

EPA AUDIT REPORT – BULAHDELAH STATE FOREST, COMPARTMENTS 140, 141, 142 & 143

Auditee:	FORESTRY CORPORATION OF NSW (FCNSW)
Audited State Forest & Cpts:	BULAHDELAH STATE FOREST, COMPARTMENTS 140-143
Region:	Lower North-east Integrated Forestry Operations Approval (IFOA)
Date/Audit timing:	18 November 2014. Audit debrief with FCNSW staff held on 3 December 2014.
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 • Threatened species exclusion zones • Koala protection measures <p>Physical scope: This audit was limited to the physical boundaries of compartments 140, 141, 142 & 143.</p> <p>Temporal scope: The audit period adopted for assessment of compliance with operational conditions was on the days of the audit inspections (18 November 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>5.1 (f) Marking of exclusion and buffer zones</p> <p>6.14 (a) Koala high use exclusion zones and intermediate use</p> <p>5.2.2 Koala mark-up searches</p>
Summary of Operations	<p>Operation commencement date: 2 September 2014</p> <p>Silvicultural practice: Blue Gum/Tallowwood and Mixed Hardwood stands – Heavy Single tree selection (STS); Poor areas – STS light/ no harvesting.</p> <p>Stand age: Regrowth Zone</p>

1. Audit Findings – Overview

The EPA identified 9 non-compliances and 38 compliances with the IFOA and POEO Act, 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
Exclusion Zones	Ridge & Headwater protection	1	0	0	0
	Ridge & Headwater mark-up	0	1	0	0
	Koala protection	0	1	0	0
	Koala mark-up	0	1	0	0
	Riparian protection	0	2	0	0
Koala	Identification/search	1	0	1	0
	Feed tree retention	1	0	0	0
Hollow bearing and recruitment trees	H Retention	0	0	1	0
	H Selection	0	0	4	0
	R Retention	1	0	0	0
	R Selection	0	0	7	0
	H&R Protection	33	0	0	0
	H&R Mark-up	1	0	0	0
Drainage crossing	Further Observations	0	4	0	0
	TOTAL	38	9	13	0

2. Audit Recommendations

Condition No.	Number of non-compliances (and sample)	Action Details	Non-compliance Code*	Target/Action Date
5.1(f)	1/1	Ridge and Headwater Mark-up An action plan must be developed and implemented to ensure that ridge and headwater exclusion zones are marked in according to TSL.	Yellow	By End March 2015
5.1(f)	1/1	Koala High Use Mark-up This matter will be investigated outside the audit process.	Red	This matter will be investigated outside the audit process.
6.14(a)(i)	1/1	Koala High Use Protection This matter will be investigated outside the audit process.	Red	This matter will be investigated outside the audit process.
5.7(d)	1/1	Snig track crossing- Schedule 6 Approval An action plan must be developed and implemented to ensure that specified forestry activities are conducted in accordance with TSL.	Yellow	By End March 2015
5.7(j)	1/1	Snig track crossing- Schedule 6 Approval An action plan must be developed and implemented to ensure that specified forestry activities are conducted in accordance with TSL.	Yellow	By End March 2015
5.7(r)	1/1	Snig track crossing- Schedule 6 Approval An action plan must be developed and implemented to ensure that specified forestry activities are conducted in accordance with TSL.	Yellow	By End March 2015
5.7(s)	1/1	Snig track crossing- Schedule 6 Approval An action plan must be developed and implemented to ensure that specified forestry activities are conducted in accordance with TSL.	Yellow	By End March 2015
EPL Sched 4 cl 46	1/1	Snig track crossing- EPL An action plan must be developed that ensures stable structures comprising of causeways, culverts or bridges are used for snig track crossings in adherence with the EPL.	Red	Immediately
Protection of Environment Operations Act 1997 *Section 120 Prohibition of pollution of waters	1/1	Protect Waters An action plan must be developed that ensures stable structures comprising of causeways, culverts or bridges are used for snig track crossings to protect waters.	Red	Immediately
Total	9			

* 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: EPA FINAL AUDIT FINDINGS TABLE – BULAHDELAH STATE FOREST COMPARTMENT 140-143

CONDITIONS RELATED TO HOLLOW BEARING TREES (REGROWTH ZONE) – RETENTION			
Condition No. and Detail	Compliant? Yes/No/Not determined/Not applicable	Number of non- compliance and (sample size)	Action required by licensee
5.6(d): 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.	Not determined	0/1	
Comment and Evidence			
<p>The EPA is condition was not determined.</p> <p>EPA officers assessed a two hectare area south of log dump 17 within compartment 141 and recorded 4 marked Hollow bearing trees and 7 marked recruitment trees. EPA officers also recorded ten eucalypt feed trees that were marked and retained. Hollow bearing retention rates within the area assessed were therefore two hollow bearing trees per hectare. EPA notes that this is below the minimum retention rates. EPA officers did not observe any trees felled with evidence of hollows and as such was not able to determine the availability of hollow bearing resources prior to the commencement of operations within the assessment area.</p>			
<div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p>Hollow bearing trees retained at 2H/ha across the assessed area</p> <p>Photo 1: Marked and retained H tree with the assessed area</p> </div> </div>			

CONDITIONS RELATED TO HOLLOW BEARING TREES (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
<p>5.6 d iii.</p> <p>Hollow-bearing trees must be selected with the objective of retaining trees having as many of the following characteristics as possible:</p> <ul style="list-style-type: none"> - belonging to a cohort of trees with the largest dbhob, - good crown development, <p>(Note: this does not restrict the selection of trees with broken limbs consistent with the hollow-bearing tree definition).</p> <ul style="list-style-type: none"> - minimal butt damage, - represent the range of hollow-bearing species that occur in the area, - located such that they result in retained trees being evenly scattered throughout the net logging area. 	Not determined	0/4	
Comment and Evidence			
<p>This condition was not determined.</p> <p>EPA assessment recorded for marked and retained hollow bearing trees across the 2 hectare assessment area. The EPA assessment did not assess whether hollow bearing trees that were marked and retained belonged to a cohort of tree with the largest dbhob. In this situation compliance with this condition was not determined in the assessment area.</p>			

CONDITIONS RELATED TO RECRUITMENT TREES (REGROWTH ZONE) –RETENTION			
Condition No. and Detail	Compliant? Yes/No/Not determined/Not applicable	Number of non- compliance and (sample size)	Action required by licensee
<p>5.6e</p> <p>Within the Regrowth Zone, for each hollow-bearing tree retained in (d) above, a recruitment tree must be retained. Recruitment trees must be selected with the objective of retaining trees having as many of the following characteristics as possible:</p> <ul style="list-style-type: none"> 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. 	Compliant	0/1	

Comment and Evidence – R tree Retention and Selection

This condition was determined to be compliant in the assessed area.

