

## AUDIT REPORT – COOMORE-EULIGAL STATE FOREST, COMPARTMENTS 216 & 217

<b>Auditee:</b>	FORESTRY CORPORATION OF NSW (FCNSW)
<b>Audited State Forest &amp; Cpts:</b>	COOMORE-EULIGAL STATE FOREST, COMPARTMENTS 216 & 217
<b>Region:</b>	Brigalow – Nandewar Integrated Forestry Operations Approval (IFOA)
<b>Date/Audit timing:</b>	Field audit inspection 17 September 2014. Audit debrief with FCNSW staff held on 18 September 2014.
<b>Type of audit:</b>	Compliance
<b>Purpose of audit:</b>	Report on the level of compliance with conditions and environmental performance in line EPA compliance priorities.
<b>Audit objectives:</b>	<ol style="list-style-type: none"> <li>1. Assess compliance against audit criteria that reflect EPA compliance priorities.</li> <li>2. Assess and categorise risk of identified non-compliance or appropriate further observations.</li> <li>3. Request action plans against key audit findings so that auditee can use risk categorisation to inform timeliness and level of risk reduction control</li> <li>4. Promote continuous improvement of the environmental performance of forestry operations.</li> </ol>
<b>Audit scope:</b>	<ul style="list-style-type: none"> <li>• White cypress trees retention and selection</li> <li>• Protection of retained trees</li> <li>• Koala protections</li> <li>• Threatened species exclusion zones</li> </ul> <p><b>Physical scope:</b> This audit was limited to the physical boundaries of compartments 216 and 217.</p> <p><b>Temporal scope:</b> The audit period adopted for assessment of compliance with operational conditions was on the days of the audit inspections (17 September 2014).</p>
<b>Audit criteria:</b>	<p>198 (1) (2) White cypress trees retention and selection</p> <p>230, 231 Protection of retained trees generally</p> <p>186 Search for koala and koala high use areas</p> <p>107 Drainage feature protection zones</p>
<b>Summary of Operations</b>	<p>Silvicultural practice: Commercial thinning (vertical cut silviculture) and release harvest.</p> <p>Stand age: Cypress stands have established from regeneration events in the 1890s and 1950s with last commercial harvest (salvage logging) in 2006/2007.</p>

## **1. Audit Findings – Overview**

The EPA identified 12 non-compliances and 97 compliances with the IFOA, including determinations of further observations.

A summary of EPAs findings are in the table below. Full details and evidence of audit findings can be found in the **Audit Findings Table** in **Attachment 1** including further observations made from the audit.

<b>EPA Compliance Priority 2014/15</b>	<b>Audit Scope</b>	<b>Non-compliant</b>	<b>Compliant</b>	<b>Not Determined</b>	<b>Not applicable</b>
<b>Forest Structure</b>	<b>Retention of white cypress trees</b>	0	0	0	1
	<b>Selection of white cypress trees</b>	3	0	0	0
<b>Forest Health</b>	<b>Protection of retained trees</b>	5	97	0	0
<b>Koalas</b>	<b>Search for koalas and high use areas</b>	0	0	6	0
<b>Exclusion Zones</b>	<b>Exclusion zone protection</b>	2*	0	0	0
	<b>Further observation</b>	1*	0	0	0
<b>N/A</b>	<b>Further observation</b>	1*	0	0	0
<b>TOTAL</b>		<b>12</b>	<b>97</b>	<b>6</b>	<b>1</b>

\* Note: subject to a separate investigation process

## 2. Audit Recommendations

Condition No.	Number of non-compliances	Action Details	Non-compliance Code	Target/Action Date
198(2)	3	<b>Selection of white cypress trees</b> An action plan must be developed and implemented to ensure white cypress trees to be retained for the purposes of condition 198 are selected from the cohort of healthy, mature trees with the next largest diameters at breast height over bark	Orange	Immediately
230	5	<b>Protection of retained trees</b> An action plan must be developed and implemented to ensure that retained trees are protected and not subject to damage arising from harvesting operations.	Yellow	March 2015
107	2	<b>Drainage feature protection zones</b> The EPA will be following up on this matter through a separate investigative process.	Red	NA
	1	<b>Forest management zone 3A*</b> The EPA will be following up on this matter through a separate investigative process.	Red	NA
	1	<b>Crown waterways*</b> The EPA will be following up on this matter through a separate investigative process.	Red	NA
<b>Total</b>	<b>12</b>			

\* Further observation of audit

### **3. Audit Conclusions**

This audit achieved its audit objective by determining compliance with the specified criteria of the audit. The EPA issued FCNSW with the draft audit findings and FCNSW submitted actions to mitigate the non-compliances (Attachment 3). The EPA will follow up on the outcomes of these audits to ensure levels of compliance are enhanced for criteria that relate to this audit.

