and protection of yellow-bellied glider sap feed trees as one of its priorities”*, and that promise didn't last a month. It is apparent that the EPA have neither the will nor the expertise to audit this prescription.

3.3.4. Context.

The first prosecution of Forests NSW by the NPWS in the mid 1990s was for cutting down a Yellow-bellied Glider sap feed- tree on the nearby Richmond Range, and Forests NSW were then fined \$2,000.

At Yabba SF (Pugh 2009) the Forestry Corporation identified locations for 29 Yellow-bellied Gliders based on calls and another 3 based on sightings. During NEFA's audit experienced observers identified and documented 11 Yellow-bellied Glider sap feed trees, with a number of others observed incidentally not documented. Not one of the 15 feed trees required to be marked around recorded locations had been marked in the field (and marking of other habitat trees was grossly deficient and came nowhere near meeting this requirement) and none of the sap-feed trees identified by NEFA, or the corresponding feed trees, had been marked. A hot fire had burnt the tree heads so it was not possible to determine how many sap-feed trees had been felled. Following our complaint the EPA made no attempt to assess how many of the required feed trees had not been retained (the heavy logging had obviously removed many) or how many other sap-feed trees had been missed. The EPA's response (19 May 2010) was simply *“DECCW has issued Forests NSW a penalty notice in regard to the failure to mark Yellow-bellied Glider Sap feed trees and feed trees”*. This equates as a \$300 fine for failing to identify and mark over 11 Yellow-bellied Glider sap-feed trees, and failing to mark over a six hundred other feed trees in the vicinity of the sap-feed trees and other records. It remained unknown as to how many of the required feed trees had been logged.

The EPA refused our repeated requests to respond to complaints of two Yellow-bellied glider sap-feed trees that went unidentified in logging at Doubleduke SF (ie Pugh 2010), despite being shown one of them on the ground and auditing the area. In response to our complaint that the EPA failed to take action or mention these breaches in their responses to us, they finally responded to our repeated complaints in May 2013. In relation to the complaint of June 2010 they stated *“1 TSL breach Condition 6.17(g)v. EPA officers identified a YBG feed tree within NEFA's sample area, FCNSW had not marked 15 suitable feed trees within a 100m radius. EPA Action: The EPA assessed that the scale harm in this instance was minor and did not warrant enforcement action. ...On 20 November 2012 EPA wrote to FCNSW ...ask that these matters be given consideration during future planning for operations.”* For the tree reported to the Environment Minister in January 2011 they responded *“Area not visited in the field. ...similar issued (sic) were however addressed in other areas of compartment 145 ...”*

At Girard SF NEFA (August 2010) complained that not a single tree was found to be marked as Yellow-bellied Glider feed trees in an area representing the combination of 200m modified logging buffers around a cluster of 5 observation records in compartment 55, and that it appeared that the

required number of trees had not been retained. The EPA (25 August 2011) responded that because of claims of “thick and impenetrable” understorey the feed trees were not required to be marked and that a suitable amount of trees had been retained. Most of the area NEFA assessed did not have a thick and impenetrable understorey.

At Wedding Bells (Pugh 2011) the EPA did at least issue a warning to Forestry Corporation for not properly marking a Yellow-bellied Glider sap-feed tree, damaging it by dropping trees on it and leaving debris around its base. This tree had not been identified and protected in the Mark Up Survey despite the Forestry Corporation’s own fauna surveyors identifying it by a “YBG” and arrow pointing to it sprayed onto a tree alongside the track. The EPA (3 July 2012) responded:

The EPA has determined that a yellow-bellied glider sap feed tree in Compartment 548 of Wedding Bells State Forest was not properly marked in the field and appears to have suffered some damage in the course of harvesting operations. Debris greater than one metre high within five metres was also observed by EPA officers. The EPA assessed that sufficient suitable trees had been retained within 100 metres of this feed tree but not all such trees were marked for retention.