EPA officers assessed a two hectare area south of log dump 17 within compartment 141 and recorded 4 marked Hollow bearing trees and 7 marked recruitment trees. Note that recruitment tree retention rates within the area assessed was above the required retention rates. EPA officers did not assess the selection quality of these trees including whether recruitment trees belonged to a cohort of trees with the largest dbhob. Therefore the suitability of those trees retained as recruitment trees was not determined despite the recruitment tree retention rates fulfilling TSL requirements.

CONDITIONS RELATED TO RECRUITMENT TREES (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
<p>5.6e</p> <p>Within the Regrowth Zone, for each hollow-bearing tree retained in (d) above, a recruitment tree must be retained. Recruitment trees must be selected with the objective of retaining trees having as many of the following characteristics as possible:</p> <ul style="list-style-type: none"> 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. 	Not determined	0/7	
<p>This condition was not determined in the assessed area.</p> <p>EPA officers assessed a two hectare area south of log dump 17 within compartment 141 and recorded 4 marked Hollow bearing trees and 7 marked recruitment trees. Note that recruitment tree <u>retention rates</u> within the area assessed was above the required retention rates. EPA officers did not assess the selection quality of these trees including whether recruitment trees belonged to a cohort of trees with the largest dbhob. Therefore the suitability of those trees retained as recruitment trees was not determined despite the recruitment tree retention rates fulfilling TSL requirements.</p>			

CONDITIONS RELATED TO HOLLOW BEARING & RECRUITMENT TREES (REGROWTH ZONE) – PROTECTION			
Condition No. and Detail	Compliant? Yes/No/Not determined/Not applicable	Number of non- compliance and (sample size)	Action required by licensee
<p>5.6h) Protection of retained trees</p> <p>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.</p> <p>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 metres radius of retained trees must be removed or flattened to a height of less than one metre. Disturbance to ground and understory must be minimised to the greatest extent practicable within this five metres radius. Habitat and recruitment trees must not be used as bumper trees during harvesting operations.</p>	<p>YES</p> <p>YES</p>	<p>0/11</p> <p>0/21</p>	
Comment and Evidence			
EPA officers determined that these conditions were compliant.			
EPA Officers assessed one area within the net harvest area and undertook one transects. The total area assessed was 2.0 hectares. A total of four hollow bearing and seven recruitment and ten eucalypt feed trees were located within the assessed areas. The EPA found that no trees had been damaged during the course of harvesting, with no operator crown damage identified. No trees were identified with debris greater than one metre at the base.			
Condition 5.6hi included hollow bearing and recruitment trees only Condition 5.6hii included hollow bearing, recruitment and eucalypt feed trees			

Condition No. and Detail	Compliant? Yes/No/Not determined/Not applicable	Number of non- compliance and (sample size)	Action required by licensee
5.6h) Protection of retained trees 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.	YES	0/11	
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 metres radius of retained trees must be removed or flattened to a height of less than one metre. Disturbance to ground and understorey must be minimised to the greatest extent practicable within this five metres radius. Habitat and recruitment trees must not be used as bumper trees during harvesting operations.	YES	0/21	

Compliant?
Yes/No/Not
determined/Not
applicable

Number of non-compliance and (sample size)

Action required by licensee

5.6h) Protection of retained trees

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.

YES

0/11

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 metres radius of retained trees must be removed or flattened to a height of less than one metre. Disturbance to ground and understorey must be minimised to the greatest extent practicable within this five metres radius. Habitat and recruitment trees must not be used as bumper trees during harvesting operations.

YES

0/21

Comment and Evidence

EPA officers determined that these conditions were compliant.

EPA Officers assessed one area within the net harvest area and undertook one transects. The total area assessed was 2.0 hectares. A total of four hollow bearing and seven recruitment and ten eucalypt feed trees were located within the assessed areas. The EPA found that no trees had been damaged during the course of harvesting, with no operator crown damage identified. No trees were identified with debris greater than one metre at the base.

Condition 5.6hi included hollow bearing and recruitment trees only

Condition 5.6hii included hollow bearing, recruitment and eucalypt feed trees

CONDITIONS RELATED TO HOLLOW BEARING & RECRUITMENT TREES (REGROWTH ZONE) – PROTECTION			
Condition No. and Detail	Compliant? Yes/No/Not determined/Not applicable	Number of non- compliance and (sample size)	Action required by licensee
<p>5.6 h) Protection of retained trees</p> <p>iii. Retained trees referred to in conditions 5.6 (a) i., 5.6 (b) i., 5.6 (c) i., 5.6 (d) i., 5.6 (e) i., 5.6 (f) i., 5.6 (f) iii. and 5.6 (f) iv. of this licence must be marked for retention. The only exception to the marking of the retained trees can occur where the understorey consists of thick impenetrable lantana greater than one metre high or other impenetrable understorey. SFNSW must clearly document and justify such situations in harvest planning documentation either during pre-planning or as it becomes apparent during compartment mark-up.</p>	YES	0/1	
Comment and Evidence			
<p>EPA officers determined that this condition was compliant in the assessed area.</p> <p>EPA Officers assessed one area within the net harvest area and undertook one transects. The total area assessed was 2.0 hectares. A total of four hollow bearing and seven recruitment and ten eucalypt feed trees were located within the assessed areas.</p>			

