AUDIT REPORT - BULGA STATE FOREST, COMPARTMENT(S) 11&20

Auditee:	FORESTRY CORPORATION OF NSW (FCNSW)
Audited State Forest & Cpts:	Bulga State Forest, compartment(s) 11 & 20. The field audit over 2 day(s).
Region:	Wingham Management Area
Date/Audit timing:	3rd December 2015, 17th December 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:	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:	• Hollow bearing & recruitment trees • Basal Area Retention • Streams – Mark-up & protection • Rainforest - Mark up & protection • Koala search, feed tree retention, mark up & high use protection **Physical scope**: This audit was limited to the physical boundaries of compartments 11 & 20 **Temporal scope**: The audit period adopted for assessment of compliance with operational conditions was on the days of the audit inspection (3rd and 17th December 2015).
Audit criteria:	5.6 (b)(c)(h) Hollow bearing and recruitment tree retention, selection and protection 5.7 Riparian habitat protection 5.4 Rainforest protection 5.2.2 & 6.14 Koala searching & high use protection
Summary of Operations	From the harvesting plan: "Compartment history records refer back to the late 1950's giving a good account of previous harvesting and silviculture activities that took place within these compartments. Several logging events have taken place within these compartments with the last being in 2004 in compartment 16.Prior to 2004 harvesting events had regimes consisting of timber stand improvement work, ring barking and light and heavy STS logging.

	The silvicultural objective of this harvesting operation is to harvest large-over mature senescent stems and mature stems down to 40cm DBH and poorer quality and defective stems <40cm DBH ”

1. Audit Findings – Overview

The EPA identified

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
Exclusion zones	**Riparian protection zone** **Rainforest protection** **Rainforest field mark up**	0 3 0	1 2 5		
Koalas	**Searching** **Feed tree retention** **Mark up** **High use area protection**			1 1 1 1	
Hollow bearing and recruitment trees	**H Retention**	1	0		
	H Selection	19	0		
	R Retention	1	0		
	R Selection	5	5		
	H&R Protection	13	16		
Forest Structure	**Basal Area Retention**			1	
	TOTAL	**42**	**29**	**5**	

ATTACHMENT 1: EPA FINAL AUDIT FINDINGS TABLE – BULGA STATE FOREST, COMPARTMENT 11&20

CONDITION RELATED TO HOLLOW-BEARING TREES – NON REGROWTH ZONE - RETENTION

Condition No. and detail	Compliant? Yes/No/ Not determined/Not Applicable	Number of non-compliance (sample size & unit)	Action required by licensee
5.6(b): Tree Retention – Non Regrowth Zone Within the Non-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. i. Where this density is not available, the existing hollow-bearing trees must be retained plus additional trees must be retained as hollow-bearing trees to meet the required rate.	**Yes**	0/1	

Comment and Evidence

EPA found that the area assessed was compliant with this condition. **Only post harvest areas were assessed against this criterion**.

EPA Officers found twenty five (24) H trees retained in 2 hectares of harvested forest, nineteen marked H trees and six candidate un-marked/unselected H trees.

FCNSW achieved a retention rate of 12.5 H tree / 2ha. The full data results are shown in **Attachment 1-A**.

Table 1: H tree transects within a harvested area

Location	Start EPA waypoint	End EPA waypoint	Assessment Method	Area assessed	H trees marked	Unmarked candidate H trees	Retention rate/ha
Transect One			Plot transects (5 plots per transect)	1 ha	6	0	7 H/ha includes marked and unmarked
Transect Two			Plot transects (5 plots per transect)	1 ha	13	6	17 H/ha includes unmarked candidate H tree
Total				2 ha	19	5	12 H/ha marked and unmarked

*EPA officers considered trees retained to be candidate H trees only where they met the TSL criteria (despite not being marked or selected by FCNSW).

CONDITIONS RELATED TO HOLLOW BEARING TREES (NON REGROWTH ZONE) – SELECTION			
Condition No. and Detail	**Compliant? Yes/No/Not determined/Not applicable**	**Number of non-compliance and (sample size)**	**Action required by licensee**
5.6 b iii Tree Selection – Non Regrowth Zone The remaining hollow-bearing trees and any additional trees required to be retained to meet the retention rate under this condition 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) good crown development, (Note: this does not restrict the selection of trees with broken limbs consistent with the hollow-bearing tree definition). (iii) minimal butt damage, (iv) represent the range of hollow-bearing species that occur in the area, (v) located such that they result in retained trees being evenly scattered throughout the net logging area.	Yes	0/19 (marked and retained H trees in two separate areas across 2ha of net harvest area)	
Comment and Evidence			
EPA found that FCNSW selection of trees in the area assessed were compliant with this condition. The EPA found that in the assessed area (2 ha) a minimum of 10 compliant H trees were required to be retained (i.e. minimum rate of 5H/ha). The EPA found that all 19 H trees marked and retained were compliant with selection element specified in the condition. Six (6) candidate H trees were retained in the 2ha assessed.			

CONDITION RELATED TO RECRUITMENT TREES – NON REGROWTH ZONE - RETENTION

Condition No. and detail	Compliant? Yes/No/ Not determined/Not Applicable	Number of non-compliance (sample size & unit)	Action required by licensee
5.6(c) Tree Retention Within the Non-regrowth Zone the following requirements for retention of Recruitment trees apply: e) i. A minimum of five recruitment trees must be retained per hectare of net logging area.	**Yes**	0 / 1 (approx. 2ha of harvested area assessed)	

Comment and Evidence

EPA audit of retained trees found that they were insufficient in number compared to H trees retained. Ten R trees were required to be retained. EPA counts and contributes all live standing R trees regardless of whether they are marked or not. Accordingly EPA counts marked and unmarked candidate R trees up to the TSL retention rate threshold of 10 R trees / ha.

There were a total of 10 R trees across the two locations, with location 1 having one (1) marked R tree and location 2 having six (6) marked R trees.

Table 2: R tree transects within a harvested area

Location	Start EPA waypoint	End EPA waypoint	Assessment Method	Area assessed	R trees marked	Unmarked candidate R trees	Retention rate/ha
Transect One			Plot transects (5 plots per transect)	1 ha	1	3	4 H/ha includes marked and unmarked
Transect Two			Plot transects (5 plots per transect)	1 ha	6	0	6 H/ha includes unmarked candidate H tree
Total				2 ha	7	3	5 H/ha marked and unmarked

*EPA officers considered trees retained to be candidate H trees only where they met the TSL criteria (despite not being marked or selected by FCNSW).

CONDITION RELATED TO RECRUITMENT TREES – NON REGROWTH ZONE – SELECTION

Condition No. and detail	Compliant? Yes/No/ Not determined/Not Applicable	Number of non-compliance (sample size & unit)	Action required by licensee
5.6(e) Tree Selection Recruitment trees must be selected with the objective of retaining trees having as many of the following characteristics as possible: i. belong to a cohort of trees with the largest **DBHOB**, ii. located such that they 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**	5/10 (10 R trees required to be selected across the 2ha of assessed area)	An Action Plan must be developed and implemented to ensure that R Trees are selected in line with condition 5.6 (e). This is an orange code due to the relative high rate of non compliance with this condition.