### **4. List of Attachments**

Attachment 1) Audit Findings Table

Attachment 2) EPA Risk Matrix for Non-compliances

Attachment 3) FCNSW Submission on draft audit findings

## ATTACHMENT 1: AUDIT FINDINGS TABLE – COOMORE-EULIGAL STATE FOREST, COMPARTMENTS 216 & 217

Assessment of Compliance with the <i>Brigalow-Nandewar Region Integrated Forestry Operations Approval</i>				
Condition No.	Compliant? (Yes/No/ Not-determined)	Comment and Evidence	Number of non-compliance (sample size & unit)	Action required by licensee
<b>CONDITIONS RELATED TO RETENTION OF LARGE WHITE CYPRESS TREES – FOREST STRUCTURE</b>				
<b>198. Retention of large white cypress trees</b> <i>(1) Forests NSW must ensure that, at the completion of any logging operation in which white cypress trees are felled, at least six large white cypress trees remain, within the net mapped operation area, in each hectare of land surrounding a stump of any white cypress tree that is felled in the operation concerned.</i>	<b>Not-Applicable</b>	<p>The EPA found that this condition was not applicable as white cypress pine (WCP) trees with a diameter of 550 mm or greater (Clause 198 (2) (1) Brigalow-Nandewar IFOA) did not occur within any of the areas assessed.</p> <ul style="list-style-type: none"> <li>EPA officers assessed three one hectare plots (figure 1 Appendix) throughout the net harvest area.</li> <li>Officers measured all retained WCP with a diameter at breast height over bark (DBHOB) (cm) greater than 10 cm, and all WCP stumps within each one hectare plot.</li> <li>There were no trees recorded (removed or retained) that had a DBHOB of greater than 550mm.</li> </ul>	0 (3)	No action
<b>198. Retention of large white cypress trees</b> <i>(2) Only living trees may be selected for the purpose of subclause (1). If possible, the trees selected for retention are each to have a dbhob of more than 550 mm. If there are not enough trees having such a dbhob, surrounding the tree that is or is proposed</i>	<b>No</b> <b>Code: Orange</b>	<p>The EPA finds FCNSW not compliant with this condition in all three of the areas assessed.</p> <p>EPA officers established three, randomly located, one hectare plots to assess compliance with this criterion. The total area of assessment was three hectares.</p> <ul style="list-style-type: none"> <li>Within each plot the nearest stump to plot centre was located and a one hectare circular plot was established.</li> <li>All standing WCP trees and all WCP stumps within the plot were assessed.</li> <li>Stump diameter and stump height of each felled tree were recorded. DBHOB (cm) of each felled tree was then estimated in accordance with Clause 232 of the Brigalow-Nandewar Region IFOA.</li> <li>Retained trees were assessed, including trees that were marked for retention and those left unmarked. DBHOB (cm), was recorded for comparison of retained versus removed trees.</li> </ul>	3 (3)	An action plan must be developed and implemented to ensure white cypress trees to be retained for the purposes of condition 198 are selected from the cohort of healthy, mature trees with the next largest diameters at

to be felled and within the net mapped operation area, then trees are to be selected from the cohort of healthy, mature trees with the next largest diameters at breast height over bark to make up the shortfall.

The mean DBHOB and standard deviation was calculated for each plot.

- trees with a DBHOB greater than two standard deviations (2SD) above the mean were considered to be large trees under the IFOA.
- trees with a DBHOB greater than, or equal to, one standard deviation from the mean (1SD), but less than two standard deviations (2SD), were considered to be in the next largest cohort for compartments 216 and 217.

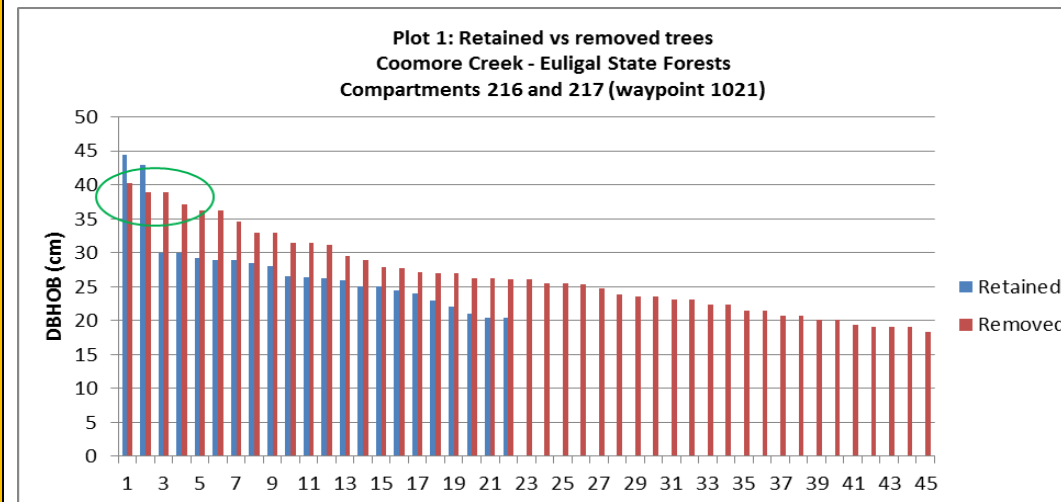
#### Plot 1 – Way point 1021

The EPA finds FCNSW **not compliant** with condition 198 (2) (1) as they did not select retained trees from the cohort of healthy mature trees with the next largest DBHOB at this location.

