

EPA AUDIT REPORT – BENANDARAH STATE FOREST, COMPARTMENTS 112-113

Auditee:	FORESTRY CORPORATION OF NSW (FCNSW)
Audited State Forest & Cpts:	BENANDARAH STATE FOREST, COMPARTMENTS 112-113
Region:	Southern Region Integrated Forestry Operations Approval (IFOA)
Date/Audit timing:	15 December 2014. Audit debrief with FCNSW staff held on 13 February 2015.
Type of audit:	Compliance
Purpose of audit:	Report on the level of compliance with conditions and environmental performance in line EPA compliance priorities.
Audit objectives:	<ol style="list-style-type: none"> 1. Assess compliance against audit criteria that reflect EPA compliance priorities. 2. Assess and categorise risk of identified non-compliance or appropriate further observations. 3. Request action plans against key audit findings so that auditee can use risk categorisation to inform timeliness and level of risk reduction control 4. Promote continuous improvement of the environmental performance of forestry operations.
Audit scope:	<ul style="list-style-type: none"> • Hollow bearing and recruitment trees • Basal Area Retention • Riparian Protection Zones – Mark-up and protection • Ridge and headwater habitat protection <p>Physical scope: This audit was limited to the physical boundaries of compartment 3010.</p> <p>Temporal scope: The audit period adopted for assessment of compliance with operational conditions was on the day of the audit inspection (15 December 2014).</p>
Audit criteria:	<p>5.6 (d)(e)(h) Hollow bearing and recruitment tree retention, selection and protection</p> <p>5.7 Riparian habitat protection</p> <p>Condition 5 of the Southern Region IFOA – Basal Area Retention</p>
Summary of Operations	<p>Operation commencement date: 2 October 2014</p> <p>Silvicultural practice: The forest is dominated by <i>Corymbia maculate</i>, <i>Eucalyptus punctata</i>, <i>E. longifolia</i>, <i>E. pillularis</i> and <i>E. globoides</i>. The harvest area has been partitioned into three resource units.</p> <p>Resource Unit 1 – Even aged mature forest, single tree selection (STS) heavy over 72% of harvest area,</p> <p>Resource unit 2 - STS Medium over 28%, of the harvest area.</p> <p>Resource unit 3 – even aged regrowth excluded from harvesting.</p>

Stand age: Regrowth Zone

1. Audit Findings – Overview

The EPA identified 16 non-compliances and 8 compliances with the IFOA and TSL, 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.

EPA Compliance Priority 14/15	Audit Scope	Compliant	Non-compliant	Not Determined	Not Applicable
Drainage feature protection	Filter strip	2	0	0	0
	Protection zone	1	0	1	0
Hollow bearing and recruitment trees	H Retention	1	0	0	0
	H Selection	4	0	0	0
	R Retention	1	0	0	0
	R Selection	2	0	0	0
	H&R Protection - debris	3	3	0	0
	H&R Protection – mark up	6	4	0	0
Ridge and headwater protection	Location of ridge and headwater protection	1	0	0	0
	Harvesting prohibited from ridge and headwater protection areas	1	0	0	0
	Mark up of boundaries	1	0	0	0
Basal Area Retention	Further Observations	0	0	1	0
	TOTAL	23	7	1	0

2. Audit Recommendations

Condition No.	Number of non-compliances	Action Details	Non-compliance Code*	Target/Action Date
5.6(d) (i)	0	Hollow Bearing Tree Retention No specific action required	n/a	n/a
5.6(d) (ii), (iii)	0	Hollow Bearing Tree Selection No specific action required	n/a	n/a
5.6(e)	0	Recruitment Tree Retention An action plan must be developed and implemented to ensure that sufficient recruitment trees are retained during harvesting operations.	n/a	n/a
5.6(e) (i) – (v)	3	Recruitment Tree Selection An action plan must be developed and implemented to ensure that recruitment trees are selected and marked in the field.	Code yellow	5 October 2015
5.6 h) (ii)	3	Hollow Bearing & Recruitment Tree - Protection An action plan must be developed and implemented to ensure that logging debris does not accumulate around the base of retained trees.	Code yellow	5 October 2015
5.6 (h) (iii)	4	Hollow Bearing & Recruitment Tree - Mark up An action plan must be developed and implemented to ensure that H & R trees are marked up prior to harvesting.	Code yellow	5 October 2015
5.8	0	Ridge and headwater habitat - Protection No specific action required	n/a	n/a
5.1 E	0	Marking up of boundaries – ridge and headwater No specific action required	n/a	n/a
Appendix A, Schedule 4A Clause D	0	Protection of drainage features No specific action required	n/a	n/a
5.7	0	Riparian habitat protection – protection zones No specific action required	n/a	n/a
Clause (11) D (a)	0	Basal area retention for single tree selection Whilst this matter is outside the scope of the audit, the EPA draws FCNSW attention to this observation. FCNSW noted that pre-harvest basal area in the tract was 25 m ² /ha on average. EPA officers observed a retained basal area of 6.2 m ² /ha during the audit. This matter is being investigated outside of the audit process.	Code yellow	5 October 2015
Total				