Comment and Evidence

EPA found that FCNSW did not comply with this condition in the area assessed. **Post-harvest assessment:** Two transects covering **2 ha** comprising of five circular plots each transect. EPA officers observed seven (7) marked R trees and 3 candidate R trees. EPA uses field marked (paint) trees as the indicator of whether a tree was selected or not. EPA also uses the element of the condition that relates to size as the key element to determine compliance *"belong to a cohort of trees with the largest DBHOB".*

Location 1 - The three (3) unmarked unselected R trees were required to be selected but not selected therefore represent 3 non compliances. The largest stump (harvested tree) at this location was 145cm DBHOB (after a conservative taper applied). There were three (3) stumps (harvested trees) between 115 and 145cm DBHOB (after a conservative taper applied) at this location

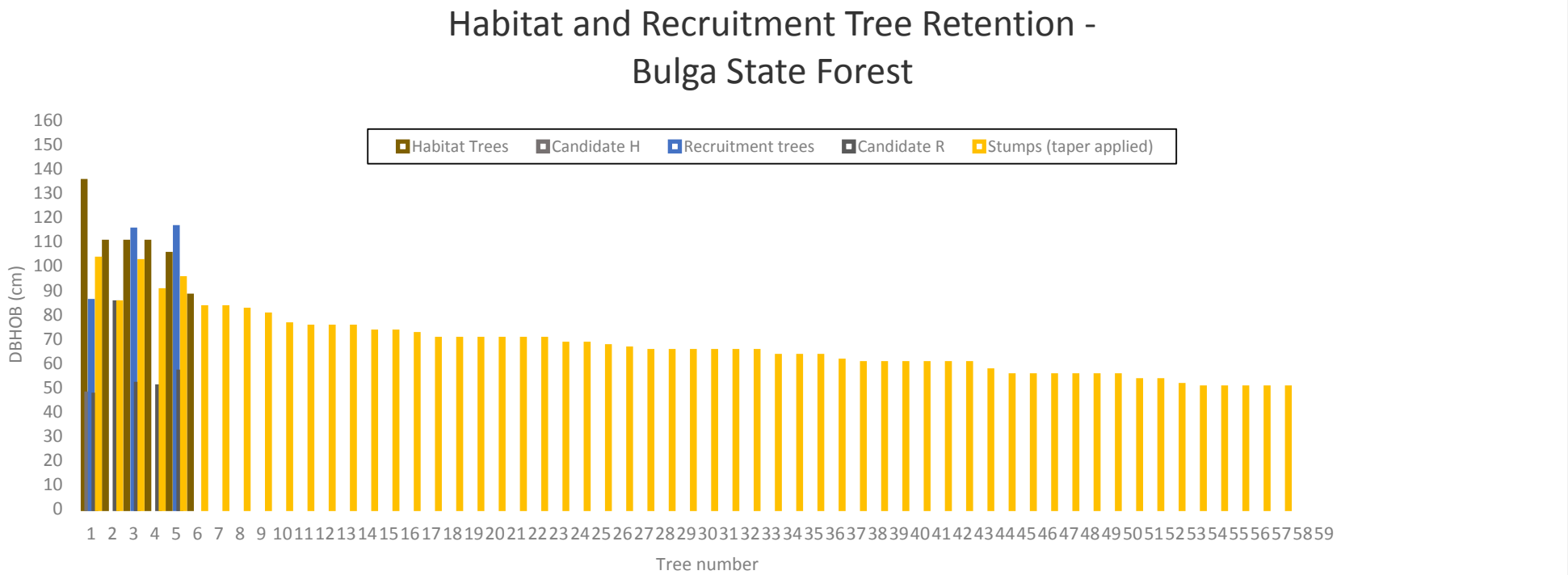
Location 2 - Of the seven (7) marked R trees, two (2) of them did not belong to a cohort of trees with the largest DBHOB. Two selected and marked R trees at location 2 were **48 cm and 71 cm DBHOB**. This is 54 cm and 77 cm smaller than the largest stump (harvested trees) at this location. There were 19 stumps that were greater than 17cm larger than the R tree marked and retained at this location. There were 41 stumps (harvested trees) across both locations that were greater than 17cm larger than the R tree marked and retained at this location.

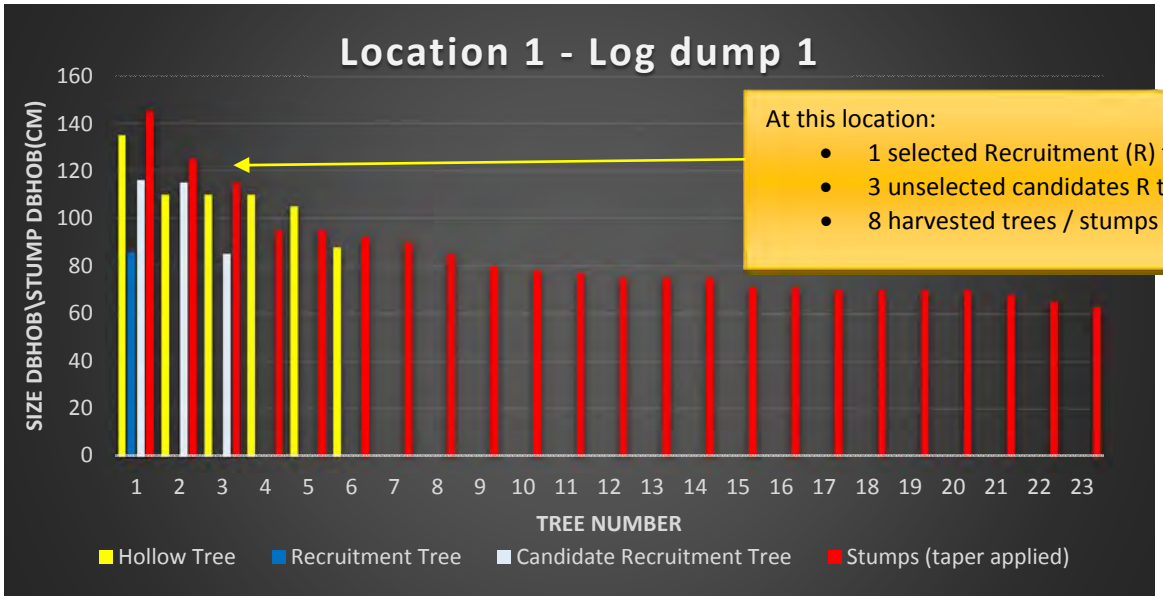
There were five (5) stumps (harvested trees) between 105cm – 125 cm DBHOB (after a conservative taper applied) at this location. These two selected R trees equate to two (2) non compliances of the condition for R tree selection.

WHY IS COMPLIANCE WITH THIS TSL CONDITION IMPORTANT?

Largest Size Cohort: The presence, abundance and size of hollows are positively correlated with tree basal diameter, which is an index of age (Lindenmayer *et al.* 1991a, Bennett *et al.* 1994, Ross 1999, Soderquist 1999, Gibbons *et al.* 2000, Shelly 2005). Tree diameter at breast height (DBH) is, in turn, a strong predictor of occupancy by vertebrate fauna (Mackowski 1984, Saunders *et al.* 1982, Smith and Lindenmayer 1988, Gibbons *et al.* 2002, Kalcounis-Rüppell *et al.* 2006). The minimum size-class at which trees consistently