- FCNSW retained two large trees (greater than 2SD) and zero trees from the next largest cohort.
- FCNSW removed one large tree and six trees from the next largest cohort (i.e. larger than 1SD and smaller than 2SD) in the plot.
- The next largest cohort of trees was completely removed from the plot.

Four of the removed largest trees (one large and three from the next largest cohort) were required to be retained to comply with Clause 198 (2) (1) of the Brigalow-Nandewar IFOA.

breast height over bark



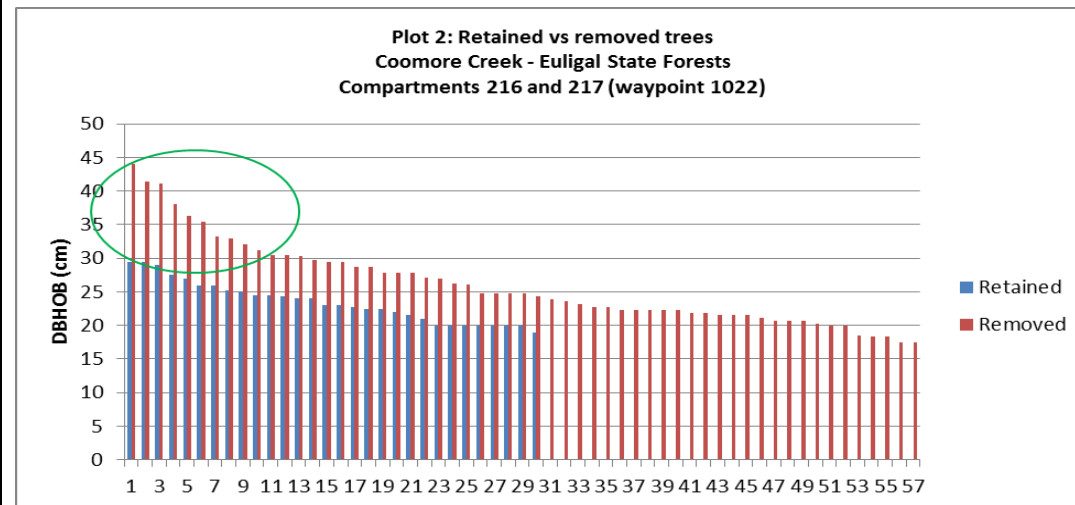
**Chart 1:** Retained vs removed trees within plot 1. Note: the two largest trees were retained, the next four largest trees (within the green circle) were removed; a non-compliance with the Brigalow-Nandewar IFOA.

### Plot 2 – Way point 1022

The EPA finds FCNSW **not compliant** with condition 198 (2) (1) as they did not select retained trees from the cohort of healthy mature trees with the next largest DBHOB at this location..

- FCNSW retained zero large trees (greater than 2SD) and zero trees from the next largest cohort (Image 1).
- FCNSW removed five large trees, and five trees from the next largest (i.e. trees larger than 1SD and smaller than 2SD) cohort in the plot.
- the largest and next largest cohorts of trees were completely removed from the plot.

All of the removed large trees, and one from the next largest cohort, were required to be retained to comply with Clause 198 (2) (1) of the Brigalow-Nandewar IFOA.



**Chart 2:** Retained vs removed trees within plot 2. Note: All large trees within the plot (within the green circle) were removed; a non-compliance with the Brigalow-Nandewar IFOA.



**Image 1.** Tree 46 plot 2, stump diameter 53.5 cm equating to dbhob of 44 cm. Largest tree in the plot removed.

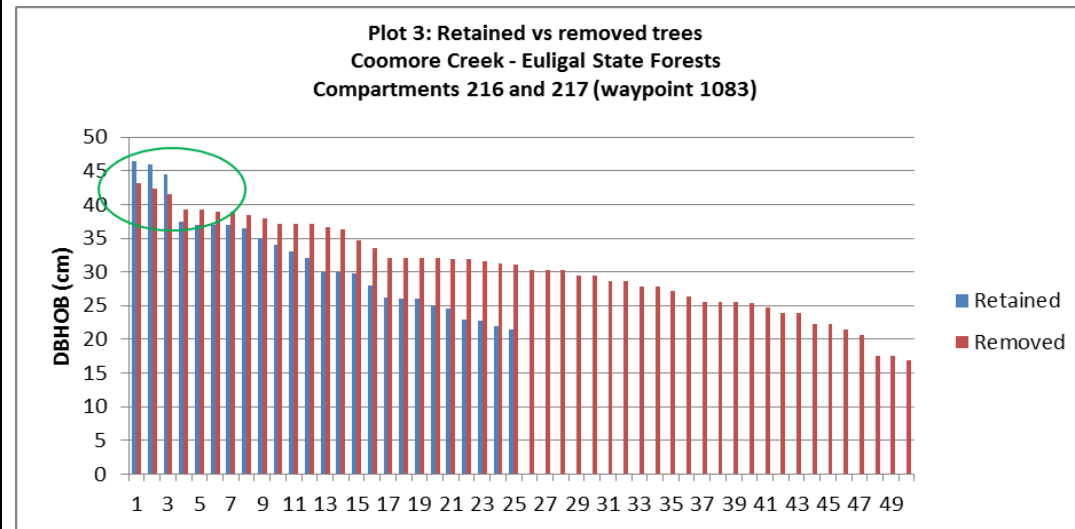
**Plot 3 – Way point 1083**

The EPA finds FCNSW **not compliant** with condition 198 (2) (1) as they did not select retained trees from the cohort of healthy mature trees with the next largest DBHOB at this location..