* 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 has responded to the findings. 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

AUDIT FINDINGS TABLE – BENANDARAH STATE FOREST, COMPARTMENTS 112-113

Assessment of Compliance with the <i>Southern 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
CONDITIONS RELATED TO THE RETENTION OF HOLLOW BEARING AND RECRUITMENT TREES				
Clause 5.6 tree retention	N/A	<p>Audit method and results</p> <p><u>Method</u> EPA officers established a randomly located transect with five 0.2 hectare circular plots along its length. Plots were surveyed for compliance with the following four clauses of the Southern Region IFOA:</p> <ul style="list-style-type: none"> • 5.6d (i) habitat tree retention • 5.6e recruitment tree retention • 5.6d (ii) & (iii) habitat and recruitment tree selection • 5.6h protection of retained trees <p>All standing trees and all stumps within each plot along the transect were assessed.</p> <p><u>Results</u> Transect 1, Plots 1 to 5.</p> <p>25 trees (6 marked and 19 unmarked trees) were retained in the one hectare assessed. The marked trees were composed of four H trees, two R trees (Table 1). Marked trees are a subset of candidate trees.</p>	N/A	N/A

Table 1: Transect 1 H & R tree survey results

Plot	Live trees	Candidate H	Candidate R	Marked H	Marked R
1	2	1	1	0	1
2	2	1	1	1	0
3	2	0	1	0	0
4	9	2	2	2	1
5	10	1	4	1	0
Totals	25	5	9	4	2

CONDITIONS RELATING TO HOLLOW BEARING TREE - RETENTION**Clause 5.6 tree retention**

Clauses 5.6d (i) & 5.6e Regrowth zone H&R tree retention

Within the regrowth zone the following requirements for retention of hollow bearing trees apply:

(i) a minimum of five hollow bearing trees must be retained per hectare of net logging area. Where this density of hollow bearing trees is not available all hollow bearing trees within the net logging area must be retained.

Yes

The EPA finds FCNSW compliant with clause 5.6 d (i) and 5.6e Regrowth zone H & R tree retention in the assessed area.

Hollow bearing trees

Five hollow-bearing trees are required to be retained where they exist within the regrowth zone. Where five trees per hectare do not occur then all hollow-bearing trees in each hectare must be retained.

FCNSW retained five hollow bearing trees per hectare in accordance with clause 5.6d (i). This comprised of 4 marked hollow bearing trees and one unmarked hollow bearing tree. The unmarked H tree, located in plot 1, was a blackbutt with a DBHOB of 95 cm.

FCNSW has met the license conditions for hollow bearing trees by retaining 4 marked hollow bearing trees and one additional unmarked hollow bearing trees per hectare.

0 (1)

Image 1: Retained hollow-bearing tree in background



CONDITIONS RELATING TO HOLLOW-BEARING TREE SELECTION

Clause 5.6 tree retention

*Clauses 5.6d (ii) & (iii) & 5.6e
Regrowth zone hollow-bearing tree
selection*

*In selecting hollow bearing trees for
retention, priority must be given to any
hollow-bearing trees which exhibit
evidence of occupancy by hollow
dependent fauna and trees which
contain multiple hollows or hollows of
various sizes.*

*Hollow-bearing trees must be
selected with the objective of retaining
trees having as many of the following
characteristics as possible:*

Yes

**The EPA finds FCNSW compliant with clause 5.6d (ii) & (iii)
regrowth zone hollow-bearing tree selection in the assessed area.**

Hollow bearing tree selection

The four trees selected and marked as hollow bearing (H) trees met the
licence conditions for hollow bearing tree selection, as the trees:

- had visible hollows, holes or cavities
- were of the largest diameter cohort of trees
- had good crown development
- had minimal butt damage
- were evenly scattered throughout the net harvest area

One additional candidate hollow bearing tree, while not selected and
marked for retention by FCNSW, was retained and meets the licence
condition for hollow bearing trees (Table 2).