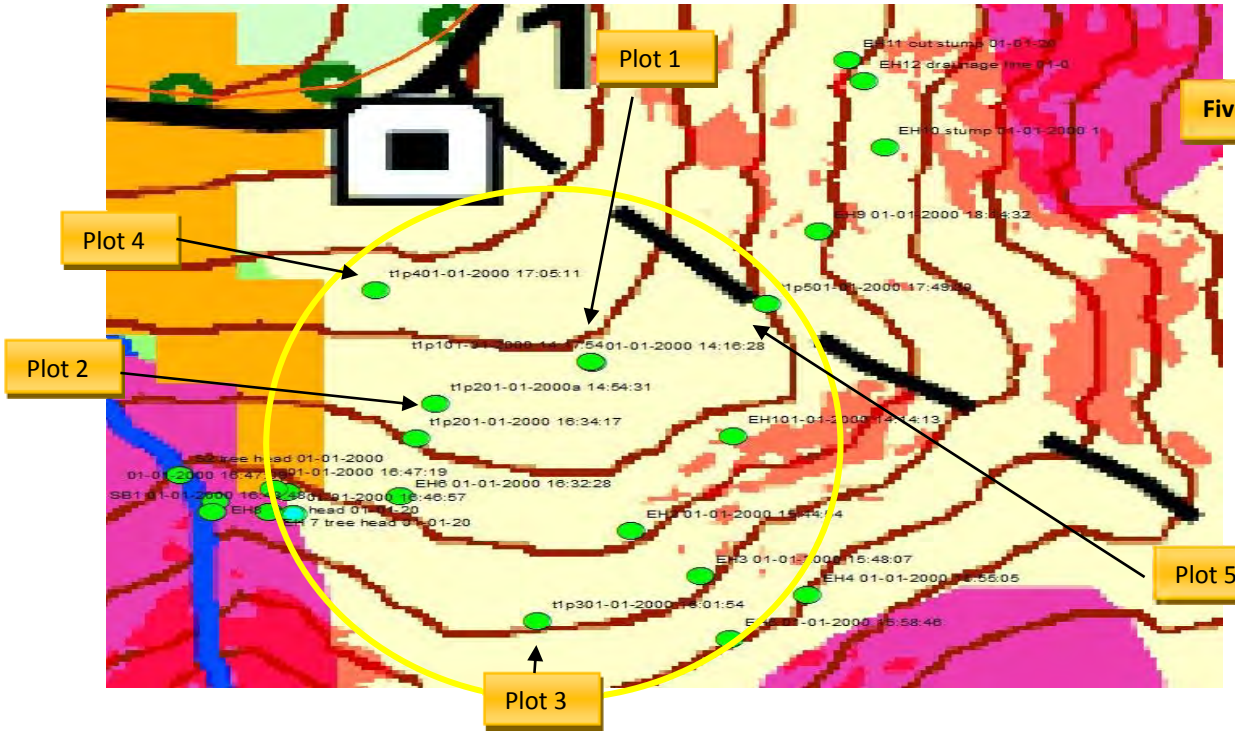
(>50% of trees) contain hollows varies depending on the species and environmental conditions, yet is always skewed toward the larger, more mature trees. (Reference: *Loss of Hollow-bearing Trees key threatening process determination NSW Scientific Committee - final determination (2007))*

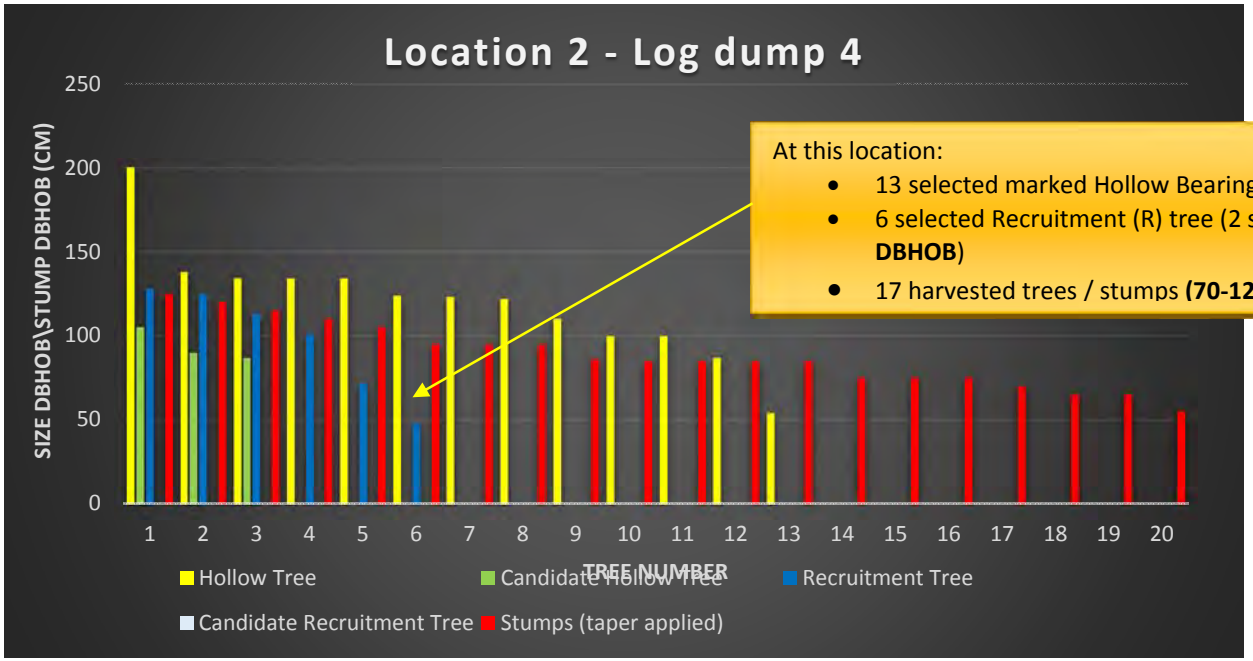




At this location:

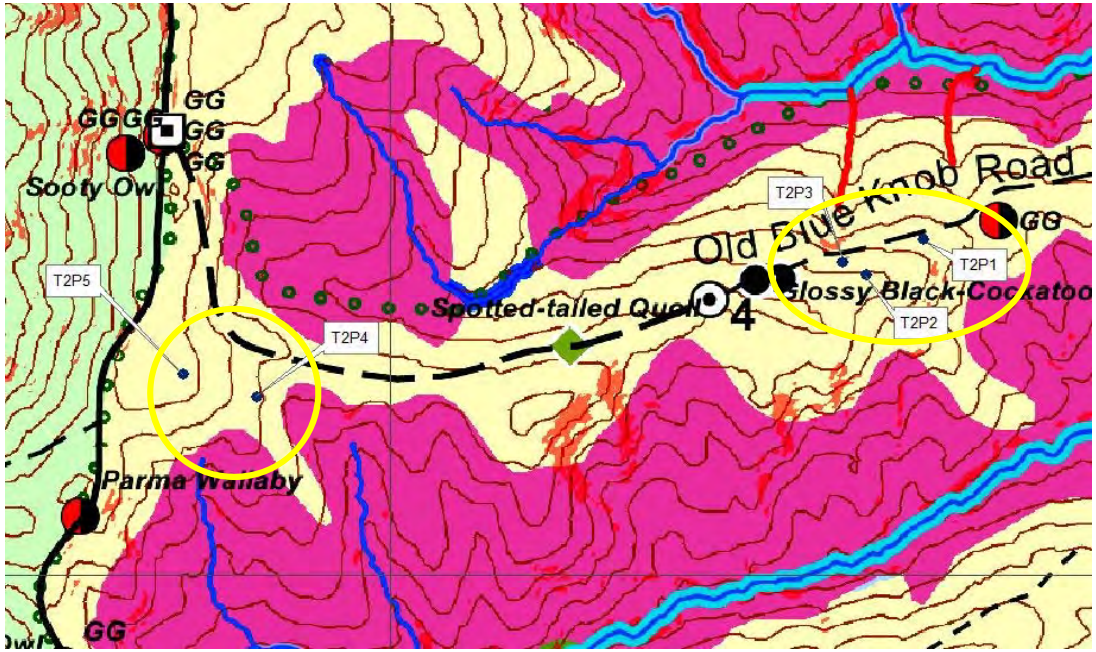
- 1 selected Recruitment (R) tree (**86cm DBHOB**)
- 3 unselected candidates R trees **(85, 115, 116cm DBHOB).**
- 8 harvested trees / stumps (**85, 90, 92 95 95 115, 125, 145 cm DBHOB**)





At this location:

- 13 selected marked Hollow Bearing (H) trees **(54-200cm DBHOB).**
- 6 selected Recruitment (R) tree (2 selected marked R trees **48 & 71cm DBHOB**)
- 17 harvested trees / stumps **(70-125 cm DBHOB)**.