CONDITIONS RELATED TO KOALA PROTECTION – KOALA MARK UP SEARCHING			
Condition No. and Detail	Compliant? Yes/No/Not determined/Not applicable	Number of non- compliance and (sample size)	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.	YES	0/1	
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.	Not determined	0/1	
Comment and Evidence			
<p>EPA officers determined that condition 5.2.2 (a) was compliant in the assessed area.</p> <p>EPA officers assessed compartment mark up searches ahead of the active operations east of log dump eighteen. EPA officers observed that hollow bearing and recruitment trees had been marked up to the furthest extent from harvesting which complied with the TSL requirements of 300m ahead of active operations.</p> <p>EPA officers did not determine compliance with condition 5.2.2 (b) in the assessed area. To determine if the assessment area was searched thoroughly EPA officers inspected two areas, including area where harvesting was being conducted (area 1) and an area ahead of operations (area 2). The assessment included inspecting the base of primary browse feed trees for evidence of thorough searching such as the disturbance of leaf litter and debris.</p> <p>EPA officers inspected an area of active harvesting operations (area 1). 8 marked primary browse trees and three unmarked primary browse were inspected. EPA officers found one koala scat at the base of a Grey Gum and three koala scats at the base of a recently harvested Grey Gum stump.</p> <p>Within area 2, the area of operation up to 300metres in front of active harvesting operations EPA officers inspected 6 marked primary browse trees and five unmarked primary browse. No koala scats were found. EPA officers observed that leaf litter and debris had not been displaced, however were not able to determine if individual trees had been inspected thoroughly as per the TSL requirements.</p>			

[illegible]

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 east of log dump eighteen. EPA officers observed that hollow bearing and recruitment trees had been marked up to the furthest extent from harvesting which complied with the TSL requirements of 300m ahead of active operations.

EPA officers did not determine compliance with condition 5.2.2 (b) in the assessed area. To determine if the assessment area was searched thoroughly EPA officers inspected two areas, including area where harvesting was being conducted (area 1) and an area ahead of operations (area 2). The assessment included inspecting the base of primary browse feed trees for evidence of thorough searching such as the disturbance of leaf litter and debris.

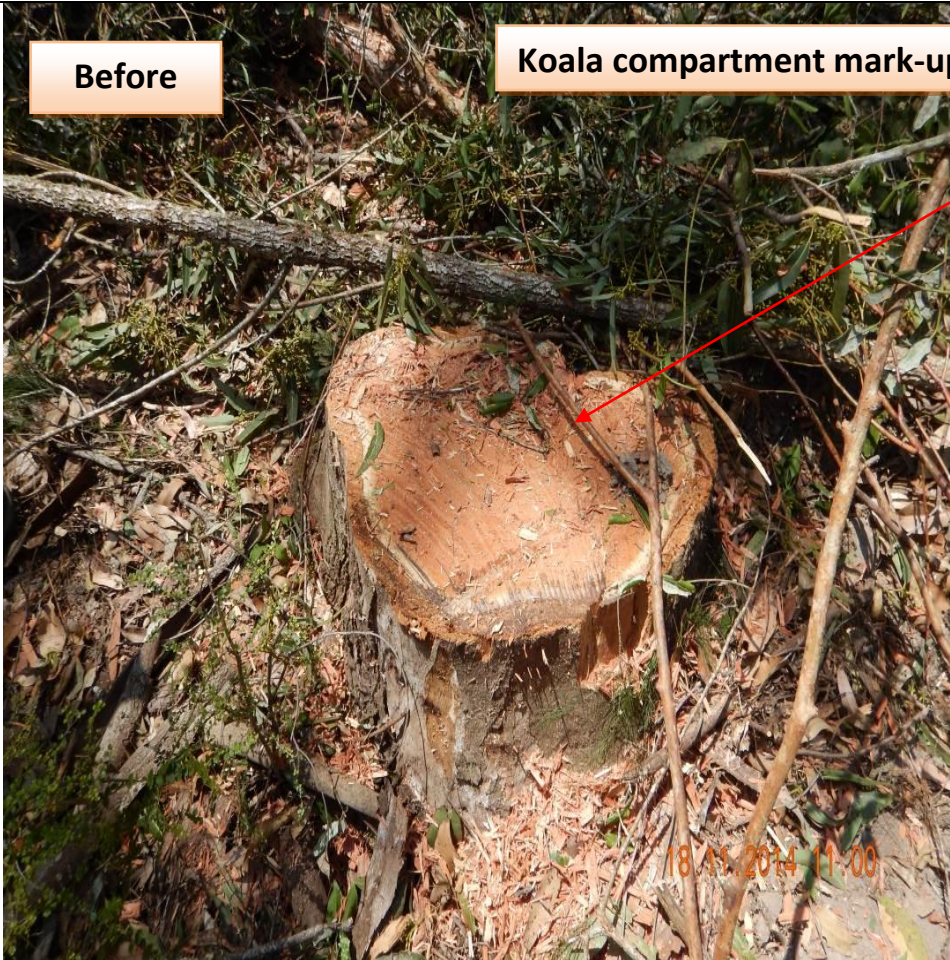
EPA officers inspected an area of active harvesting operations (area 1). 8 marked primary browse trees and three unmarked primary browse were inspected. EPA officers found one koala scat at the base of a Grey Gum and three koala scats at the base of a recently harvested Grey Gum stump.

Within area 2, the area of operation up to 300metres in front of active harvesting operations EPA officers inspected 6 marked primary browse trees and five unmarked primary browse. No koala scats were found. EPA officers observed that leaf litter and debris had not been displaced, however were not able to determine if individual trees had been inspected thoroughly as per the TSL requirements.