0 (4)


<ul style="list-style-type: none"> • <i>belonging to a cohort of trees with the largest dbhob</i> • <i>good crown development</i> • <i>minimal butt damage</i> • <i>represent the range of hollow-bearing species that occur in the area.</i> • <i>located such that the result in retained trees being evenly scattered throughout the net logging area</i> 		<p>Image 2: Retained hollow-bearing tree</p> 		
<p align="center">CONDITIONS RELATED TO RECRUITMENT TREE RETENTION</p>				
<p><i>Clause 5.6 tree retention</i></p> <p><i>Clauses 5.6e Regrowth zone H&R tree selection</i></p> <p><i>Within the regrowth zone, for each hollow bearing tree retained in (d) above a recruitment tree must be retained.</i></p>	<p>Yes</p>	<p>The EPA finds FCNSW compliant with clause 5.6e Regrowth zone tree retention in the assessed area.</p> <p>FCNSW retained only two marked recruitment trees per hectare. Under Clause 5.6e FCNSW are required to retain one recruitment tree for every retained hollow-bearing tree. FCNSW were required to retain five marked recruitment trees per hectare to be compliant with clause 5.6e.</p> <p>Within the transect FCNSW retained 19 unmarked trees. A review of the audit evidence gathered indicates that of these 19 trees, 7 were candidate recruitment trees. Three of the candidate trees should have been selected and marked as R trees but weren't. Refer to table 2 for details of the retained but not marked R trees.</p>	<p>0 (1)</p>	

Table 2. Unmarked retained trees with H or R tree characteristics.

Plot	Species	DBHOB (cm)	H &/or R tree	Debris > 1m within 5m	
1	Black butt	95	H	Yes	Mature
2	Ironbark	49.2	R	Yes	Mature
3	Ironbark	45	R	Yes	Mature
4	Spotted gum	54.3	R	Yes	Overmature
5	Spotted gum	53.2	R	No	Late mature
5	Eucalypt spp	43.6	R	No	Late mature
5	Eucalypt spp	44.9	R	No	Late mature
5	Eucalypt spp	43.3	R	No	Late mature

FCNSW met the license conditions for recruitment tree retention by retaining 2 marked R trees and three additional unmarked R trees per hectare.

Image 3: Unmarked trees retained candidate R trees in harvested area

CONDITIONS RELATED TO RECRUITMENT TREE SELECTION

Clause 5.6 tree retention

Within the regrowth zone.

5.6 e) Recruitment trees must be selected with the objective of retaining trees having as many of the following characteristics as possible:

i. belonging to a cohort of trees with the largest dbhob

ii. located such that the result in retained trees being evenly scattered throughout the net logging area

iii. good crown development

iv. minimal butt damage

v. represent the range of hollow-bearing species that occur in the area.

**No
Code Yellow**

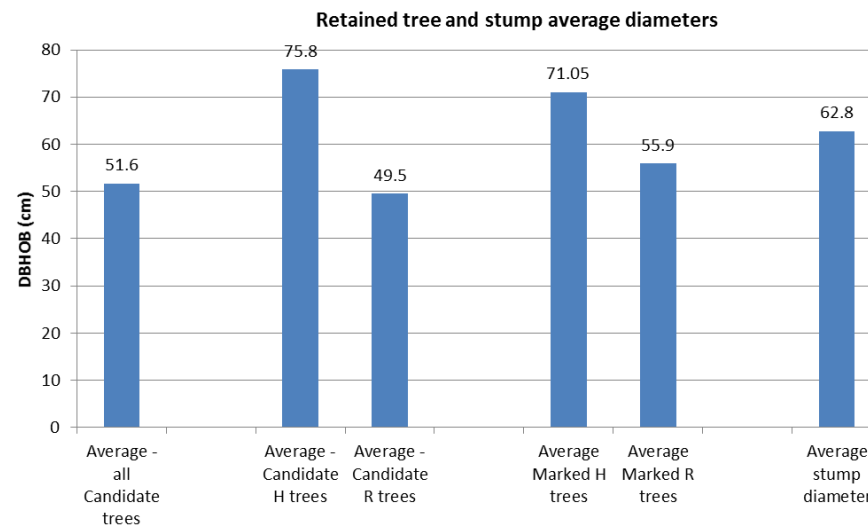
The EPA finds FCNSW not compliant with clause 5.6e regrowth zone recruitment tree selection in the assessed area.

Three **candidate R trees** that were physically retained by the harvesting operations but not selected and marked in the field. FCNSW not selecting and marking these trees in the field is a non compliance for selection.