The EPA has issued Forests NSW with a written warning in respect to three breaches of the TSL. The EPA will continue to monitor Forests NSW’ performance regarding marking and protection of yellow-bellied glider sap feed trees as one of its priorities when assessing the compliance of Forests NSW operations with the TSL.

This response by the EPA of making the “*marking and protection of yellow-bellied glider sap feed trees as one of its priorities*” was given just before we reported the breach in Royal Camp which the EPA decided to ignore.

The example of a Yellow-bellied Glider Sap feed tree actually being killed and logged was the clearest and simplest evidence of a breach of this prescription we had found since the mid 1990’s and we were thus astounded that the EPA refused to investigate it, particularly given Forestry Corporations recent history of ignoring protection for such trees.

4. FOREST HEALTH

Vast swathes of NSW's degraded forests are now affected by dieback primarily associated with logging, lantana and Bell Miners. Over 100,000 hectares of forests in NSW are already affected by Bell Miner Associated Dieback (BMAD) and millions of hectares have been identified as potentially susceptible. BMAD is displacing numerous threatened species, killing ecosystems, and degrading productivity. Despite recognising BMAD as a major threat the Forestry Corporation refuse to map its extent or target it for rehabilitation. They refuse to modify their practices despite their own trials showing that their logging is making BMAD worse. At Royal Camp BMAD was found in wetter forests near the main creek in compartment 14 and appeared likely to be exasperated by the logging. The EPA refused to investigate the issue or take any meaningful action to redress the problem.

The NSW Scientific Committee's (2008) final determination for listing 'Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners' as a Key Threatening Process notes that *Broad-scale canopy dieback associated with psyllids and Bell Miners usually occurs in disturbed landscapes, and involves interactions between habitat fragmentation, logging, nutrient enrichment, altered fire regimes and weed-invasion (Wardell-Johnson et al. 2006). ... Over-abundant psyllid populations and Bell Miner colonies tend to be initiated in sites with high soil moisture and suitable tree species where tree canopy cover has been reduced by 35 – 65 % and which contain a dense understorey, often of Lantana camara.*

Many factors contribute to Bell Miner Associated Dieback. We do know that BMAD is related to prolonged outbreaks of abundant psyllids, that high densities of Bell Miners facilitate high populations of psyllids, and that Bell Miners are advantaged by logging operations that create low dense understories of lantana, open midstories and sparse overstories.

The strong correlation between logging, lantana invasion, Bell Miners and dieback is self evident in the regions forests. The solution to BMAD is to stop logging affected and susceptible forests and to rehabilitate affected areas to reduce their suitability for Bell Miners. See:

[http://nefa.org.au/audit/BellMinerToll/For Whom the Bell Miners Toll.pdf](http://nefa.org.au/audit/BellMinerToll/For_Whom_the_Bell_Miners_Toll.pdf)

A sustainable response to Bell Miner Associated Dieback involves:

- a. Identifying and mapping all affected and susceptible areas;
- b. Placing all affected and susceptible areas under a logging moratorium until such time as appropriate management responses that restore ecosystem health and functioning are identified;
- c. Undertaking rehabilitation works (i.e. lantana control) in affected stands; and,
- d. Monitoring effects of any treatment and refining methods before repeating it.

Despite making BMAD a priority issue the EPA continue to refuse to police the problem, preferring to pass the buck to a powerless advisory group without the resources to investigate cases. BMAD continues to degrade the quality of the environment while the EPA turn a blind eye to the fact that the logging operations it approves and oversees are the primary factor responsible for the problem. The EPA has responsibility for the Protection of the Environment Operations Act 1997, which includes as an objective:

- (a) *to protect, restore and enhance the quality of the environment in New South Wales, having regard to the need to maintain ecologically sustainable development,*

It is therefore not acceptable that the EPA effectively abrogates its responsibilities to protect, restore and enhance ecosystem health and productivity. The EPA has ignored its responsibilities for Bell Miner Associated Dieback for too long.