CONDITION RELATED TO HOLLOW-BEARING & RECRUITMENT TREES – PROTECTION			
Condition No. and detail	**Compliant? Yes/No/ Not determined/Not Applicable**	**Number of non-compliance (sample size & unit)**	**Action required by licensee**
5.6(h) Protection of retained trees **Threatened Species Licence, Southern Region** 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. 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, *Allocasuarina* with more than 30 crushed cones beneath, eucalypt feed tree, or Yellow-bellied Glider or Squirrel Glider sap feed tree. 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.	**No** **Code: Red**	16 / 29 (29 trees assessed in 2 ha of harvested area – including all 19 marked H trees and 10 R trees required for retention)	These non compliances and related environmental risks will be investigated in a separate process that is outside this audit process
Comment and Evidence			
EPA found that FCNSW did not comply with this condition in the area assessed. Only **post-harvested area assessed for H & R trees both marked and unmarked/unselected candidate trees.** Total area assessed was 2ha. Twenty six (26) of the twenty nine (29) H & R trees assessed were clearly marked in the field with paint. Sixteen of the twenty none trees assessed had excessive debris – over 1m high and within 5 m of the base. In many instances, the debris included large logs (>60cm DBHOB) resting against the base of a clearly marked H or R tree. In most instances the debris was continuous across the net harvest area assessed. In most instances debris extended around the majority of the base and connected to significant debris in other areas. This possess a significant fire risk to many of the large H trees marked and retained. This significant fire risk risks the longevity of the habitat trees as some had visible hollows in the trunks and/or base. Such poor protection practice defeats the effort made to select and retain the trees. The large amount of continuous debris across the generally forest floor would be contributed to the large number of large trees harvested in this operation. EPA officers informed FCNSW staff shortly after the 3 December 2015 audit inspection and on 17 December 2015 again spoke to FCNSW staff at log dump 13 stating that it was an key preliminary finding and the EPA will be back to monitor how H&R trees are protected for this operation beyond log dump 13.			

Red risk code: The risk code for these non compliance is high. It is high because it is likely to certain these retained trees will be harmed by fire. The consequence is high as the extent of the debris is very high. It contains in many instances large logs .60cm touching the base of clearly marked H and R trees, the debris is of a height in many instances over 3 m and up to 5m and is continuous connecting general debris on the forest floor of similar magnitude. All this contributes to increase the residence time and the temperature of a fire at the immediate base of a hollow bearing tree. Higher residence times and temperatures will increase harm to a retained tree. The rate of non compliance was also high, over 50% of total trees sampled.

The effort and good work to select and retain good hollow bearing resources is wasted when these trees are not protected in such a way as in these areas assessed at Bulga State Forest. Protecting retain trees consolidates that good work in the planning and operating phases.

WHY IS MINIMISING DEBRIS IMPORTANT?

Excessive debris at the immediate base of retained hollow bearing trees, significantly increases the risk of harm to the tree during fire. Excessive debris increases the residence time and intensity of fire at the base of a retained resource. Such damaged caused by fire reduced the longevity of these forest resource thus reducing habitat continuity across the forest. These resources are critical to maintain biodiversity, a key element of effective ecological sustainable forest management. At least 15% of all terrestrial vertebrate fauna in Australia spend part of their lifecycle using a tree hollow. Tree hollows spread across a forest landscape are critical to upholding biodiversity in that landscape.

Clearly marked H tree **in Location 1** with debris around the majority of the base and well over 1m high – see EPA yellow tape as a guide

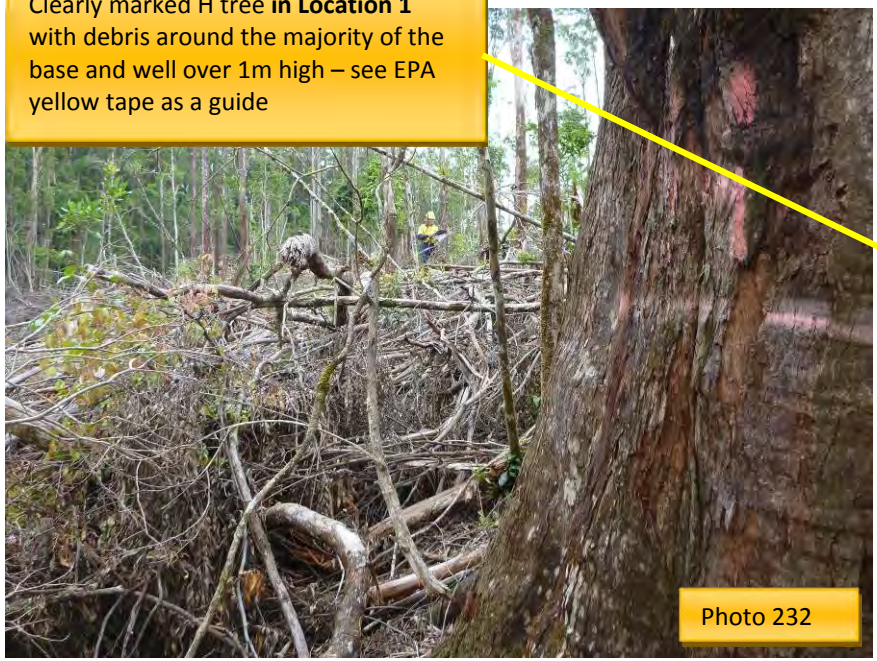


Photo 232

Photo 235

Clearly marked H tree with debris at base up to 3m high – large hollows in trunk running up the trunk. In case of a fire, this extent of debris would increase residence time and heat (thermal energy) of the fire around the base of the tree and likely burn the insides of this tree and impacting its longevity as a habitat resource for protected and threatened fauna. This debris was continuous in extent to surrounding areas.

Large logs placed around the base of the H tree


Clearly marked H tree at Location 1 by debris 1.8m high – including large logs


Clear hollows & debris connectivity with large amounts of debris surrounding areas