Two trees were selected and marked as recruitment (R) trees. These met the licence condition for selection as R trees. These selected R trees had the following characteristics:

- were of the largest diameter cohort of trees
- had good crown development
- had minimal butt damage
- were representative of the hollow bearing species in the area
- were evenly scattered throughout the net harvest area.

Chart 1. Diameter comparison of all retained trees, hollow-bearing trees, and recruitment trees.



3 (5)

An action plan must be developed and implemented to ensure that recruitment trees are selected and marked in the field.

CONDITIONS RELATED TO HOLLOW BEARING & RECRUITMENT TREE PROTECTION

<p><i>Clause 5.6 tree retention</i></p> <p><i>Clause 5.6h Protection of retained trees</i></p> <p><i>i. When conducting specified forestry activities and post-logging burning, damage to trees retained under conditions 5.6 a), 5.6 b), 5.6 c), 5.6 d), 5.6 e) and 5.6 f) of this licence must be minimised to the greatest extent practicable. During harvesting operations, the potential for damage to these trees must be minimised by utilising techniques of directional felling.</i></p> <p><i>ii. In the course of conducting specified forestry activities, logging debris must not, to the greatest extent practicable, be allowed to accumulate within five metres of a retained hollow-bearing tree, recruitment tree, stag. Logging debris within a five metre radius of retained trees must be removed or flattened to a height of less than one metre. Mechanical disturbance to ground and understorey must be minimised to the greatest extent practicable within this five metre radius. Habitat and recruitment trees must not be used as bumper trees during harvesting operations.</i></p>	<p style="text-align: center;">No</p> <p style="text-align: center;">Code Yellow</p>	<p>The EPA finds FCNSW to be non-compliant with clause 5.6h ii and protection of retained trees in the assessed area.</p> <p><u>Accumulation of logging debris</u></p> <p>EPA officers assessed each retained tree against condition 5.6 (h) of the Southern Region IFOA. This included all live standing trees within each plot being assessed for mark up, accumulation of logging debris greater than 1 metre in height and within 5 metres of the tree bole, and damage to retained trees caused during the harvesting operation.</p> <p>EPA officers observed and recorded the following:</p> <ul style="list-style-type: none"> • 25 live standing trees were identified within the transect. • 10 of the 25 retained trees were identified as having logging debris within 5 metres and up to 1 metre high fully or partially surrounding them. • 3 of the 6 marked H&R trees had logging debris within 5 metres and over 1 metre high fully or partially surrounding them. • 4 unmarked candidate H&R trees had logging debris within 5 metres and over 1 metre in height surrounding them. <p>Risk assessment of non-compliance</p> <p>The EPA 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"> • the likelihood of environmental harm occurring; and • the level of environmental impact. <p>These results were used to decide the level of risk of each non-compliant activity. The risk assessment noted:</p> <ul style="list-style-type: none"> • Failure to select and mark candidate R trees for each H tree in a regrowth zone • the accumulation of logging debris greater than 1 metre in height and within 5 metres of marked retained trees. <p>The EPA determined that the risk of environmental harm to be Code Yellow because:</p>	<p>3 (6)</p>	<p>An action plan must be developed and implemented to ensure that logging debris does not accumulate around the base of retained trees.</p>
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		<ul style="list-style-type: none"> environmental harm is likely to occur if an R tree is not selected and marked in the field environmental harm is likely to occur during a post logging burn or bushfire due to logging debris accumulation, the level of environmental impact is low as the scale of harm is relatively low. <p>Why is this important?</p> <p>The EPA considers the protection of all retained 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>Damage to retained trees can be a vector for disease and fungal attacks. Failing to protect all retained trees following a successful harvesting event can lead to long term decline in forest health.</p> <p>Regrowth forests contain few large trees that can support hollow dwelling species. The long term maintenance of retained trees is vital for the development of a multi age class forest.</p>		
CONDITIONS RELATED TO HOLLOW BEARING & RECRUITMENT TREE MARK UP				
<p><i>Clause 5.6 tree retention</i></p> <p><i>Clause 5.6h Protection of retained trees</i></p> <p><i>iii Retained trees referred to in conditions 5.6(a), (b), (c), (d), (e), and (f), must be marked for retention. The only exemption to the marking of retained trees is where the understorey is thick and impenetrable.</i></p>	<p>No</p> <p>Code Yellow</p>	<p>The EPA finds FCNSW to be non-compliant with clause 5.6h iii protection of retained trees in the assessed area.</p> <p><u>Marking up for retention</u></p> <p>EPA officer noted that while the correct number of H & R trees were physically retained by the harvesting operations within the assessed area it was not a deliberate act of FCNSW. Some of these physically retained H & R trees were not marked in the field by FCNSW that should have been.</p> <p>EPA officers observed:</p> <ul style="list-style-type: none"> 1 H tree was not marked up prior to harvest. 3 R trees were not marked up prior to harvest. 	4 (10)	<p>An action plan must be developed and implemented to ensure that H & R trees are marked up prior to harvesting.</p>