4.1.1. Legal Requirements

Undertaking activities that promote BMAD, and not restoring BMAD affected ecosystems to a healthy state, clearly contravenes the basic tenets of Ecologically Sustainable Forest Management, the Forestry Act 2012 and Integrated Forestry Operations Approvals, and Australia's national and international commitments.

The Integrated Forestry Operations Approval (IFOA) clearly gives the Forestry Corporation a legal obligation to implement ESFM. It is equally clear that the Forestry Corporation's undertaking of activities that promote BMAD is in contravention of their legal obligations. The IFOA (2.7.1) requires that in carrying out forestry operations "*SFNSW must give effect to the principles of ecologically sustainable forest management as set out in Chapter 3 of the document entitled, "ESFM Group Technical Framework".*

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

3.2.1.2 The productive capacity and sustainability of forest ecosystems

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

3.2.1.3 Forest ecosystem health and vitality

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

The IFOA (4.26) also requires:

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

4.1.2. NEFA's Complaints.

Two Key Threatening Processes occur in Royal Camp State Forest and are ignored in the Harvesting Plans. Both are being aggravated by the logging:

- Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners

- Invasion, establishment and spread of Lantana (*Lantana camara* L. *sens. lat*)

In Royal Camp State Forest both lantana and Bell Miner Associated Dieback (BMAD) have principally affected the moister riparian areas within the compartments. In the worst affected areas there are numerous sick and dead trees. The degraded nature of the riparian areas can be largely attributed to past logging and burning regimes removing a natural moist understorey of predominantly rainforest species and promoting lantana and thus Bell Miners (which exclude other birds and facilitate lerp predation on retained trees and regrowth, often leading to tree death). The extensive soil disturbance, destruction of understorey shrubs and opening of the canopy resultant from these operations will facilitate the expansion of lantana. This will facilitate an expansion and dominance by Bell Miners and the spread of BMAD. The aggressive expansion of Bell Miners into logged areas is already apparent.

Prior to logging, the area around log dump 22 had all the appropriate triggers for BMAD; high soil moisture, affected tree species, reduced canopy cover due to past logging, extensive dense understorey areas of lantana, an established Bell Miner colony and dieback of eucalypts. Increased disturbance will obviously result in a spread of BMAD on such a site. It should have been identified in the Harvesting Plan and targeted for restorative management.



Logging into edge of BMAD affected forest near log dump 22. (NEFA Audit Report)

Both the forest ecosystems being affected, Wet Flooded Gum-Tallowwood and Lowlands Spotted Gum-Box, only achieve a third of their national reserve targets. They are both poorly reserved ecosystems. The Wet Flooded Gum-Tallowwood ecosystem is the most severely affected and

requires rehabilitation works to control lantana. The severity of BMAD and its spread into Lowlands Spotted Gum-Box is being facilitated by the logging operations.

4.1.3. EPA Response

The EPA response was that:

“EPA officers determined that this area is susceptible to BMAD, noting presence of Bell Miners, active dieback in surrounding areas, lantana understorey”

No specific action taken but the broader issue is part of the EPA compliance priorities”.

There is no evidence that the EPA made any attempt to raise this issue with the Forestry Corporation or take any investigative action.

4.1.4. Context.

The Forestry Corporation recognised dieback associated with psyllids as a significant problem in north-east NSW in the 1940s (Campbell and Moore 1943). Stands of Sydney Blue Gum were reported as dying during the period 1949 to 1958 near Wyong.

Tens of thousands of hectares of forest in the Border Ranges Region are affected by BMAD as forests are invaded by lantana and Bell Miners following logging. The outcome is increasing dominance by dead and dying trees. The local community has been requesting that the Forestry Corporation recognize the relationship of BMAD with logging and deal with the problem since at least 1993 (Pugh 2014).