- FCNSW retained two large trees (greater than 2SD) and one tree from the next largest cohort.
- FCNSW removed zero trees larger than 2SD and nine of the next largest cohort in the plot (i.e. trees larger than 1SD and smaller than 2SD).
- All of the largest trees in the plot were retained, and 90 per cent of the next largest cohort was removed from the plot.



Three of the removed trees (from the next largest cohort) were required to be retained to comply with Clause 198 (2) (1) of the Brigalow-Nandewar IFOA.




**Chart 3:** Retained vs removed trees within plot 3. Note: the three largest trees were retained, the next three largest trees (within the green circle) were removed; a non-compliance with the Brigalow-Nandewar IFOA.

#### Net harvest area average

Large trees, greater than two standard deviations above the mean, included all trees (retained and removed) with an estimated DBHOB greater than or equal to 34.1 centimetres.

- no plot contained six large trees per hectare prior to harvest, with an average of approximately 4 large trees per hectare occurring within the net harvest area.
- the addition of at least two trees per hectare from the next cohort was required to ensure that this shortfall was made up (as per clause 198 (2) (1) of the Brigalow-Nandewar IFOA).
- EPA analysis shows that, on average, two trees per hectare (or 55 per cent) of the largest cohort were removed when they should have been retained, as per clause 198 (2) (1).
- there were approximately 9 trees of the next cohort per hectare prior to harvest. On average 7 of these trees were removed and two were retained.

		<p>To be compliant with clause 198 (2) (1) of the Brigalow-Nandewar IFOA FCNSW needed to retain all trees from the largest cohort and an additional two trees from the next largest cohort across the net harvest area.</p> <p>This has not occurred and as such the EPA finds FCNSW not compliant with clause 198 (2) (1) of the Brigalow-Nandewar IFOA.</p> <p><b>Risk assessment of non-compliance</b></p> <p>The EPA has made a risk assessment of activities found to be non-compliant by the audit. These were assessed against two criteria:</p> <ul style="list-style-type: none"> <li>the likelihood of environmental harm occurring, and</li> <li>the level of environmental impact.</li> </ul> <p>These results were used to decide the level of risk for each non-compliant activity. The risk assessment due to the removal of large trees from within the net harvest area is assessed as Code Orange because:</p> <ul style="list-style-type: none"> <li>it is likely that environmental harm has occurred, and</li> <li>the level of environmental impact is moderate as the scale of the environmental harm is moderate to high.</li> </ul> <p><b>Why is it important?</b></p> <p>The EPA considers that the retention of the <i>cohort of healthy, mature trees with the next largest diameter</i> to be important because of the crucial role larger size class trees play for the maintenance of biodiversity, health and the productive capacity of these forest ecosystems. The EPA notes that forests of mixed age classes provide the greatest structural and habitat diversity for maintenance of biodiversity values.</p> <p>Further, given that White cypress does not coppice and is an obligate seeder, the maintenance of a viable seed source is crucial for regeneration purposes and the long term sustainability. Crucially, healthy larger size trees are considered suitable founder trees which supply seed for regeneration. Failing to ensure that the next largest size trees are retained threaten the capacity of this forest ecosystem to function normally and its long term sustainability, including regenerating successful following a harvest event.</p>		
Clause 230. Protection of retained trees generally	No	The EPA finds FCNSW not compliant with this condition.	5 (102)	

<p><i>(1) Damage to trees that must not be felled under, or are retained for the purposes of, this Part in a logging operation or a non-commercial thinning operation must be avoided or minimised to the greatest extent practicable in carrying out that operation or any other forestry operation (whether carried out at the same or subsequent time). IFOA, and</i></p> <p><i>Clause 231. Specific measures to protect retained trees</i></p> <p><i>(5) such trees must not be used as bumper trees when snagging</i></p>	<p><b>Code:</b></p> <p><b>Yellow</b></p>	<p>EPA officers assessed each retained tree against condition 230 and 231 of the B-N IFOA. This includes all live standing trees within the plot.</p> <p><b>Plot 1 – Way point 1021</b></p> <p>EPA officers assessed 45 live standing trees within the plot, and identified three retained trees with substantial butt damage due to the logging operation. Trees 7, 10 and 17 in plot 1 all sustained harvesting damage (Image's 2 &amp; 3).</p> 		
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**Image 2.** Substantial harvesting damage to tree10, plot 1.



**Image 3.** Substantial damage to tree 17, plot 1.



**Plot 2 – Way point 1022**

EPA officers assessed 57 live standing trees within the plot, and identified two retained trees with substantial butt damage due to the logging operation. Trees 16 and 23 in plot 2 sustained harvesting damage to their butt and crown (Image's 4 & 5).



**Image 4.** Crown damage to tree 16, plot 2



**Image 5.** Substantial damage to tree 23, plot 2

**Risk assessment of non-compliance**


The EPA has made a risk assessment of activities found to be non-compliant by the audit. These were assessed against two criteria:

- the likelihood of environmental harm occurring, and
- the level of environmental impact.