		<p>Risk assessment of non-compliance</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"> the likelihood of environmental harm occurring; and the level of environmental impact. <p>These results were used to decide the level of risk of each non-compliant activity. The risk assessment noted:</p> <ul style="list-style-type: none"> FCNSW did not mark up the required number of H & R trees for retention prior to harvest even though they existed in the immediate area. <p>The EPA determined that the risk of environmental harm has been assessed as Code Yellow because:</p> <ul style="list-style-type: none"> environmental harm is likely to occur where trees are not being marked for retention in accordance with licence conditions. the level of environmental impact is low as in this instance the scale of harm is relatively low. <p>Why is this important?</p> <p>The EPA considers the protection of all retained 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>Failure to mark up and retain the required number of H & R trees can result in an immediate loss important habitat for arboreal animals.</p> <p>The failure to mark up and retain the required number of recruitment trees can lead to a long term decline in the number of hollow bearing trees through insufficient hollow bearing tree recruitment.</p> <p>Regrowth forests contain few large trees that can support hollow dwelling species. The long term maintenance of retained trees is vital for the development of a multi age class forest.</p>		
		Sub total	10 (27)	

CONDITION RELATING TO RIDGE AND HEADWATER HABITAT - PROTECTION

Clause 5.8 Location of ridge and headwater habitat

For every 500 hectares of areas within the South Cost Sub-region as identified in Clause 4 of this approval, FCNSW must implement:

- i. a minimum of two exclusion zones at least 40 metres wide which connect second order streams, or*
- ii. a minimum of one exclusion zone at least 80 metres wide which connects third order streams.*

Yes

The EPA finds FCNSW compliant with this condition in the assessed area.

EPA officers assessed the established width of the ridge and headwater habitat implemented by FCNSW. Harvesting had occurred up the marked boundary on both sides of the exclusion zone. No breaches of the ridge and headwater habitat exclusion zone were observed.


EPA officers measured the established width of the exclusion zone to determine compliance with ridge and headwater habitat requirements.

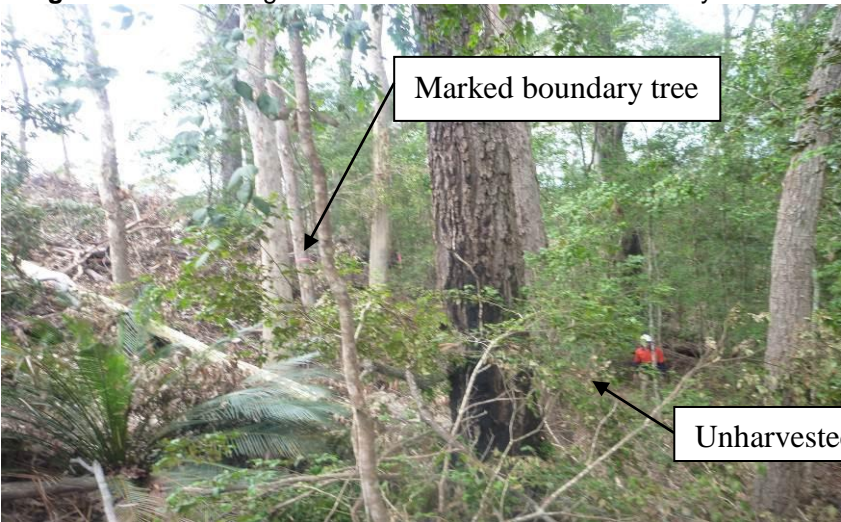
Table 2: Ridge and headwater exclusion zone measurements

Waypoint (start, end)	Recorded GPS error (m)	Width of exclusion zone (m)
929, 936	8	131
930, 935	6	80.5
931, 934	8	99
932, 933	8	102