The Forestry Corporation has consistently refused directions to map BMAD in their harvesting plan process and develop rehabilitation strategies since 1997. Attempts to systematically map BMAD across the landscape were initiated then, though it was not until 2004 that the distribution of BMAD was mapped across the Border Ranges, even then many affected areas were unaccountably missed. Management trials in 2006 and 2007 proved that the Forestry Corporation’s management was the problem, so they stopped monitoring the outcomes. Since then the Forestry Corporation have been targeting BMAD affected forests for intensive logging and intentionally leaving destroyed ecosystems behind. (Pugh 2014)

The State and Commonwealth reviews of the Regional Forest Agreement (RFA) recognize the significance of BMAD. The seriousness of BMAD is stated in the NSW & CoA (2009) 5 year review of the RFA:

The resultant cycle of tree stress commonly causes the eventual death of forest stands, and serious ecosystem decline. In NSW the potential impact of BMAD-induced native vegetation dieback represents a serious threat to sclerophyll forest communities, particularly wet sclerophyll forests, from Queensland to the Victorian border. The forests most susceptible to dieback are those dominated by Dunn’s white gum (Eucalyptus dunnii), Sydney blue gum (E. saligna), flooded gum (E. grandis) and grey ironbark (E. siderophloia). There is also evidence that some normally non-susceptible dry sclerophyll types may be affected when dieback is extreme. Current estimates place the potential at-risk areas at a minimum of approximately two and a half million hectares across both public and private land tenures in NSW.

BMAD is emerging as a pressing forest management issue in both the UNE and LNE regions. The potential impacts include:

- *degradation of sclerophyll forest ecosystems across the UNE and LNE*
- *reduction in diversity and abundance of threatened flora and fauna species including Dunn's white gum and rufous bettong*
- *increased weed invasion and associated displacement of native forest species.*

Dieback-affected areas are located in the catchments of the major rivers of the North Coast of NSW including the Tweed, Richmond, Clarence, Macleay and Hastings. Maintenance of water quality in these river systems is critically dependent on maintenance of healthy forest cover over the catchment uplands. Bell miner associated dieback has the potential to degrade these forests, and consequently impact negatively on rivers and catchment communities through increased sediment and nutrient loads, and increased frequency and intensity of flooding.

As shown in Yabba State Forest (Pugh 2009), the Forestry Corporation have been targeting BMAD affected forests for intensified logging without attempting any rehabilitation works in a manner that they know will promote lantana, Bell Miners and BMAD. While they now give token recognition to the existence of BMAD in their harvesting plans they still refuse to map its extent, refuse to acknowledge the presence of lantana or BMAD in their rehabilitation plans and refuse to undertake rehabilitation unless forced to. They do this because the EPA is complicit.

NEFA have been trying for years to get the Environmental Protection Authority to take action on this issue and to stop the Forestry Corporation from targeting BMAD affected and susceptible stands for logging, and to rehabilitate areas after logging. BMAD has been specifically identified in NEFA reports and audits of logging in Yabba (2009), Royal Camp (2012), Koreelah (2013), Richmond Range (2014) and Donaldson (2014) State Forests. The EPA has repeatedly refused to do anything about it. The chair of the BMAD working group took the EPA's CEO Barry Buffier on a tour of BMAD rehabilitation sites in 2013.

In Yabba State Forest NEFA (Pugh 2009) found that the Forestry Corporation made no attempt to delineate the area affected by dieback, logged most of the healthiest trees remaining, and had no intention to rehabilitate the severely degraded "forest" left behind. The forestry operations greatly compounded the existing BMAD problems and left the dieback areas in a parlous state. The outcomes from this logging and burning of the dieback areas were significant reductions in canopy cover, further degradation of the understorey, and prolific weed growth, particularly of lantana.



LOGGED BMAD YABBRA SF 2009.