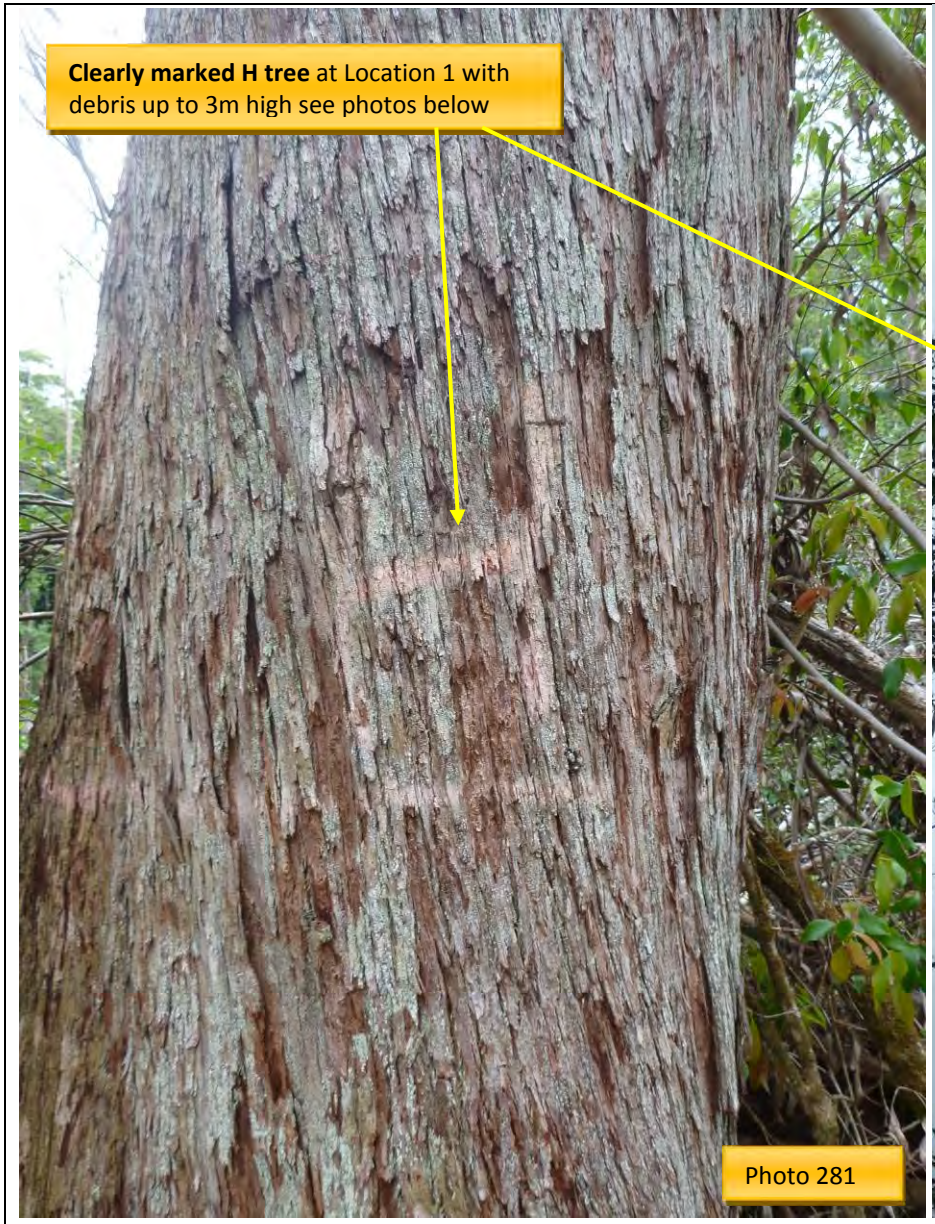
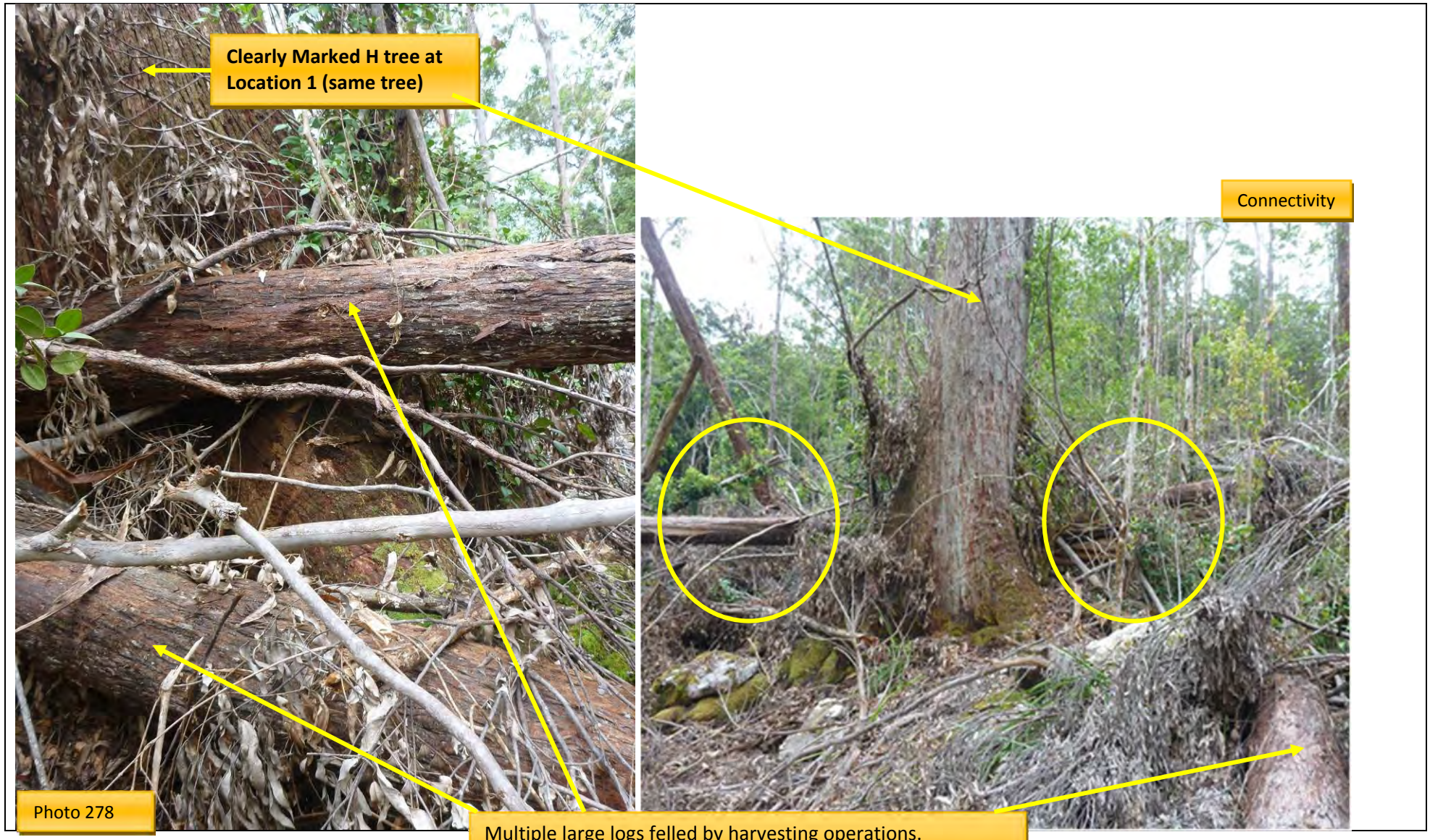

Clearly marked H tree at Location 1 with debris up to 3m high see photos below
Photo 281


Photo 270


Clearly Marked H tree at Location 1 (same tree)
Connectivity
Photo 278
Multiple large logs felled by harvesting operations. Completely around the based, over 2-3m high & well within 5m of the base, some resting on the H tree

Connectivity of excessive debris across forest floor and large log at base of marked H tree


Level of debris at base of marked H tree in Location 1
Level of debris across forest floor. Large logs at base of marked H tree connect to large amounts of debris generally over the forest floor