Before

Koala compartment mark-up searches

After



Grey gum stump with no disturbance to leaf litter and no evidence of pre harvest search for koala scats before EPA commenced their search about this stump

Brief EPA search located three koala scats under leaf debris

CONDITIONS RELATED TO RIDGE AND HEADWATER EXCLUSION ZONES – PROTECTION

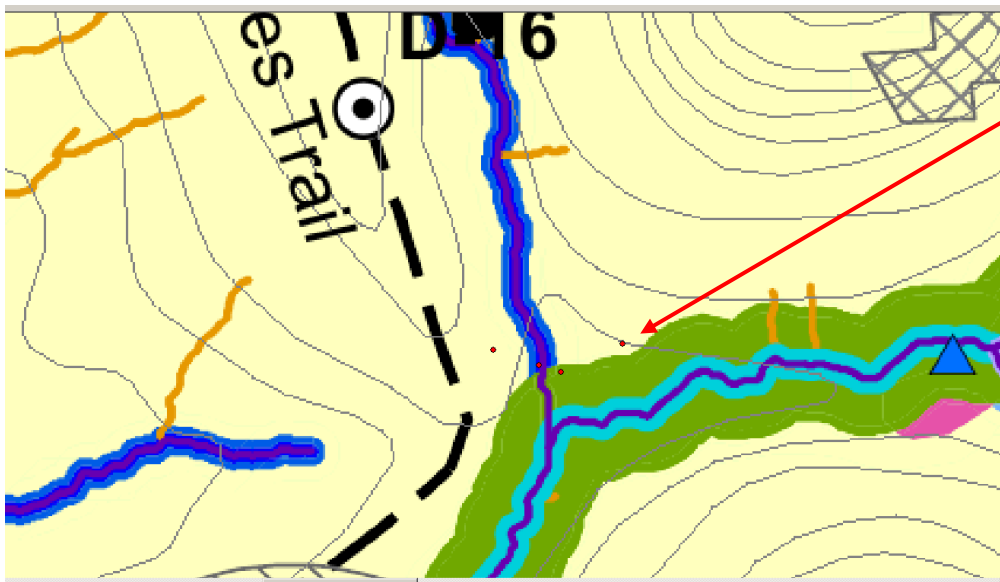
Condition No. and Detail	Compliant? Yes/No/Not determined/Not applicable	Number of non- compliance and (sample size)	Action required by licensee
5.1 Operational Requirements For all exclusion zones implemented under the conditions of this licence the following must apply (except where otherwise indicated in this licence): i. All specified forestry activities are prohibited in exclusion zones.	Yes	0/1	

Comment and Evidence

The EPA found that the operations were compliant with this condition in the assessed area.

EPA officers assessed one area of Ridge and Headwater south of log dump six. The area assessed commenced at waypoint 1359 and finished at waypoint 1360 with the length of inspection approximately 50m. No visible evidence of marking was detected.

Discussions with the harvesting contractor highlighted that this area was not marked in the field. The contractor responded that he uses his GPS device in his cabin to guide where the net Harvest Area and exclusion zones are. EPA officers noted the high GPS variability within and around forest canopy. Discussions with harvest contractor also highlighted the variability of the GPS signal and how that variability is factored into operations.



Ridge and Headwater protected

Location 1: EPA assessed area between waypoint 1359 to 1360 approximately 50m in length. No incursions. No visible boundary marking in the field. Operator reliant on GPS

CONDITIONS RELATED TO RIDGE AND HEADWATER EXCLUSION ZONES – MARKING			
Condition No. and Detail	Compliant? Yes/No/Not determined/Not applicable	Number of non- compliance and (sample size)	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	1/1	An action plan must be developed that ensure exclusion zones are marked in the field according to TSL requirement 5.1F.
Comment and Evidence			
<p>The EPA found that the operations were non compliant with this condition in the assessed area.</p> <p>EPA officers assessed one area of Ridge and Head water south of log dump six. The area assessed commenced at waypoint 1359 and finished at waypoint 1360 with the length of inspection approximately 50m. No visible evidence of marking was detected. Discussions with the harvesting contractor highlighted that this area was not marked. The contractor responded that he uses his GPS device in his cabin to guide where the net Harvest Area and exclusion zones are. EPA officers noted the high GPS variability within and around forest canopy. Discussions with harvest contractor also highlighted the variability of the GPS signal and how that variability is factored into operations.</p>			

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)	Action required by licensee
<p>6.14a)</p> <p>The following must apply wherever Koala mark-up searches have identified Koala high use areas or Koala intermediate use areas:</p> <p>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.</p> <p>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.</p>	<p>No</p> <p>Yes</p>	<p>1/1</p> <p>0/1</p>	<p>This matter will be investigated outside the audit process.</p>
Comment and Evidence			
<p>EPA found that the condition related to koala high use and exclusion zones was not complied with in the area assessed.</p> <p>EPA officers inspected a Koala high use and exclusion zone west of log dump fifteen. Inspection commenced at waypoint 3336 and traversed the area in a counter clockwise direction for a distance of 240m. Within this area EPA officers observed specified forestry activities including timber harvesting and snig track construction and operation in the northern part of the exclusion zone.</p> <ul style="list-style-type: none"> • waypoint 1342 Ironbark stump dbh 70cm one metre into exclusion zone (photo 369) • waypoint 1343 Tallowwood stump dbh 50 cm two metres into exclusion zone • waypoint 1344 Tallowwood stump dbh 90 cm (photo 44) tree taken outside exclusion zone • waypoint 1346 tree heads eight metres into exclusion zone (photo 373) • waypoint 1347 snig track 14m into exclusion zone 			