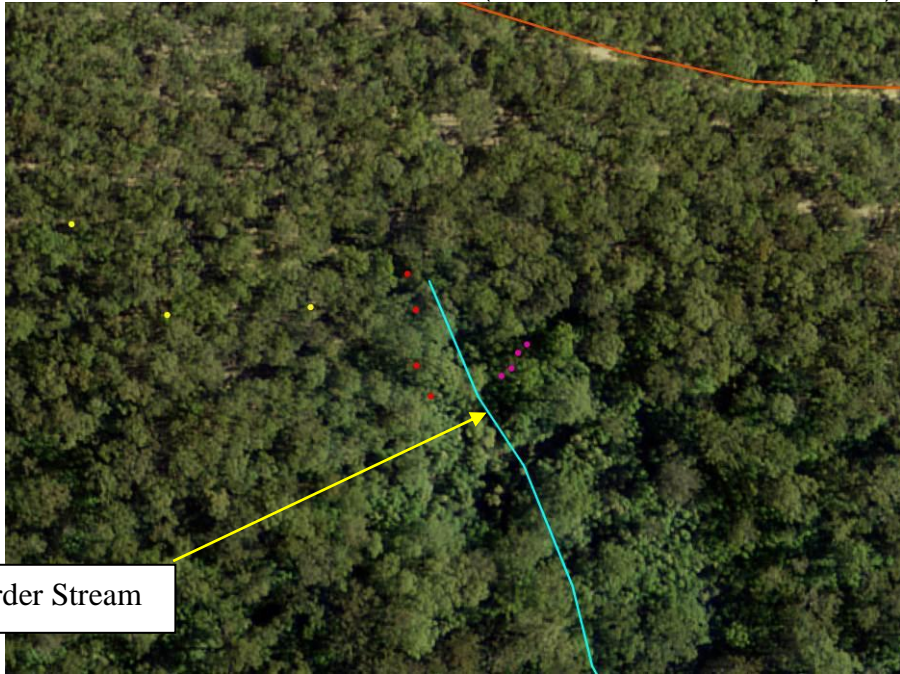
Image 4. Ridge and headwater measurement locations, waypoint to waypoint. Waypoints located at marked boundary of exclusion zone.

0 (1)

		 <p>EPA officers measured the distance from the one side of the marked exclusion zone to the opposite marked boundary of the ridge and headwater exclusion zone. The key audit findings are:</p> <ul style="list-style-type: none"> • FCNSW correctly specified the ridge and headwater exclusion zone on the Harvest Plan Operational Map • FCNSW field staff correctly applied the exclusion zones in the field <p>At this location FCNSW is compliant with clause 5.8 of the Southern Region IFOA Threatened Species Licence as ridge and headwater habitat exclusion zone has been correctly applied.</p>		
<p><i>Clause 5.8 Location of ridge and headwater habitat</i></p> <p><i>Clause 5.8.h) harvesting prohibited from ridge and headwater habitat.</i></p> <p><i>Except as provided by condition 5.1 and 5.8, specified forestry activities other than road construction and road re-opening where there is no other practical means of access, are prohibited in these exclusion zones</i></p>	Yes	<p>The EPA finds FCNSW compliant with this condition in the assessed area.</p> <p>EPA officers assessed the boundary on both sides of the ridge and headwater habitat exclusion zone. The key audit finding is that:</p> <ul style="list-style-type: none"> • FCNSW and its contractors observed the marked up boundary and no incursions into the exclusion zone were observed by EPA auditors (Image 7). <p>At this location FCNSW is compliant with clause 5.8 h) of the Southern Region IFOA Threatened Species Licence as the ridge and headwater</p>	0 (1)	


		<p>habitat exclusion zone was implemented and protected.</p> <p>Image5: Observed ridge and headwater exclusion boundary</p> 		
CONDITION RELATING TO RIDGE AND HEADWATER HABITAT – FIELD MARK UP				
<p><i>Clause 5.1E Marking up of boundaries</i></p> <p><i>Clause 5.1 a) A reference in this condition (being condition 5.1E) to an environmentally sensitive area is a reference to:</i></p> <ul style="list-style-type: none"> <i>an exclusion zone referred to in any of the following conditions:</i> <ul style="list-style-type: none"> <i>condition 5.8 ("Ridge and Headwater Habitat")</i> 	Yes	<p>The EPA finds FCNSW compliant with this condition in the assessed area.</p> <p>EPA officers assessed the boundary on both sides of the ridge and headwater habitat exclusion zone. The key audit finding is that:</p> <ul style="list-style-type: none"> FCNSW had clearly and correctly marked up the ridge and headwater habitat boundary (Image 7). <p>At this location FCNSW is compliant with clause 5.1E of the Southern Region IFOA Threatened Species Licence as the ridge and headwater habitat exclusion zone has been correctly marked up in the field.</p>	0 (2)	
		Sub total	0 (4)	