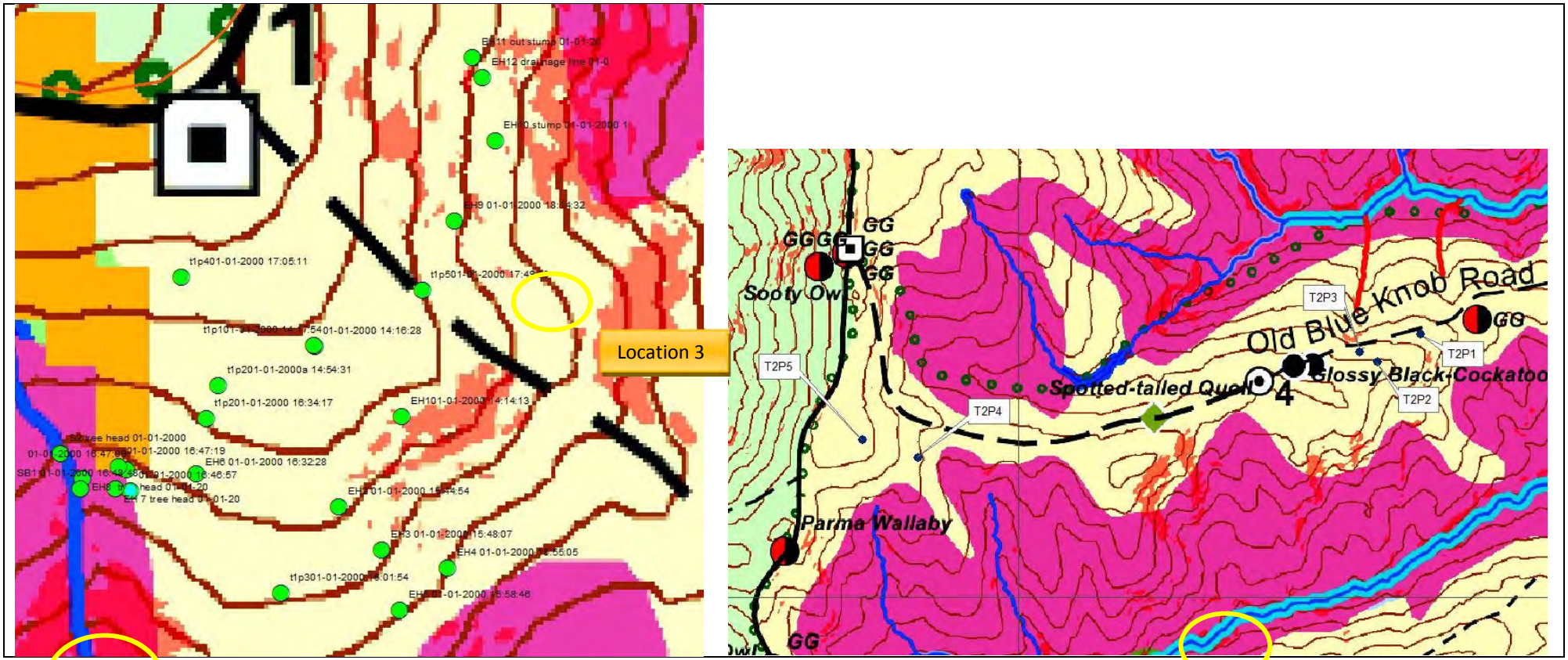
CONDITIONS RELATED TO RAINFOREST AND RAINFOREST EXCLUSION ZONES – MARKING

Condition No. and Detail	Compliant? Yes/No/Not determined/Not applicable	Number of non-compliance and (sample size)	Why it is important & Risk Ranking Code Explanation	Action required by licensee
5.1F All exclusion zone and buffer zone boundaries must be marked in the field, except where specified forestry activities will not come within 50 metres of such boundaries. The outer edge of lines shown on the map is considered to represent the boundary of the mapped feature when marking the feature in the field.	**NO**	5/5 (5 separate locations of rainforest boundary assessed)	It is important for exclusion zones to be marked in the field to ensure operations are conducted in compliance with the TSL and to minimise the risk of non compliances.	An action plan must be developed that ensure exclusion zones are marked in the field according to TSL requirement 5.1F.

Comment and Evidence

EPA found FCNSW did not comply with this condition in all assessed area. There was no field marking of boundary of rainforest in all areas assessed.

CONDITIONS RELATED TO RAINFOREST AND RAINFOREST EXCLUSION ZONES – PROTECTION				
Condition No. and Detail	**Compliant? Yes/No/Not determined/Not applicable**	**Number of non-compliance and (sample size)**	**Why it is important & Risk Ranking Code Explanation**	**Action required by licensee**
5.4 Rainforest a) Specified forestry activities, except road and snig track construction in accordance with condition 5.4 (e), and road re-opening, are prohibited within all areas of Rainforest and exclusion zones around warm temperate Rainforest.	**ND**	2/5 (5 separate rainforest location assessed)		These non-compliances will be investigated outside the audit process.
Comment and Evidence				
The EPA found that FCNSW did not comply with this condition in two areas assessed. These were location 2 and 4. In both instances tree were felled into mapped rainforest area. In both instances the boundary of the rainforest was not marked in the field. The EPA will investigate this non compliance in a follow up investigation				


Location 3
Location 2
Location 1
Location 4
Location 5
Old Blue Knob Road
Glossy Black-Cockatoo
Spotted-tailed Quoll
Parma Wallaby
T2P1
T2P2
T2P3
T2P4
T2P5

Location 2

Location 2

Location 2

Location 4

Location 4

Location 4

CONDITIONS RELATED TO KOALA PROTECTION – KOALA MARK UP

Condition No. and Detail	Compliant? Yes/No/Not determined/Not applicable	Number of non-compliance and (sample size)	Why it is important & Risk Ranking Code Explanation	Action required by licensee
5.2.2 Koala Mark-up Searches a) In compartments which contain preferred forest types, marking-up must be conducted at least 300 metres in advance of harvesting operations. b) During the marking up of the compartment, an adequately trained person must inspect trees at ten metres intervals. Primary browse trees must be inspected. In the event that there are no primary browse trees, secondary browse trees must be inspected. In the event that there are no primary browse trees or secondary browse trees, other trees and incidental browse trees must be inspected. Inspections must include thoroughly searching the ground for scats within at least one metre of the base of trees greater than 30 centimetres DBHOB.	**YES** **Not Determined**	0/1 NA		An action plan must be developed to ensure that sight evidence such as scats at the base of trees are thoroughly searched for 300m ahead of operations

Comment and Evidence
EPA officers determined that condition 5.2.2 (a) was compliant in the assessed area. EPA officers assessed compartment mark-up searches ahead of the active operations. EPA officers observed that hollow bearing and recruitment trees and koala searches had been marked up to the furthest extent from harvesting which complied with the TSL requirements of 300m ahead of active operations. At the time of the audit inspection on 17 September 2015, EPA found that the compartment was marked up and searched for koalas 1200m ahead of operations at log dump 13, last done on 28 November 2015. EPA also found that scat searching at the base of trees was done in part using a stick to poke around the base of a tree. EPA considers it important to move debris and other ground cover when searching for scats on the ground. The way this was described to EPA auditors did not appear to be thoroughly searching for koala scats, and not thoroughly searching equates to a non compliance with this condition. Searching for koalas scats is especially important in this compartment as it is intermediate koala use area – i.e. as it has a koala high use area in it. Koalas are known to use this forest therefore contemporary thorough searching is important to protect them and their high use areas.

CONDITIONS RELATED TO KOALA PROTECTION – FEED TREE RETENTION AND KOALA HIGH USE

Condition No. and Detail	Compliant? Yes/No/Not determined/Not applicable	Number of non-compliance and (sample size)	Why it is important & Risk Ranking Code Explanation	Action required by licensee
6.14a) The following must apply wherever Koala mark-up searches have identified Koala high use areas or Koala intermediate use areas: i. Specified forestry activities are prohibited within all Koala high use areas. A 20 metres wide exclusion zone must be implemented around the boundary of Koala high use areas. ii. In Koala intermediate use areas, per two hectares of net logging area ten primary browse trees must be retained where available. These trees must be marked for retention. Within intermediate use compartments, Australian Group Selection silvicultural techniques are prohibited in preferred forest types.	**ND** **ND**	NA 1/1 (10 K trees were required for retention)		Not determined.

Comment and Evidence
EPA found that the condition related to koala high use and exclusion zones could not be determined. EPA found that the condition related to koala feed tree retention could not be determined. i) **Koala high use area protection** - EPA officers did not determine compliance with condition 5.2.2 (b) in the assessed area. Forest operations were not active in the vicinity of the koala high use area. EPA understand the area will be logged in the future. **ii) Koala Feed Tree Retention 6.14aii)** EPA officers assessed a two hectare area and observed / recorded 26 marked H and R trees. However EPA did not observe any koala feed trees marked (with a K) within the areas assessed. Of the marked H and R trees, only 4 met the criteria for koala primary browse trees consisting of Tallowwood and Grey Gum. Accordingly this was not compliant with koala intermediated feed tree retention. Note: EPA only considered trees marked in the field for retention ie marked (paint) H and R trees.