In EPA's response (DECCW, 19/5/2010) they dismissed NEFA's complaints regarding BMAD on the spurious grounds that the logging, burning and subsequent weed proliferation that occurred in and adjacent to an existing BMAD area could not be proved to have affected it:

DECCW notes your concerns regarding Bell Miner Associated Dieback (BMAD) and the principles of ecologically sustainable forest management. It is noted however that the NSW Scientific Committee's determination in relation to broad-scale canopy dieback associated with psyllids and Bell Miners "involves interactions between habitat fragmentation, logging, nutrient enrichment, altered fire regimes and weed-invasion". The Scientific Committee's determination also notes that "at present, no single cause explains this form of dieback. And

it appears that 'Forest eucalypt associated with over-abundant psyllids and Bell Miners' cannot be arrested by controlling a single factor". An Inter-agency BMAD working group is working to improve knowledge on the interrelation of land management activities and the prevalence of BMAD.

...

As noted above, the NSW Scientific Committee's determination notes that there is inadequate information available to determine if Bell Miner populations and Bell Miner associated Dieback has been favoured by these logging and burning operations.

This is an abomination of the "Precautionary Principle" in that lack of certainty about the interaction of known causative agents of BMAD is used to justify undertaking activities known to contribute to dieback. What is most reprehensible is that EPA (DECCW) did not consider that the undertaking of activities that were likely to aggravate the BMAD, a Key Threatening Process, even warranted documenting and monitoring.

Most of the retained trees quickly succumbed to dieback, leaving swathes of dying forest. Following NEFA's further complaint about the dying forest, Forestry Corporation's CEO Nick Roberts inspected the forest on 13 December 2012 in company with NEFA. On that inspection the Forestry Corporation agreed there was poor regeneration, and undertook to implement rehabilitation works to control weeds and plant trees in areas of poor regeneration. Though they still refused to acknowledge the presence of severe BMAD, nor the measures needed to successfully redress it, in their rehabilitation plan. The EPA refused NEFAs frequent requests to follow up on the outcomes from BMAD at Yabba.





BMAD AFFECTED FOREST 3 YEARS AFTER LOGGING. YABBRA 2012.

For Richmond Range SF compartments 327&328 the harvesting plan states *“The health of the stand is being affected by Bell Miner Associated Dieback”*, yet in response to our complaints the EPA (16/4/14) acknowledged the problem but claimed *“EPA officers did not observe Bell Miner Associated Dieback”*, and flagged it as an issue for *“ongoing work”*.

For Koreelah State Forest where the Forestry Corporation were logging in and adjacent to BMAD areas they had mapped in 2004 (and adjacent to the Dunn's White Gum EEC), the EPA (18 November 2013) responded:

EPA officers have collected data from Koreelah State Forest and this information has been provided to the BMAD working group. The data will assist in continued research on BMAD. Such research will inform the development of strategic cross tenure BMAD landscape management actions in the future.

...

The EPA has raised with FCNSW the risk that weeds pose to the area's regeneration and future health.

NEFA (Pugh 2014) recently prepared a review of BMAD in the Border Ranges Region which involved inspections of the Forestry Corporation's 2006 and 2007 management trials in Donaldson and Mt. Lindesay State Forests. These were found to be abject failures in that they had not reduced lantana, Bell Miners or dieback, and appeared to have aggravated all three. In response to our report the EPA (Barry Buffier 28 July 2014) responded:

The EPA identified forest health as a key environmental compliance priority in the EPA's Crown Forestry Strategy for 2013/14. This included explicitly identifying BMAD as a compliance focus. By explicitly identifying BMAD in the Crown Forestry Compliance

Strategy, the EPA has raised BMADs profile within the community, gathered information regarding its prevalence in audited areas and provided observations of BMAD forests directly to the BMAD Working Group. The EPA has also raised concerns about the potential impacts of logging in BMAD susceptible areas directly with the Forestry Corporation of NSW.

... the current coastal IFOAs include 'non-licence terms' that are open to interpretation and do not always deliver against their intended outcomes. ...

Referring complaints about logging to the BMAD Working Group is an abrogation of the EPA's responsibilities to protect the environment. The BMAD Working Group has no authority or ability to intervene and investigate impacts or monitor outcomes. Dealing with cases of BMAD is outside the ambit of the working group, who haven't even met for months.