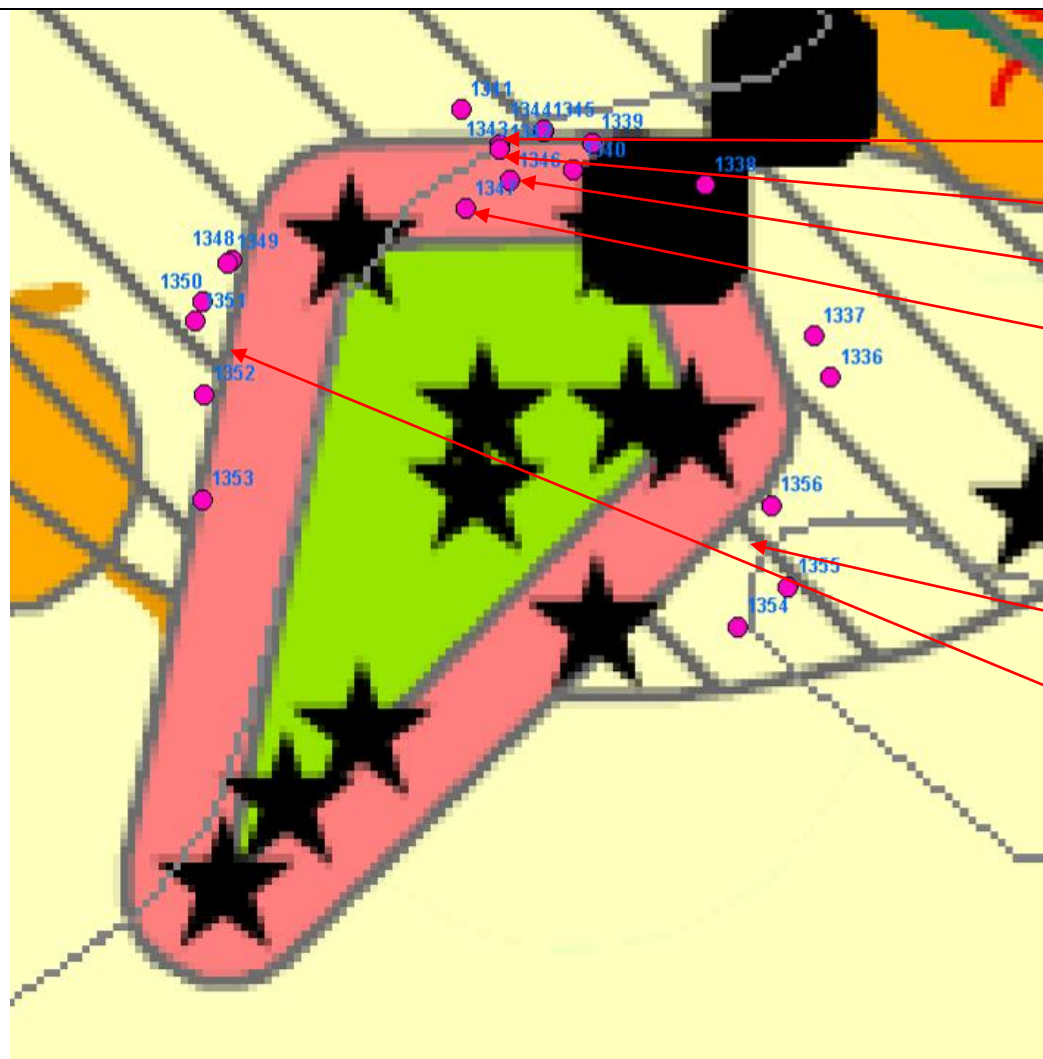
**Trees felled from within Koala High Use
Exclusion Zone**

Photo six: Taken next to waypoints 1346 & 1347
of two recently harvested stumps within Koala
exclusion zone



Trees felled from within Koala High Use Exclusion Zone

Photo seven: Taken next to waypoints 1346 & 1347 of close up of recently harvested stumps within koala exclusion zone.



- waypoint 1342 Ironbark stump dbh 70cm one metre into exclusion zone (photo 369)
- waypoint 1343 Tallowwood stump dbh 50 cm two metres into exclusion zone
- waypoint 1346 tree heads eight m into exclusion zone (photo 373)
- waypoint 1347 snig track 14m into exclusion zone

Koala High Use Protected on Western and eastern boundaries
No incursion detected on eastern or western areas of the koala exclusion zone

Koala Feed Tree Retention 6.14a(ii)

EPA officers assessed a two hectare area south of log dump 17 within compartment 141 and recorded 19 marked koala primary browse trees which consisted of tallowwood and Grey gum. This was compliant with koala intermediated feed tree retention.



**Koala intermediate feed tree
retention compliant**

Marked Grey Gum primary browse
feed tree

CONDITIONS RELATED TO KOALA HIGH USE EXCLUSION ZONE – MARKING

Condition No. and Detail	Compliant? Yes/No/Not determined/Not applicable	Number of non- compliance and (sample size)	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	1/1	This matter will be investigated outside the audit process.

Comment and Evidence

The EPA found that the operations were non compliant with this condition in the assessed area.

EPA officers inspected a Koala high use and exclusion zone west of log dump fifteen. Inspection commenced at waypoint 3336 and traversed the area in a counter clockwise direction for a distance of 240m. On the eastern boundary the exclusion zone was marked in the correct location. On the northern boundary the exclusion zone was incorrectly marked with marking found to be inside the exclusion zone boundary and koala high use area. Further inspections found the eastern and southern boundary of the exclusion zone to be correctly marked. Specified forest activities were detected inside the northern boundary as detailed above.



Koala high use exclusion zone marked in incorrect location

Photo eight: Tree with marked koala exclusion zone in wrong location

Trees harvested within koala high use exclusion zone.

CONDITIONS RELATED TO RIPARIAN HABITAT PROTECTION 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 Operations within protection zones (hard) d) Specified forestry activities, except road and snig track construction in accordance with conditions 5.7 (r to u) and road re-opening, are prohibited within the protection zone (hard). Operations within protection zones (soft) j) Specified forestry activities, except road and snig track construction in accordance with conditions 5.7 (r to u) and road re-opening, are prohibited within the protection zone (soft).	No	1/1	An action plan must be developed that ensure exclusion zones are protected as required by the TSL. A further action plan is required to ensure the correct approvals process is followed as required by the TSL.
Comment and Evidence			
This condition was found to be not compliant in the assessed area. EPA officers inspected a drainage feature crossing south of log dump six at waypoint 1358 east of Gradual Slopes Trail. Within the drainage feature a snig track crossing had been constructed and several logs had been placed in the centre of the drainage line. The drainage feature was a first order stream. The protection zone (hard) and protection zone (soft) had been incurred into on either side of the stream with incursions 10 metres into hard zone and 10 metres in soft zone, i.e. a total of 20 metre length incursion in addition to the stream width of approximately 3 metres. The EPA notes that there is no Regional Manager Schedule six approval detailed in the Harvest Plan or shown on the Harvest Plan Operational Map. The EPA has not received the Schedule six notification as required by TSL condition 5.7(s).			