		<p>These results were used to decide the level of risk for each non-compliant activity. The risk assessment due to the removal of large trees from within the net harvest area is assessed as Code yellow because:</p> <ul style="list-style-type: none"> <li>• it is likely that environmental harm has occurred, and</li> <li>• the level of environmental impact is low as the scale of harm was relatively low.</li> </ul> <p><b>Why is it important?</b></p> <p>The EPA considers that the protection of all retained living trees to be important because the maintenance of biodiversity, forest health and the productive capacity of these forest ecosystems is vital for the long term sustainability of the forest.</p> <p>Further, damage to retained trees can be a vector for disease and fungal attacks. Failing to protect all retained trees following a successful harvest event can lead to a long term decline in forest health.</p>		
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Condition No.	Compliant? (Yes/No/Not-determined)	Comment and Evidence	Number of non-compliance and (sample size & unit)	Action required by licensee
<b>CONDITION RELATED TO KOALA IDENTIFICATION AND PROTECTION</b>				
<b>186 Search for koalas</b> <i>(1) The survey required by clause 184 must include a search to establish whether koalas are present, or have been recently present, in the net mapped operation area for the forestry operation and the extent of their presence, in accordance with this clause.</i> <i>(2) Koalas are to be looked for in white cypress trees and Eucalypt trees within the net mapped operation area. The ground under the canopy of such trees must be searched for koala scats.</i>	<b>Not determined</b>	<p>The EPA did not determine compliance with this condition.</p> <p>There were no harvest crews or FCNSW staff working on site at the time of the audit. Harvesting operations appeared to have recently ceased, with only a single machine on site. The log dump contained logs waiting to be transported for processing.</p> <p>It was not evident how far ahead of the harvesting operation that tree mark-up had occurred. Harvesting had taken place to the extent of the mark-up.</p> <p>The EPA did not obtain appropriate audit evidence to determine whether the survey, the search for koalas, was carried out in compliance with clause 186 of the BN IFOA. Accordingly the EPA could not determine compliance with this condition.</p>	0 (3)	
<b>186 continued: Koala high use areas</b> <i>(3) If a koala is found in a tree, or koala scats are found under a tree, then the ground under the canopy of that tree, and under the canopies of 10 other trees in the vicinity of that first tree, must be thoroughly searched for koala scats. The 10 other trees may be of any species, but each must have a dbhob of 200 mm or more. They must be the 10 trees with such a dbhob that are located closest to that first tree in which the koala is found or under which koala scats are found. (It does not matter if one or more of the 10 trees is outside the net mapped operation area.)</i> <i>(4) If koala scats are found under three or more of the 10 trees searched, the area containing those three or more trees (as well as the tree that</i>	<b>Not determined</b>	<p>The EPA could not determine compliance with this condition.</p> <p>EPA officers undertook a search for evidence of Koalas within the harvested area with a focus on retained <i>Eucalyptus crebra</i> (Narrow-leaved ironbark (NIB)) trees.</p> <p>Three separate areas were searched for evidence of koala use and scats were located under the canopy of at least one tree in each area.</p> <p><b>Location 1.</b> EPA did not determine compliance with the condition at this location [waypoint 1006]</p> <ul style="list-style-type: none"> <li>EPA officers found koala scats (Image 8) beneath the canopy of an NIB (Image 6) and a search was conducted on the ground surrounding the ten nearest trees (or stumps) in accordance with the IFOA protocol.</li> </ul>	0(3)	<p>FCNSW to provide information/documentation on the method and effort undertaken for koala searches in this operation and the results of those searches.</p> <p>The EPA also requires specific information on whether the <i>E.crebra</i> trees, with 40 and 8 scats</p>



<p><i>triggered the thorough search) is a koala high use area.</i></p> <p><i>(5) The thorough search described in subclause (3) must also be carried out in the vicinity of each of the three or more trees in a koala high use area under which koala scats are found and that is within the net mapped operation area. (Any overlapping koala high use areas may be treated as a single koala high use area.)</i></p> <p><i>(6) The location of any koala high use area, together with the location of any tree outside such an area in which a koala is found or under which 40 or more koala scats are found (or both), are to be indicated on a copy of the operational map for the forestry operation.</i></p>		<ul style="list-style-type: none"> <li>• One scat was found beneath the tenth stump (waypoint 1015) searched.</li> <li>• It was not possible to undertake a search around the stumps of the fourth, fifth and sixth searched stumps (waypoints 1009, 1010, and 1011) because of the build-up of logging debris at the base of those trees (Image 9).</li> </ul> <p>It was not possible to determine compliance at this location.</p>  <p><b>Image 6.</b> Koala use NIB at location 1.</p>	<p>beneath their crowns, were located and identified during the pre-harvest searches and/or what was then done at that time.</p>
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**Image 7.** Proximity of harvesting to koala use tree.