Despite making BMAD *environmental compliance priority* the EPA have taken no action to stop further degradation of BMAD affected and susceptible forests. They are merely passing the buck to a powerless advisory group. BMAD is a recognised Key Threatening Process having a significant, and growing, impact on a host of threatened species and ecosystems, contrary to the ecological sustainability criteria of the IFOA. It is reprehensible that the EPA continue to refuse to address the problem and its causes.

It is well past time for the EPA to stop pretending to do something about BMAD and to instead take effective action to stop the spread of BMAD and begin the rehabilitation of affected stands.

5. REFERENCES CITED

Campbell, K.G. and Moore, K.M. (1943) An Investigation of the Food of the Bell Bird *Manorina melanophrys* Latham. Pp. 97-8 in *What Bird Is That*, ed. N.N. Cayley. Angus and Robertson, Sydney.

Environment Australia (1999) Response to Disturbance of Forest Species in CRA Regions in NSW - Upper North East and Lower North East Regions. A project undertaken for the Joint Commonwealth NSW Regional Steering Committee as part of the NSW Comprehensive Regional Assessments, Project NA 17/EH, New South Wales and Commonwealth Governments.

Mackowski, C.M. (1984), The ontogeny of hollows in blackbutt (*Eucalyptus pilularis*) and its relevance to the management of forests for possums, gliders and timber. Pages 553-67 in *Possums and Gliders*, ed. by A.P. Smith and I.D. Hume, Australian Mammal Society, Sydney

Mackowski, C.M. (1987), Wildlife hollows and timber management, thesis for Master of Nat. Res., University of New England, Armidale, N.S.W.

NSW&CoA (2009) A Draft Report on Progress with Implementation of the New South Wales Regional Forest Agreements (RFAs), North East RFA, Eden RFA, Southern RFA, A report providing information to enable public representations on the implementation of the RFAs. NSW State and Commonwealth Governments.

Pugh, D. (2009) Preliminary Audit of Yabbara State Forest Compartments 162 and 163. North East Forest Alliance, December 2009. http://nefa.org.au/wp-content/uploads/2011/02/Audit_Yabbara_Dec2009.pdf

Pugh, D. (2010a) Preliminary Audit of Yabbara State Forest, Compartments 162 and 163', Supplementary Report. North East Forest Alliance, 1 February 2010. http://nefa.org.au/wp-content/uploads/2011/02/Audit_Yabbara_Supp1_2010.pdf

Pugh, D. (2010b) Preliminary Audit of Doubleduke State Forest Compartments 144, 145 and 146. North East Forest Alliance, June 2010.

http://nefa.org.au/audit/Doubleduke/Prelim_Audit_Doubleduke_SF_1.pdf

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

Pugh, D. (2010d) Preliminary Audit of Girard State Forest Compartments 44, 45, 46, 54, 55 and 56. North East Forest Alliance, August 2010.

http://nefa.org.au/audit/Girard/Preliminary_Audit_of_Girard_State_Forest_1.pdf

Pugh, D. (2011) Audit of Compliance of Forestry Operations in the Upper North East NSW Forest Agreement Region. North East Forest Alliance, February 2011.

Pugh, D. (2011c) Wedding Bells State Forest Supporting Report, North East Forest Alliance, July 2011.

Pugh (2012e) NEFA Audit of Royal Camp State Forest. North East Forest Alliance.

http://nefa.org.au/audit/RoyalCamp/NEFA_Audit_Royal_Camp_SF.pdf

Pugh (2014) For Whom the Bell Miners Toll. North East Forest Alliance.

http://nefa.org.au/audit/BellMinerToll/For_Whom_the_Bell_Miners_Toll.pdf

Recher, H.F., Rohan-Jones, W. and Smith, P. (1980), Effects of the Eden woodchip industry on terrestrial vertebrates with recommendations for management, Forestry Commission of N.S.W. Res. Note 42.

Saunders, D.A. (1979), The Availability of Tree Hollows for Use as Nest Sites by Whiter-tailed Black Cockatoos, Aust. Wildl. Res., 6: 205-16.