Unapproved first order stream crossing

Photo nine: Close up of logs placed in centre of drainage line at way point 1358

FURTHER OBSERVATIONS TABLE – BULAHDELAH STATE FOREST, COMPARTMENT 140-143

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

Relevant Condition	Number of non-compliances and sample	Risk Code	Details of matter	Recommendation
Schedule 4 clause 46 of Environment Protection Licence: Drainage features must be crossed using stable structures comprising either causeways, culverts or bridges. Log dams and gully stuffers must not be constructed.	1/1	Red	<p>EPA officers inspected a drainage feature crossing south of log dump six at waypoint 1358 east of gradual slopes trail. Within the feature crossing several logs were placed in the centre of the drainage line (see photo below).</p> 	An action plan must be developed that ensures stable structures comprising of causeways, culverts or bridges are used for snig track crossings in adherence with the EPL.
Protection of Environment Operations Act 1997	1/1		EPA officers inspected a drainage feature crossing south of log dump six at waypoint 1358 east of gradual slopes trail. Within the feature crossing several logs had been placed in the centre of the drainage line and	An action plan must be developed that ensures stable structures

120 Prohibition of pollution of waters (1) A person who pollutes any waters is guilty of an offence.			soil and spoil was within the drainage line – see image above.	comprising of causeways, culverts or bridges are used for snig track crossings in adherence with the EPL. These must not pollute waters.
Road and snig track construction 5.7 r) A road and snig track may be constructed, and used in any area that is, or is within, either a protection zone (hard) or protection zone (soft), but only where: i. there is no practicable alternative site available for the purposes of the construction; and ii. prior to the construction, the SFNSW Regional Manager that is responsible for managing the land on which the construction is proposed to be carried out (or a more senior officer), has prepared a report addressing the matters in Schedule 6 of this licence and has authorised the construction in writing; and iii. all practicable measures are taken to minimise any adverse impacts of the construction on the environment; and iv. such areas are not in exclusion zones relating to threatened species referred to in condition	1/1		EPA officers inspected a drainage feature crossing south of log dump six at waypoint 1358 east of Gradual Slopes Trail. Within the feature crossing several logs had been placed in the centre of the drainage line. The EPA notes that there is no Regional Manager Schedule six approval detailed in the Harvest Plan or shown on the Harvest Plan Operational Map. The EPA has not received the Schedule six notification as required by TSL condition 5.7(s).	An action plan must be developed that ensure exclusion zones are protected as required by the TSL. A further action plan is required to ensure the correct approvals process is followed as required by the TSL.

5.1 (b) unless carried out in accordance with condition 5.1 (b).				
Road and snig track construction 5.7 s) A copy of the written approval of the SFNSW Regional Manager which addresses the matters raised in Schedule 6 of this licence must be faxed to NPWS, as soon as possible after the approval has been issued.	1/1		EPA officers inspected a drainage feature crossing south of log dump six at waypoint 1358 east of Gradual Slopes Trail. Within the feature crossing several logs had been placed in the centre of the drainage line. The EPA notes that there is no Regional Manager Schedule six approval detailed in the Harvest Plan or shown on the Harvest Plan Operational Map. The EPA has not received the Schedule six notification as required by TSL condition 5.7(s).	An action plan must be developed that ensure exclusion zones are protected as required by the TSL. A further action plan is required to ensure the correct approvals process is followed as required by the TSL.

ACTION PLAN – BULAHDELAH STATE FOREST, COMPARTMENT 140-143

Condition No.	Number of non-compliances (and sample)	Action Details	Non-compliance Code*	Target/Action Date
5.1(f)	1/1	Ridge and Headwater Mark-up An action plan must be developed and implemented to ensure that ridge and headwater exclusion zones are marked in according to TSL.	Yellow	By End March 2015
5.1(f)	1/1	Koala High Use Mark-up This matter will be investigated outside the audit process.	Red	This matter will be investigated outside the audit process.
6.14(a)(i)	1/1	Koala High Use Protection This matter will be investigated outside the audit process.	Red	This matter will be investigated outside the audit process.
5.7(d)	1/1	Snig track crossing- Schedule 6 Approval An action plan must be developed and implemented to ensure that specified forestry activities are conducted in accordance with TSL.	Yellow	By End March 2015
5.7(j)	1/1	Snig track crossing- Schedule 6 Approval An action plan must be developed and implemented to ensure that specified forestry activities are conducted in accordance with TSL.	Yellow	By End March 2015
5.7(r)	1/1	Snig track crossing- Schedule 6 Approval An action plan must be developed and implemented to ensure that specified forestry activities are conducted in accordance with TSL.	Yellow	By End March 2015
5.7(s)	1/1	Snig track crossing- Schedule 6 Approval An action plan must be developed and implemented to ensure that specified forestry activities are conducted in accordance with TSL.	Yellow	By End March 2015
EPL Sched 4 cl 46	1/1	Snig track crossing- EPL An action plan must be developed that ensures stable structures comprising of causeways, culverts or bridges are used for snig track crossings in adherence with the EPL.	Red	Immediately
Protection of Environment Operations Act 1997 Section 120 Prohibition of pollution of waters	1/1	Protect Waters An action plan must be developed that ensures stable structures comprising of causeways, culverts or bridges are used for snig track crossings to protect waters.	Red	Immediately
Total	9			