**Image 8.** Scats found beneath canopy of NIB





**Image 9.** Harvesting debris around WCP stump

**Location 2.** EPA did not determine compliance with the condition at this location [waypoint 1016].

- EPA officers found over 40 koala scats beneath the canopy of the *E. crebra* where a search was conducted (Image 10).
- Clause 186 (6) requires that the location of this tree be indicated on a copy of the operational map for the forestry operation.
- As the harvest contractor or FCNSW PA were not on site the EPA could not determine compliance with this condition.
- The surrounding forest was marked up for harvesting and harvesting operations occurred to within a distance of 13 metres.



**Image 10.** Searching for scats beneath NIB at location 2.



**Image 11.** Koala high use NIB at location 1.

**Location 3.** EPA did not determine compliance with the condition at this location [waypoint 1018].

- EPA officers found eight koala scats beneath the canopy of the *E. crebra* where the search was conducted (Image's 12 & 13).
- The area was marked up for harvesting, the nearest marked tree was 9 metres away and the nearest stump was 13 metres away.
- EPA officers did not conduct a scat search of the ten nearest trees/stumps at this location.





**Image 12.** Koala use NIB at location 3



**Image 13.** Scats found under NIB tree at location 3.

**Why it is important?**

Koalas are threatened species. Protecting Koalas and their habitat is an EPA compliance priority. Protecting koala habitat is important to assist the species maintain its viability in the area. Proper searching and marking of areas that require protection is important to ensure that operations don't harvest in areas that are intended to be protected. Proper on ground marking and engagement with harvesting contractors should reduce the risk of harvesting in koala habitat protection areas.

<p><b>107 Drainage feature protection zones</b>  <i>(1) This clause applies to the following drainage features:</i>  <i>(a) drainage lines (both mapped and unmapped), and</i>  <i>(b) mapped drainage depressions</i></p> <p><i>(2) Any area of land within the distance specified in (the Brigalow-Nandewar IFOA) column 2, of Table 1: Drainage feature protection zones below, from a drainage feature specified next to it in column 1 is a drainage feature protection zone for the purposes of this approval. The distance specified:</i>  <i>(a) in the case of a drainage line, is the distance from the top of the bank of the incised channel, or where there is no defined bank, from the edge of the channel, and</i>  <i>(b) in the case of a drainage depression, is the distance from the centre of the drainage depression, as measured along the ground surface.</i></p>	<p><b>No</b></p> <p><b>Code:</b> <b>Red</b></p>	<p>The EPA finds FCNSW not compliant with this condition in the two locations assessed.</p> <p><b>Location 1</b>  The EPA finds FCNSW <b>not compliant</b> at this location. EPA officers audited the drainage feature buffer at Etoo Creek (waypoints 1023, 1025, 1028, 1031, 1034, 1037, 1040, 1043, 1046, and 1049) between compartments 217 and 211. The audit commenced at the junction of Etoo Creek and Mistletoe Road. At this location Etoo Creek is a mapped 4<sup>th</sup> order drainage feature and is required to have a 40 metre buffer, applied in accordance with clause 107 (2) table 1, along the length of the feature.</p> <p>EPA officers measured the distance from the marked buffer to the top of the bank of the incised channel of Etoo Creek. The key audit findings are:</p> <ul style="list-style-type: none"> <li>• FCNSW correctly specified a 40 metre buffer on the Harvest Plan Operational Map (HPOM).</li> <li>• the audit identified that a 30 metre buffer was incorrectly applied in the field.</li> <li>• WCP was harvested up to the boundary as marked in the field.</li> <li>• an incursion into the buffer zone of up to 10 metres depth for a distance of 280 metres was observed.</li> <li>• the incursion resulted in the harvesting of 31 WCP trees from within the 40 metre buffer zone (Image 17).</li> </ul> <p>FCNSW is not compliant with condition 107 (2) of the B-N IFOA as the drainage protection provisions have not been correctly applied. As a result an incursion, of up to 10 metres into the buffer zone, has occurred.</p>	<p>2 (2)</p>	<p>The EPA will be following up on this matter through a separate investigative process.</p>
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**Image's 14-16.** Top-of-bank (waypoint 1035), marked boundary (waypoint 1034) and measured point 40 metres from top-of-bank (waypoint 1036), note harvesting debris and stumps between marked boundary and measured point.



**Image 17.** Looking north from Mistletoe Road parallel to Etoo Creek

		<p>through the buffer incursion, note tree stumps and harvesting debris.</p> <p><b>Location 2</b> The EPA finds FCNSW <b>not compliant</b> at this location.</p> <p>EPA officers audited the drainage feature buffer at Etoo Creek (waypoints 1086, 1087, 1089, 1092, 1096, 1098, 1101, 1105, 1107, and 1110) between compartments 216 and 211. At this location Etoo Creek is a mapped 5<sup>th</sup> order drainage feature and is required to have a 50 metre buffer in accordance with clause 107 (2) table 1, along the length of the feature.</p> <p>EPA officers measured the distance from the marked buffer to the top of the bank of the incised channel of Etoo Creek. The key audit findings are:</p> <ul style="list-style-type: none"> <li>• FCNSW correctly specified a 50 metre buffer on the Harvest Plan Operational Map (HPOM).</li> <li>• the audit identified that a 50 metre buffer was correctly applied in the field.</li> <li>• WCP was harvested up to the boundary as marked in the field.</li> <li>• an incursion into the buffer zone resulted in the harvesting of one WCP tree from within the marked buffer (Image 18) .</li> </ul> <p>FCNSW is not compliant with condition 107 (2) of the B-N IFOA as the drainage protection provisions have not been correctly applied. As a result an incursion, of up to 10 metres into the buffer zone, has occurred.</p>		
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**Image 18.** Stump of large tree removed from within drainage buffer.