Condition No.	Compliant? (Yes/No/ Not- determined)	Comment and Evidence	Number of non- compliance and (sample size & unit)	Action required by licensee															
CONDITION RELATED TO PROTECTION OF DRAINAGE FEATURES																			
<p><i>Threatened Species Licence for the South Coast Sub-region of the Southern region</i></p> <p><i>Clause 5.7 Riparian habitat protection – protection zones</i></p> <p><i>(a) A protection zone (hard) must be established along either side of a stream for its entire length. A protection zone (soft) must be established along the entire length of each protection zone (hard).</i></p> <p><i>(b) Each protection zone is to have at least the width shown in table 1 and set out below.</i></p> <p><i>1st order stream</i></p> <p><i>Protection zone (hard) = 5 metres</i></p> <p><i>Protection zone (soft) = 5 metres</i></p>	Yes	<p>The EPA found FCNSW’s compliant with this condition at this location.</p> <p><u><i>Unmapped drainage feature protection</i></u></p> <p>EPA officers noted that an unmapped drainage feature was identified by FCNSW, clearly marked in the field and observed by harvesting crews.</p> <p>EPA officers measured the distance from the centre line of the unmapped drainage feature to the marked boundary (Table 3). EPA officers did not observe harvesting operation beyond the marked boundary.</p> <p>Table 3: Unmapped drainage feature filter strip and protection zone measurements</p> <table><tr><th>Measurement point</th><th>Distance</th><th>Waypoint</th></tr><tr><td>1</td><td>5</td><td>758/759</td></tr><tr><td>2</td><td>7</td><td>600</td></tr><tr><td>3</td><td>6</td><td>601</td></tr><tr><td>4</td><td>6</td><td>602</td></tr></table> <p>The key audit findings are:</p> <ul style="list-style-type: none">FCNSW correctly retained the filter strip	Measurement point	Distance	Waypoint	1	5	758/759	2	7	600	3	6	601	4	6	602	0 (2)	N/A
Measurement point	Distance	Waypoint																	
1	5	758/759																	
2	7	600																	
3	6	601																	
4	6	602																	
<p><i>Threatened Species Licence for the South Coast Sub-region of the Southern region</i></p> <p><i>Clause 5.7 Riparian habitat protection – protection zones</i></p>	Yes	<p>Transect 2, the EPA found FCNSW to be compliant with this condition at this location.</p> <p><u><i>Mapped 1st order drainage feature protection</i></u></p> <p>EPA officers audited a 55m transect along the unnamed first order stream identified in Image 2.</p>	0 (2)	N/A															

<p>(a) A protection zone (hard) must be established along either side of a stream for its entire length. A protection zone (soft) must be established along the entire length of each protection zone (hard).</p> <p>(b) Each protection zone is to have at least the width shown in table 1 and set out below.</p> <p>1st order stream Protection zone (hard) = 5 metres</p> <p>Protection zone (soft) = 5 metres</p>	<p>It was observed that boundaries were clearly marked with flagging tape and had been observed by harvesting crews.</p> <p>Image 7. Location of Transect 2, 1st order stream audit and approximate location of audit measurement locations (red circles = measurement points).</p>  <p>1st order Stream</p> <p>EPA officers measured the distance from top of the bank of the incised channel to the boundary of the marked protection zone (soft). The key audit findings are:</p> <ul style="list-style-type: none">• FCNSW correctly specified the protection zone (hard) and Protection zone (soft) exclusions on the Harvest Plan Operational Map• FCNSW field staff correctly applied the protection zones in the field at the location.• FCNSW contractors correctly observed the filter strip and protection zone as marked in the field.• there were no incursions into the marked protection zone observed by EPA auditors			
Sub total			0 (4)	
			Total 10 (34)	

FURTHER OBSERVATIONS TABLE – BENANDRAH STATE FOREST, COMPARTMENTS 112 AND 113

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

Relevant Condition	Details of matter	Recommendation
CONDITION RELATED TO FOREST STRUCTURE – BASAL AREA		
<p><i>Clause 5 Description of forestry operations to which this approval applies</i></p> <p><i>Clause (11) D (a)</i></p> <p><i>Single tree selection refers to a silvicultural practice that, in relation to a tract of forested land, has the following elements:</i></p> <p><i>(a) in the south coast sub-region, trees are selected for logging or culling with the objective of ensuring that:</i></p> <p><i>(i) the sum of the basal areas of trees removed or destroyed comprises no more than 45% of the sum of the basal area of all trees existing immediately prior to logging or culling within the net harvest area of the tract; and</i></p> <p><i>(ii) the sum of the basal area of the trees remaining after logging or culling as a proportion of the net harvestable area of the tract existing immediately prior to logging or culling is at least 10 m² per hectare.</i></p>	<p>Average basal area prior to harvest across the tract was 25 m²/ha (taken from the Benandarah State Forest, Compartments 112-113 harvest plan).</p> <p>Basal area recorded during H & R Tree transect across 5 plot points was 6.2 m²/ha. At this location this is well below the required minimum retention rate of 10 m²/ha across the tract.</p> <p>It is not possible to determine compliance with this criteria as it was outside the scope of the audit.</p> <p>Image 8: Low basal area retention site 4m²/ha</p> 	<p>Code Yellow</p> <p>An action plan must be developed and implemented to identify each tract for FCNSW staff and to ensure that basal area retention rates across the tract are met.</p> <p>At the completion of each harvesting operation provide a copy of the HPOM to the EPA clearly identifying the tract and areas harvested and not harvested within the tract.</p> <p>This matter is being investigated outside the audit process.</p>