EPA Audit Locations

EPA Identifier	easting	northing
1315	425575	6424945
1316	425587	6425027
1317	425586	6425040
1318	425610	6425062
1319	425609	6425046
1320	425615	6425030
1321	425631	6425032
1322	425635	6425042
1323	425647	6425050
1324	425670	6425025
1325	425672	6425002
1326	425715	6424961
1327	425715	6424954
1328	425744	6424947
1329	425753	6424934
1330	425773	6424915
1331	425790	6424889
1332	425808	6424889
1333	425822	6424862
1334	425851	6424849
1335	425929	6424812
Bulahdelah State Forest	425933	6424798
1336	424950	6425758
1337	424947	6425767
1338	424925	6425797
1339	424902	6425805
1340	424898	6425800
1341	424876	6425812
1342	424883	6425805
1343	424883	6425804
1344	424892	6425807
1345	424892	6425808
1346	424885	6425798
1347	424877	6425792
1348	424830	6425782
1349	424829	6425781
1350	424824	6425773
1351	424822	6425770
1352	424824	6425755
1353	424824	6425734
1354	424931	6425708
1355	424941	6425716
1356	424938	6425733
1357	425619	6425359
1358	425651	6425348
1359	425667	6425343
1360	425710	6425363
1361	425065	6425174
1362	424805	6425976

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: FCNSW SUBMISSION ON DRAFT AUDIT FINDINGS


Condition No. / Page No.	EPA draft finding / risk categorisation	Location – description, GPS	FCNSW submission	EPA response to FCNSW submission	EPA final finding & risk categorisation
			Bulahdelah SF – Attachment 1		
5.1 F (Page 8)	Boundary marking– Not compliant Code Yellow	RHW Habitat	<p>Condition 5.1F was written before the practical use of GPS technology was implemented for boundary identification. Since the introduction of GPS technology there has been considerable improvements in boundary identification and harvesting compliance associated with these boundaries. It is FCNSW view that boundary location using GPS within harvesting machines is best practice, the most accurate approach, and the safest method of locating and protecting exclusions.</p> <p>The EPA found that the boundary was located in the field in a compliant manner using the GPS in harvester. FCNSW approach to boundary location using GPS was described in the action plan of May 2013 which identified RHW corridors were suitable and low risk to be marked with GPS in harvesters. The successful location and management of the boundary at this site supports the successful application of this approach.</p> <p>The action plan notes FC ongoing approach to monitoring and improving boundary location performance using GPS equipment. The next evolution of that approach is intended to be incorporating the Forestry Corporation developed ‘FCMapApp’ into iPad Minis in harvesting equipment as has been recently rolled out to forest technicians. These devices, whilst not an improvement yet in locational accuracy from Garmin units, does have a better screen resolution and capacity to interact between mark-up and harvesting so that trees and features identified during mark-up surveys will be available in harvesters as well.</p>	<p>The EPA considered Forestry Corporation submissions. FCNSW submissions refer to the use of GPS based devices as means of locating the zones for protection. This being the FCNSW approach since May 2013. The licence condition clearly states “<i>all exclusion zone and buffer zone boundaries must be marked in the field</i>”. This means marked in the field, physical marking. Physical marking of such boundaries using pink tape or paint on vegetation occurs extensively and when it does the EPA considers this action to be compliant with the licence condition. Not having this physical marking on boundaries increases the likelihood for operators to misinterpret exclusion zone boundaries and operate within exclusion zones. The EPA investigated and took action a number of times for not marking boundaries and logging within exclusion zones. These offences and associated environmental harm may have been avoided if boundaries were clearly marked in the field.</p> <p>The EPA retains the audit finding of non-compliant and requires action .</p>	<p>Unchanged finding</p> <p>Not Compliant</p> <p>Code: Yellow 5.1F</p> <p>An action plan must be developed and implemented to ensure that exclusion zones are marked in the field as required by the LNE TSL.</p>

6.14 a)i and 5.1 F	SFA activities are excluded from Koala HUA and 20 m exclusion zone. Code Red		<p>FCNSW have investigated this site on Tuesday 3rd February 2015 and identified that activities were compliant.</p> <p>The attached map and star-search results shows that:</p> <ul style="list-style-type: none"> • The stumps at waypoint 1342 and 1343 are outside the mapped HUA and buffer on the HPOM. The EPA waypoint locations which were alleged to be inside the exclusion area by 1 and 2 m are actually outside the mapped area when plotted in ArcGIS. • FC staff located the two trees in the field that made up the edge of the HUA based from the star-search field data sheets (424905; 6425781 and 424850; 6425780) and measured the distance from the edge of the buffer to the stumps and identified they were ~ 4 m outside the 20 m buffer. • The investigation identified that the HUA mapped on the HPOM was conservative and that the Forest Oak with scats located at 424905; 6425781 was not part of the HUA as only 2 of 10 trees searched on that arm of the star-search had scats. • When the actual HUA was mapped on ArcGIS it is evident that the stumps, heads and machinery entry are all outside the actual HUA and buffer. <p>Also of note, the EPA allegations also suggest a snig-track was constructed inside the buffer, when there was no snig-track constructed but rather machinery entry. Tree felling into a koala high-use area exclusion zone buffer is also permitted.</p> <p>Whilst there is no non-compliance in this case, the investigation did identify issues:</p> <p>Mapping and Boundary Identification</p> <p>Whilst the bulk of the boundary was marked conservatively, it was right on the mapped boundary at this location. FC staff had identified that marking up that boundary in that location was difficult with the Garmin 62 KMZ due to overlapping graphics. The availability of tilepackages and iPads allows a much better resolution and scaling to support identification of those boundaries. FC procedure for HUA is for the map to have a separate colour for the buffer and HUA as they have different</p>	The EPA received your response. This matter will be investigated outside the audit process.	Not Applicable.
--------------------	---	--	---	---	-----------------