CONDITIONS RELATED TO STREAM EXCLUSION ZONES - PROTECTION

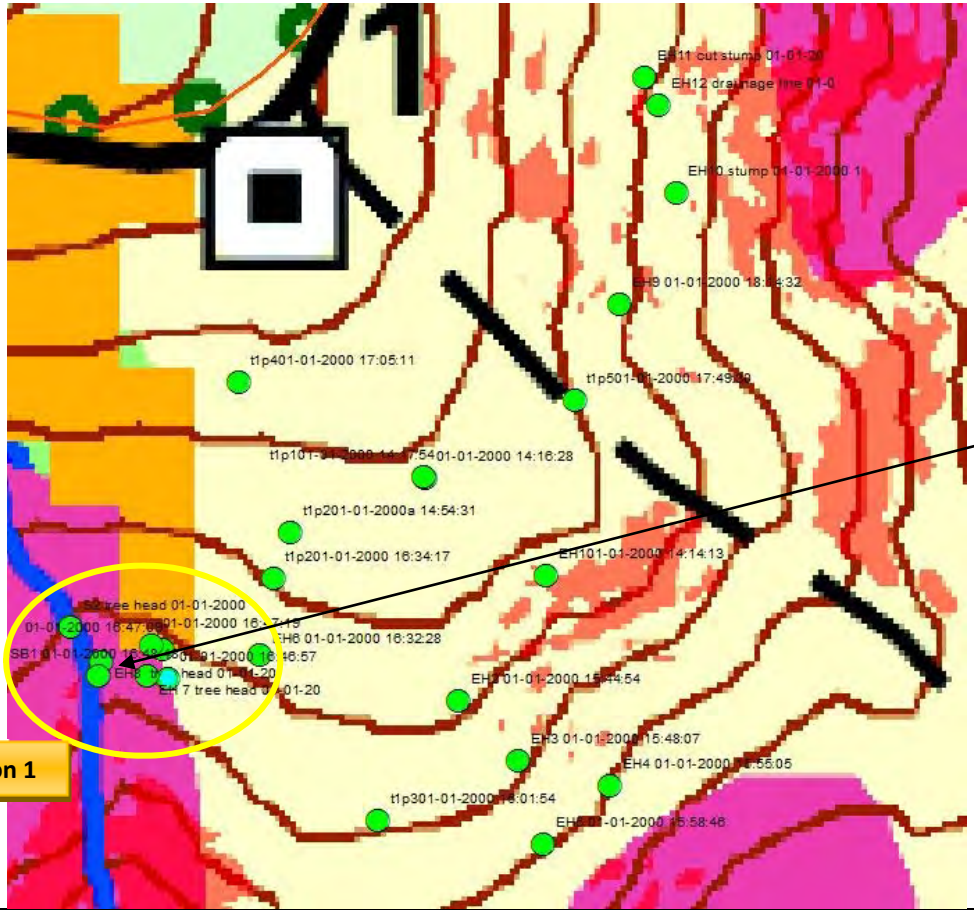
Condition No. and Detail	Compliant? Yes/No/Not determined/Not applicable	Number of non-compliance and (sample size)	Action required by licensee
5.7 Riparian Habitat Protection – protection zones a) A protection zone (hard) must be established along either side of a stream for its entire length. A protection zone (soft) must be established along the entire length of each protection zone (hard). b) Each protection zone is to have at least the width shown in Table 1 set out below. The width of each zone is to be measured as follows: i. the width of a protection zone (hard) is to be measured from the top of the bank of the incised channel or, where there is no defined bank, from the edge of the channel; and ii. the width of a protection zone (soft) is to be measured from its boundary with the adjoining protection zone (hard); and iii. the width is to be measured along the ground surface. **Minimum widths of protection zones for streams (metres)** *Stream Order* / **Protection zone (hard)** / **Protection zone (soft)** *1st* / *5* / *5* *2nd* / *5* / *15* *3rd* / *5* / *25* *4th or greater* / *5* / *45* **5.7.1 Specified forestry activities restricted within protection zones (hard)** a) The following rules apply to a protection zone (hard), except as varied by this condition (being condition 5.7.1), condition 5.7.3 and condition 5.20 (relating to beekeeping): i. specified forestry activities are prohibited in a protection zone (hard); ii. no tree is to be felled into a protection zone (hard). If a tree falls into a protection zone (hard), then no part of the tree can be removed;	**No**	1/1 1 location assessed	**This non-compliance will be investigated progressed outside the audit process**

iii. harvesting machinery is not to be used in a protection zone (hard). **5.7.2 Restricted operations in protection zones (soft)** a) The following rules apply to a protection zone (soft), except as varied by this condition (being condition 5.7.2), condition 5.7.3 or condition 5.20 (relating to beekeeping): i. specified forestry activities are prohibited in a protection zone (soft); ii. harvesting machinery is not to be used in a protection zone (soft).			

Comment and Evidence

The EPA found that FCNSW did not comply with this condition in the assessed area. The EPA will investigate this further outside the audit process.

Location 1 – Trees harvested and felled across a first order stream (mapped) and into mapped rainforest vegetation. Tree felled were cut and harvested (i.e. logs removed) while the tree heads remained across the stream. This area was also mapped rainforest. Riparian and mapped rainforest vegetation felled. No field marking on stream or rainforest boundaries at this location.



Location 1

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Logging debris, fallen harvested tree heads and fallen riparian vegetation across stream and in mapped rainforest

Stream direction & Clear incised channel

Logging debris across stream, through mapped rainforest and extending to net harvest area

Clear incised channel – EPA tape shows grade of ground

Stream

Mapped Rainforest

Harvested Blue gum adjacent to Riparian Zone at Location 1 – clearing within mapped Rainforest

Date: 3rd and 17th Dec2015 EPA Officer/s: GB/TM/JF Start time:

IFOA or PNF Code: End time:

State Forest Name/Property details: Bulga SF State Forest/PNF PVP no:

Cpt no:

Land manager / Property owner name: [redacted] Plot radius: 25m

Contractor details: Darren Howards

Description	Secondary description	Tree/Stump no.	GPS waypoint	Basal Area (m2/ha)	Type	Live tree	Species	DBH OB/S DOB (cm)	Stump ht (cm)	Hollows present	Other tree features	Crown development	Crown damage	Crown Damage 1	Photo number	Growth stage	Logging debris > 1m within 5m	used as bumper	ground disturbance within 5m	Other
EH1															214					Boundary edge of harvest
EH2																				Boundary edge of harvest, East protected West harvested
EH3															288-290					No boundary marking
EH4															291					Tree head debris continues for 8mts
EH5															292-300					Edge of snig track
EH6															335					Edge of snig track
EH7															336-337					336 (looking west), 337 (looking towards T1P2)
EH8	S1 &S2														360					Tree head across stream
															420-429					Boundary check along snig track
EH9															421					Boundary photo
EH10		S													425-426					Tree head going in NW direction away from track
EH11		S																		
															427-428					Middle of snig track in middle of drainage area
EH12															429					General shot of two trees
D1F1															529-534					Debris into drainage and farinforest
D1F2																				In drainage line - 3.9m from debris to centre drainage line
D1F3															535					Edge of debris - along Blu gum log into drainage line and rainforest
															536					Looking south towards drainage line
															537-539					Looking from west to south
															540					In drainage line looking west
															541-542					Edge of rainforest
R1F1															543-544					Edge of rainforest with debris pushed in. Next to tree marked H
R1F2															545					Looking south into rainforest and debris

ACTION PLAN – BULGA STATE FOREST, COMPARTMENT 11 & 20.