**Image 19.** 46.5 cm diameter stump removed from within drainage feature buffer.

**Why it is important?** The protection of drainage features is important for a number of environmental reasons. These include:

- reducing the potential for water pollution, protection of threatened species and their habitat benefits overall biodiversity, used as riparian corridors for all species and protects the terrestrial ecosystem that supports the aquatic, benefiting native fish populations.
- specifically protected drainage features in the western regions provide pathways and linkages for fauna and flora to move across the landscape. It has high significance in regards to biodiversity such as providing habitat for a range of fauna.
- marking boundaries in the field is important to inform operators on the ground of the areas they need to protect and prevent actual harm.

**Risk Code**

The EPA has made a risk assessment of activities found to be non-compliant by the audit. These were assessed against two criteria:

- the likelihood of environmental harm occurring, and

		<ul style="list-style-type: none"> <li>the level of environmental impact.</li> </ul> <p>These results were used to decide the level of risk for each non-compliant activity. The risk assessment due to incorrect mark-up of the drainage feature buffer is assessed as Code Red because:</p> <ul style="list-style-type: none"> <li>it is certain that environmental harm has occurred, and</li> <li>the level of environmental impact is moderate as the scale of environmental harm was relatively high and the sensitivity of the receiving environment is moderate.</li> </ul>		
<b>B-N IFOA Total Non-compliances</b>			Total 10 (107)	

## FURTHER OBSERVATIONS TABLE

These are matters that were recorded during the field investigation but relate to conditions outside the audit scope

Relevant Condition	Details of matter	Recommendation
<p><i>Clause 28. Forest Management Zoning System</i></p> <p><i>(1) In carrying out, or authorising the carrying out of, forestry operations in State forests, Forests NSW must give effect to the document entitled, "Forest Management Zoning in State Forest" (State Forests of New South Wales, December 1999).</i></p> <p><i>Zone 3A Harvesting Exclusions:</i></p> <p><i>1. Areas where harvesting is excluded but other management and production activities preclude Zone 1 or 2.</i></p>	<p>The Harvest Plan Operation Map (HPOM) did not show the location of the prescribed Forest Management Zones (FMZ) within compartments 216 and 217 in Coomore Creek and Euligal State forests.</p> <p>EPA officers observed that the exclusion boundary for FMZ 3A was not marked according to condition 28 (1) (The FMZ Net Harvest Area exclusion boundaries should be taken 'as mapped' and marked in the field prior to operations commencing). As a result an incursion into the FMZ 3A buffer occurred and over 30 WCP trees were harvested.</p> <p>FCNSW is not compliant with condition 28 of the B-N IFOA and "Forest Management Zoning in State Forests (State Forests of NSW, December 1999).</p>	<p><b>The EPA will be following up on this matter through a separate investigative process.</b></p>

Relevant Condition	Details of matter	Recommendation
<i>Crown Waterways</i>	<p>Etoo Creek is classified as a Crown Waterway for its length along the boundary of compartments 216 and 217 Coomore Creek and Euligal State forests.</p> <p>The Harvest Plan Operation Map (HPOM) did not show the location of the Crown Waterway within compartments 216 and 217 in Coomore Creek and Euligal State forests.</p>	The EPA will be following up on this matter through a separate investigative process.

#### ACTION PLAN – COOMORE CREEK AND EULIGAL STATE FORESTS, COMPARTMENTS 216 AND 217

Condition No.	Number of non-compliances	Action Details	Non-compliance Code	Target/Action Date
198(2)	3	<b>Selection of white cypress trees</b> An action plan must be developed and implemented to ensure white cypress trees to be retained for the purposes of condition 198 are selected from the cohort of healthy, mature trees with the next largest diameters at breast height over bark	Orange	Immediately
230	5	<b>Protection of retained trees</b> An action plan must be developed and implemented to ensure that retained trees are protected and not subject to damage arising from harvesting operations.	Yellow	March 2015
107	2	<b>Drainage feature protection zones</b> The EPA will be following up on this matter through a separate investigative process.	Red	The EPA will be following up on this matter through a separate investigative process.
	1	<b>Forest management zone 3A*</b> The EPA will be following up on this matter through a separate investigative process.	Red	The EPA will be following up on this matter through a separate investigative process.



	1	<b>Crown waterways*</b> The EPA will be following up on this matter through a separate investigative process.	Red	The EPA will be following up on this matter through a separate investigative process.
<b>Total</b>	<b>12</b>			

\* Further observation of audit

## ATTACHMENT 2: EPA RISK ASSESSMENT OF NON-COMPLIANCE

The significance of any non-compliances identified during the audit process are categorised. Following risk assessment of non-compliances, an escalating response relative to the seriousness of the non-compliance is determined to ensure the non-compliance is addressed by the enterprise.