			<p>boundary conditions and that edge trees are also displayed on the map so they can be located in the field. During star-searches HUA edge trees should also be clearly marked as was the case in this location.</p> <p>The tree shown in Photo 8 in the EPA report did not have a waypoint location however FC believes it identified the same marked tree. This was measured to be 20 m away from the marked koala scat tree at 424905; 6425781. This marking was compliant.</p> <p>During the investigation with multiple individual GPS units of both Garmin 62s and Ipad mini that the location accuracy is typically 5-10 m. An auditing approach that identifies non-compliance based on individual trees or stumps < 10 m from mapped buffers of this size or larger in isolation and without considering the overall context of boundary compliance is unreasonable.</p> <p>GPS in harvesters and contractor reporting</p> <p>The contractor had inadvertently taken his machine inside the marked buffer, likely after falling one of the two trees a waypoints 1342 and 1343 across the buffer and knocking out a marked boundary tree. The contractor identified this on his GPS and reported it immediately to FC staff as expected. The availability of GPS in machines limited the potential of the incursion into the buffers.</p>		
--	--	--	---	--	--



FC Staff using a tape measure to measure actual distance off exclusion zone boundary. Stumps from EPA waypoints 1342 and 1343

			 <p>Koala Feed Tree from HUA search located in field at 424905; 6425781 during audit response investigation. The stumps from EPA waypoints 1342 and 1343 along with the marked boundary tree from EPA Photo 8 are in the background and >20 m from this tree.</p>		
5.7 r and s) (page 15)	Schedule 6 approval for snig-track crossing Code Yellow		<p>The EPA identified non-compliance with 5.7 d and J, however presumably the non-compliance is with r and s regarding preparation and provision of a schedule 6.</p> <p>A strict reading of the licence appears to require schedule 6 approvals for re-opening and use of an existing snig-track. FCNSW in the old Central Region had not been preparing schedule 6 approvals for re-use of existing snig-track crossings since the inception of the IFOA as there was agreement with NPWS manager Gary Davey that the intention was that existing snig-tracks (including crossings) could be used in exclusion zones without approvals.</p>	<p>The EPA considered Forestry Corporation submissions.</p> <p>The LNE TSL clearly states and requires that a Schedule 6 is prepared, approved and sent to the EPA prior to the use of snig track crossings. TSL conditions 5.7r-s do not limit the use of such snig track crossings however require the process stipulated in the LNE TSL to</p>	<p>Unchanged finding</p> <p>An action plan must be developed that ensure exclusion zones are protected as required by the TSL. A further action plan is required to ensure the correct approvals process is</p>

			<p>FC will discuss with EPA whether that agreement still stands and circumstances for schedule 6 approvals for re-use of existing snig-track crossings.</p>	<p>be followed. The EPA does not hold any agreement as referred to by FCNSW. The EPA considers that Schedule 6 approvals are required in all circumstances as documented in the LNE TSL.</p> <p>No change to audit findings. Action plan required.</p>	<p>followed as required by the TSL.</p>
<p>5.7 d, j, EPL schedule 4 cl 46, POEOE S 120 (Pages 15-19)</p>	<p>Temporary slash snig-track crossing Code Yellow</p>		<p>FCNSW has implemented condition 1 of Schedule 4 of the EPL with regard to construction of a temporary snig track crossing in Bulahdelah, compartment 141. Forest Practices Circular 2012/05 outlines the operating conditions for temporary snig track slash crossings of drainage features in native forest logging operations. It is FCNSW view that the reopening, construction, use, and reshaping/ stabilisation of this crossing has been conducted in line with these conditions, and that the objectives of the EPL and been achieved in doing so.</p> <p>The temporary snig track crossing was reopened south of log dump 6 as outlines by the EPA. The crossing was inspected by the EPA just after it had been finished being used for snigging, and prior to it being reshaped and stabilised. The existing crossing location was found during pre harvest marking and surveying, was approved by FCNSW, and marked in the field. Photograph 1 was taken just after the crossing has been reshaped and stabilised. The photo demonstrates that the two logs placed in the feature have preserved the shape of the feature, and that all crossing construction materials have been removed, and the crossing has been stabilised. The crossing was also drained with 20m of the drainage line.</p>	<p>The EPA considered Forestry Corporation submissions.</p> <p>TSL 5.7 d, j : The EPA notes that FCNSW failed to follow the correct procedure through approving the snig track crossing as per 5.7r-u. As such, specified forestry activities have been conducted within protection zones. This is not permitted within the TSL. As such the EPA upholds its findings for this criteria.</p> <p>EPL schedule 4 cl 46: The EPA notes that FCNSW submission refer to guidelines that are outside the EPL and TSL. The audit criteria cl 46 Schedule 4 states that crossings must be stable structures consisting of either causeways, culverts or bridges. Log dams and gully stuffer must not be constructed. As per the EPA's audit report logs were placed within the stream bed, consider corduroy/gully stuffer which are not permitted within the current licence. As such the EPA upholds its findings for this criteria.</p> <p>POEO Act S. 120</p>	<p>Unchanged finding</p> <p>Further Observations</p> <p>An action plan must be developed that ensure exclusion zones are protected as required by the TSL. A further action plan is required to ensure the correct approvals process is followed as required by the TSL.</p> <p>An action plan must be developed that ensures stable structures comprising of causeways, culverts or bridges are used for snig track crossings in adherence with the EPL.</p>

			 <p>Photograph 1 Photograph 2 was taken approximately one month after the rehabilitation had been completed. The photo demonstrates a successful stabilisation outcome. The practice of using temporary slash crossings is viewed as best practice and is extensively used by FCNSW.</p>	<p>Within the feature crossing several logs had been placed in the centre of the drainage line and soil and spoil was within the drainage line. The EPA notes that FCNSW have now removed the logs and spoil from the drainage line. These materials are not permitted within waters unless appropriately specified within an EPL. The EPA notes that the EPL requires crossings must be stable structures consisting of either causeways, culverts or bridges. Log dams and gully stuffers must not be constructed. As such the EPA upholds its findings for this criteria.</p>	<p>An action plan must be developed that ensures stable structures comprising of causeways, culverts or bridges are used for snig track crossings in adherence with the EPL. These must not pollute waters.</p>
--	--	--	--	--	---

				
			<p>Photograph 2</p> <p>FCNSW consider that as the objectives of the licence have been achieved, that the results of the audit should be changed to compliant.</p>	