Condition No.	Number of non-compliances (and sample)	Action Details	Non-compliance Code*	Target/Action Date
5.6c (i and ii).	5/10	**R tree selection** An action plan must be developed and implemented to ensure that recruitment trees are retained across the compartment having as many of the characteristics listed in TSL condition 5.6c ii and consistent the requirements of the R tree definition.		Immediately
5.6h (i) 5.6h (i)	0/29 16/29	**Hollow Bearing and Recruitment trees – Protection** **Excessive debris at base of retained trees (16 non compliances).** An action plan must be developed and implemented to ensure that damage to trees during the logging operation is minimised and debris is not piled around the base of retained trees.		Immediately Finding is being progressed through a separate investigation outside the audit process
5.4 (a)	2/5	**Exclusion zone protection - Rainforest** An action plan must be developed and implemented to ensure that exclusion zones are protected and the specified forestry activities don't occur within rainforest exclusion zone.		Immediately Finding is being progressed through a separate investigation outside the audit process
5.1F	5/5	**Exclusion zone field boundary mark-up - Rainforest** An action plan must be developed and implemented to ensure that all exclusion zone boundaries including those for rainforest are marked in the field.		Immediately Finding is being progressed through a separate investigation outside the audit process
	1/1	**Stream protection** An action plan must be developed and implemented to ensure that exclusion zones are protected and the specified forestry activities don't occur within riparian protection zones and trees are not felled across waters.		Immediately Finding is being progressed through a separate investigation outside the audit process
Total	**29**			

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			
Level of Environmental Impact		**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: AUDITEE SUBMISSIONS & EPA RESPONSE TABLE

Condition / Audit finding reference / page No.	EPA draft finding / risk categorisation	Location – description, GPS	FCNSW evidence submission	EPA final finding / risk categorisation	EPA response to FCNSW submission
5.6 e) (TSL)	Not Compliant / Code orange	Various	With regard to the alleged non-compliance with condition 5.6 e). When marking trees for recruitment tree retention, FCNSW must consider retaining trees with as many of the characteristics as possible. Selecting trees from a cohort with the largest DBHOB is only one of these characteristics, and cannot be treated in isolation to other characteristics. A training package is being prepared to be delivered to all the Harvesting Coordinators and Forest Technicians across the north Coast. The training will be conducted over a two week period in late April and early May. The training will focus on appropriate habitat and recruitments tree selection, and undertaking pre harvest mark.	The TSL condition refers to a number of elements that a tree must have to be considered a recruitment Tree. The EPA considers that the key and dominant element is size, i.e. "***belonging to the cohort of trees with the largest DBHOB***". If a tree is not a tree that belongs to the cohort trees with the largest DBHOB then it doesn't comply with the selection criteria. This element is important. We consider it as a key element as retaining trees belonging to the cohort of trees with the largest DBHOB represents the best chance of getting habitat continuity over space and time once existing hollow bearing tree resources cease. Size is easily measured and assessed. EPA uses it as a first screen to determine whether selection criteria is compliant or not. If a tree is	Not Compliant / Code orange

				selected and belongs to the cohort of trees with the largest DBHOB, then other elements of the condition are assessed in conjunction with size. EPA will continue to use size as a key element and not complying with the size element of the condition will represent a non compliance with the TSL condition. EPA retained its draft audit finding.	

EPA retained its draft audit finding.

5.6 h ii)	Not Compliant / Code Red		5.6 h ii) FCNSW undertakes quarterly audit inspections on harvesting operations. Since this EPA audit the sampling intensity on the issue of H tree protection has been increased for this operation. The contractor for this operation has been counselled on this issue and advised on methods to better manage debris in and around H trees. The nature of the understory and steeper slopes of this area makes the operational outcome required very difficult to adhere with under operational conditions. Additional effort to remove debris from around retained trees may result in the concentration of debris into windrow, having the potential to increase the fire risk for these retained stems.	EPA assesses individual trees against this criteria. EPA considers rates of any non compliance when considering the risk ranking. EPA does not consider rate of non compliance to determine compliance. For protection that involves logging debris, the EPA assesses the element “to the greatest extent practicable” on an individual tree basis and whether it was practicable to minimise debris by removing it or flattening it at that tree. EPA acknowledges FCNSW action but also considers focussing effort on supervising harvest contractors as an important preventative measure. In this instance, non compliance were found at log dump 1, the start of the operations. At the time of the audit inspection, the EPA auditors brought this issue and associated	Not Compliant / Code red

				risks to the attention of the onsite supervisors and the harvesting contractor was at log dump 13. EPA retained its draft audit finding and will investigate this matter separately and outside the process.	
5.4 (a)	Not Compliant / Code Red		FCNSW have conducted routine audits during the course of this operation. Over 1km of exclusion boundary as been audited per quarter. A check of these QAA audits have found that on 2 occasions Rainforest boundary management has been sighted as a issue for management with the contractor. The location of the rainforest incursion specified in the EPA report for this location was not found during FCNSW audit. The contractor for this operation has been counselled on this issue and advised on methods to better manage debris management in the vicinity of Rainforest exclusion boundary.	EPA retained its draft audit finding and will investigate this matter separately and outside the process.	
5.1 f	Not Compliant / Code Red		FCNSW have conducted a root-cause analysis on boundary management and identified that boundary identification in the field using GPS is an accurate approach to delivering compliance. FCNSW is happy to formally discuss the results of the root cause analysis and procedure development regarding boundary identification with the EPA to avoid administrative non-compliance findings in future audits.	EPA retained its draft audit finding and will investigate this matter separately and outside the process. This non compliance is not administrative and	

			FCNSW has assessed this alleged non-conformance as having no risk and requests this is reflected in the EPA's final audit report. FCNSW acknowledges the boundary was not marked in the field with paint, however, the boundary was clearly visible to the harvesting machine operator in the field on an Apple iPad screen running FCNSW's 'FC Map App' software. The application of this procedure did not result in a breach of the boundary and is considered best practice.	really should not be taken as administrative. This TSL condition is designed to operate alongside other TSL conditions to minimise the risk of logging in protected areas. Not complying with it increases the risk, so it a risk reduction condition, not administrative. The TSL clearly requires exclusion zone boundaries to be marked in the field. This is marking the boundary in the field. There are a number of exclusion zone boundaries that are marked in the field (paint on trees) and a number of exclusion zone boundaries that are frequently not marked in the field (no paint on trees). All exclusion zone boundaries should be treated as equally important to protect. Field marking and record keeping are needed for the benefit of harvest contractors so they know their boundaries and what to protected.	

				Having a visual on the ground (in the field) combined with proper record keeping is legally required by the TSL. In these instances, EPA auditors found no field marking on boundaries and incursions into mapped rainforest exclusion zones.	
5.2.2 TSL	Not Compliant / Code Red		FCNSW Field Technicians are trained in the identification of Koala scat and routinely find and implement the required TSL protection if scats are found as specified under the TSL. Questions from EPA officers to FCNSW staff during the EPA audit may have been misinterpreted by the officer concerned and/or the staff member concerned may not have been aware of the significance of the question being asked and may have expanded on the explanation if he had understood the significance of the question. FCNSW understands that the intent of the scat search is to locate contemporary signs of recent Koala presence and to implement Koala condition to manage Koala at the site during the period of timber harvest. Historic Koala scat buried under debris is less a reliable indicator of recent Koala presence and outside what FCNSW understands as the intent of this condition.	The audit criteria is to search thoroughly for koala scats. The audit evidence gained by the EPA was that a stick is used to poke around the ground cover when searching for koala scats. The description of poking was considered not to be thoroughly searching. For FCNSW submission it appears that the audit evidence gained verbally from a FCNSW staff member at the time of the audit was somewhat unreliable. In future the EPA auditor will seek to engage to field mark up technicians onsite more. For these operations, koala use searching is	EPA changed audit finding from "*non compliant*" to "*Not Determined*"

				very important as the compartment contains a koala high use area, making it. Accordingly the EPA changes its audit finding to “Not determined”	