ATTACHMENT 2: 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.

	Likelihood of Environmental Harm Occurring			
		Certain	Likely	Less Likely
Level of Environmental Impact	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 and EPA RESPONSE

Condition / Audit finding reference / page No.	EPA draft finding / risk category	Location – description GPS	FCNSW evidence submission	EPA final finding / risk category	EPA response to FCNSW submission
TSL 5.6(e) / Pg 3	R tree retention / Red	Unknown – no location information provided by EPA	<p>TSL Condition 5.6 requires for each hollow bearing tree retained a recruitment tree must be retained. TSL condition 5.6 (e) ii also requires that retained trees be evenly scattered throughout the net logging area.</p> <p>There is no requirement under TSL condition 5.6 that for every hectare of net logging area an equal number of hollow bearing trees and recruitment trees must be retained. During pre-harvest mark-up FCNSW staff count retained trees across a ridge or around a log dump, usually in areas of 5, 10 or 15ha's, FCNSW do not ensure that every randomly selected hectare contains an equal number of hollow bearing and recruitment trees. Furthermore, FCNSW does not consider that 1 transect of 1ha, representing 0.38% of the harvest area is statistically valid, nor does this sample provide any evidence of indicative trends across the compartment.</p> <p>FCNSW requests that the EPA amend its draft audit findings to remove this non-compliance and amend the findings to “not determined”.</p>	Compliant	<p>The EPA reconsidered its audit evidence and changed its audit finding.</p> <p>The EPA uses randomly located field transects. Where sufficient numbers of evenly scattered trees are retained within net harvested area, a randomly located transect should produce the numbers required by the licence. Clause 5.6 (e) (ii) requires that for every hollow bearing tree retained a recruitment must be retained.</p> <p>EPA observed 6 marked trees (4 H trees and 2 R trees) and 19 unmarked retained trees. Of these 19 unmarked retained trees, there were at least 3 unmarked R trees, candidate R trees. A candidate R tree is a R tree that is physically standing after harvesting operation (retained by those operations) but not selected and marked in the field by FCNSW. EPA also includes candidate R trees to determine compliance for retention</p>

					<p>(noting it is a non compliance for selection as they weren't selected).</p> <p>Audit evidence showed there were sufficient recruitment trees physically retained by harvesting operations in the area assessed. This included selected and marked R trees and candidate R trees.</p> <p>The EPA therefore changes its audit finding from non-compliant to compliant.</p>
<p>TSL 5.6(h) / Pg 6</p>	<p>Protection of retained trees /</p> <p>Not compliant Yellow</p>	<p>Unknown – no location information provided by EPA</p>	<p>FCNSW has reviewed the draft audit findings.</p> <p>It is unclear from the audits findings how FCNSW has breached condition 5.6(h).</p> <p>Condition 5.6(h)(iii) requires that retained trees must be marked. Consequently any trees not marked are not considered retained trees under condition 5.6, thus conditions 5.6 (h) (i) & 5.6 (h) (ii) does not apply to unmarked trees. The draft audit findings state that 27 trees were assessed and 13 were found to have debris. FCNSW only marked 7 trees within the assessed transect and the draft findings do not provide evidence that logging debris was located around marked retained trees.</p> <p>FCNSW requests that the EPA remove this audit findings from the final audit report or provide FCNSW with evidence of which marked retained trees have logging debris within 5 metres.</p>	<p>Not compliant (Code Yellow)</p>	<p>The EPA considered the FCNSW submission and the field evidence gathered during the audit in its consideration of the final determination.</p> <p>Logging debris around marked retained trees was evident and discussed at the on-site de-brief on 13 February 2015 by EPA and FCNSW staff.</p> <p>The EPA upholds its draft audit finding and requirement for action plan for conditions 5.6 (h) (i) and 5.6 (h) (ii).</p>