The risk assessment of non-compliances involves assessment of the non-compliance against two criteria; the likelihood of environmental harm occurring and the level of environmental impact as a result of the non-compliance. After these assessments have been made, information is transferred into the risk analysis matrix below.

Level of Environmental Impact	Likelihood of Environmental Harm Occurring			
		Certain	Likely	Less Likely
	High	Code Red	Code Red	Code Orange
	Moderate	Code Red	Code Orange	Code Yellow
	Low	Code Orange	Code Yellow	Code Yellow

The assessment of the likelihood of environmental harm occurring and the level of environmental impact allows for the risk assessment of the non-compliance via a colour coding system. A red risk assessment for non-compliance denotes that the non-compliance is of considerable environmental significance and therefore must be dealt with as a matter of priority. An orange risk assessment for non-compliance is still a significant risk of harm to the environment however can be given a lower priority than a red risk assessment. A yellow risk assessment for non-compliance indicates that the non-compliance could receive a lower priority but must be addressed.

There are also a number of licence conditions that do not have a direct environmental significance, but are still important to the integrity of the regulatory system. These conditions relate to administrative, monitoring and reporting requirements. Non-compliance of these conditions is given a blue colour code.

The colour code is used as the basis for deciding on the priority of remedial action required by the licensee and the timeframe within which the non-compliance needs to be addressed. This information is presented in the action program alongside the target/action date for the noncompliance to be addressed.

While the risk assessment of non-compliances is used to prioritise actions to be taken, the EPA considers all non-compliances are important and licensees must ensure that all non-compliances are addressed as soon as possible.

### ATTACHMENT 3: FCNSW SUBMISSION ON DRAFT AUDIT FINDINGS

<p><b>Coomore-Euligal SF</b></p> <p>Clause 198 Retention of large white cypress trees</p> <p>Clause 198 (2) requires the following:</p> <ul style="list-style-type: none"> <li>- Only living trees may be selected.</li> <li>- Tree diameters to be greater than 550 mm where available.</li> <li>- If not enough trees with diameters greater than 550 mm then trees are to be selected from the cohort of healthy, mature trees with the <b><u>next largest diameters</u></b> at breast height.</li> </ul>	<p>Non-compliant</p> <p>Code Orange</p>	<p>Plot1, plot2, plot 3</p>	<p>FCNSW disputes the draft findings of Non-compliance-No environmental harm</p> <p>A cohort of trees is a population of a species of a common age. A number of factors determine which trees are to be selected for retention. They do not need to be the six largest individuals as asserted by the audit report. Tree health is a major consideration.</p> <p>FC is of the view that audit report has wrongly interpreted cl 198 as:</p> <ol style="list-style-type: none"> <li>1. The IFOA does not define a cohort as 2 Standard Deviations above the mean DBHOB. IF FC were to apply EPA's methodology it would require FC to select and mark trees to be retained across the compartment prior to the commencement of operation, which is inconsistent with cl 194.</li> <li>2. Tree health is taken into account when selecting trees for removal. If a large tree showing signs of dead branches, thin crown or sap crack is removed the next largest is retained in close proximity to the stump.</li> </ol>	<p>Non-compliant</p> <p>Code Orange</p> <p>FCNSW is non-compliant with clause 198 of the Brigalow-Nandewar IFOA.</p>	<p>The term cohort as used in clause 198 clearly refers directly to the size of the trees; it does not refer to age class.</p> <p>The EPA did not find White Cypress Pine (WCP) of 550 mm or greater diameter within the harvested compartments.</p> <p>FCNSW was therefore required by the Brigalow-Nandewar IFOA to retain trees from the cohort of healthy, mature trees with the <b><u>next largest diameters</u></b> at breast height.</p> <p>The EPA utilises random samples and statistics to better understand the diameter distribution of retained and removed WCP.</p> <p>EPA found that FCNSW removed trees from the largest diameter cohort, that were required to be retained, in each of the areas assessed by EPA</p>
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					<p>officers, a non-compliance with the Brigalow-Nandewar IFOA. Accordingly the draft audit finding and its risk code is retained.</p> <p>An action plan must be developed and implemented to ensure white cypress trees to be retained for the purposes of condition 198 are selected from the cohort of healthy, mature trees with the next largest diameters at breast height over bark.</p>
<p>Coomore-Euligal SF</p> <p>Clause 230</p> <p>Protection of retained trees</p>	<p>Non-compliant</p> <p>Code Yellow</p>	<p>Plot 1 WP1021</p> <p>Plot 2 WP 1022</p>	<p>FCNSW agrees this is Non-compliant – however</p> <p>No environmental harm done</p> <p>FCNSW acknowledges the damage done to retained trees identified by the audit was unacceptable, however given 60% of the net harvest area with thinning silviculture sufficient numbers of trees were retained.</p>	<p>Non-compliant</p> <p>Code Yellow</p>	<p>The trees were damaged therefore environmental harm occurred.</p> <p>These trees were retained as larger diameter trees under Clause 198 and have not been sufficiently protected.</p> <p>As FCNSW retained insufficient large trees, as</p>

					<p>per clause 198, damage to the fewer larger trees retained in the harvest operation further adds to environmental harm.</p> <p>Accordingly the draft audit finding and its risk code is retained.</p>
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