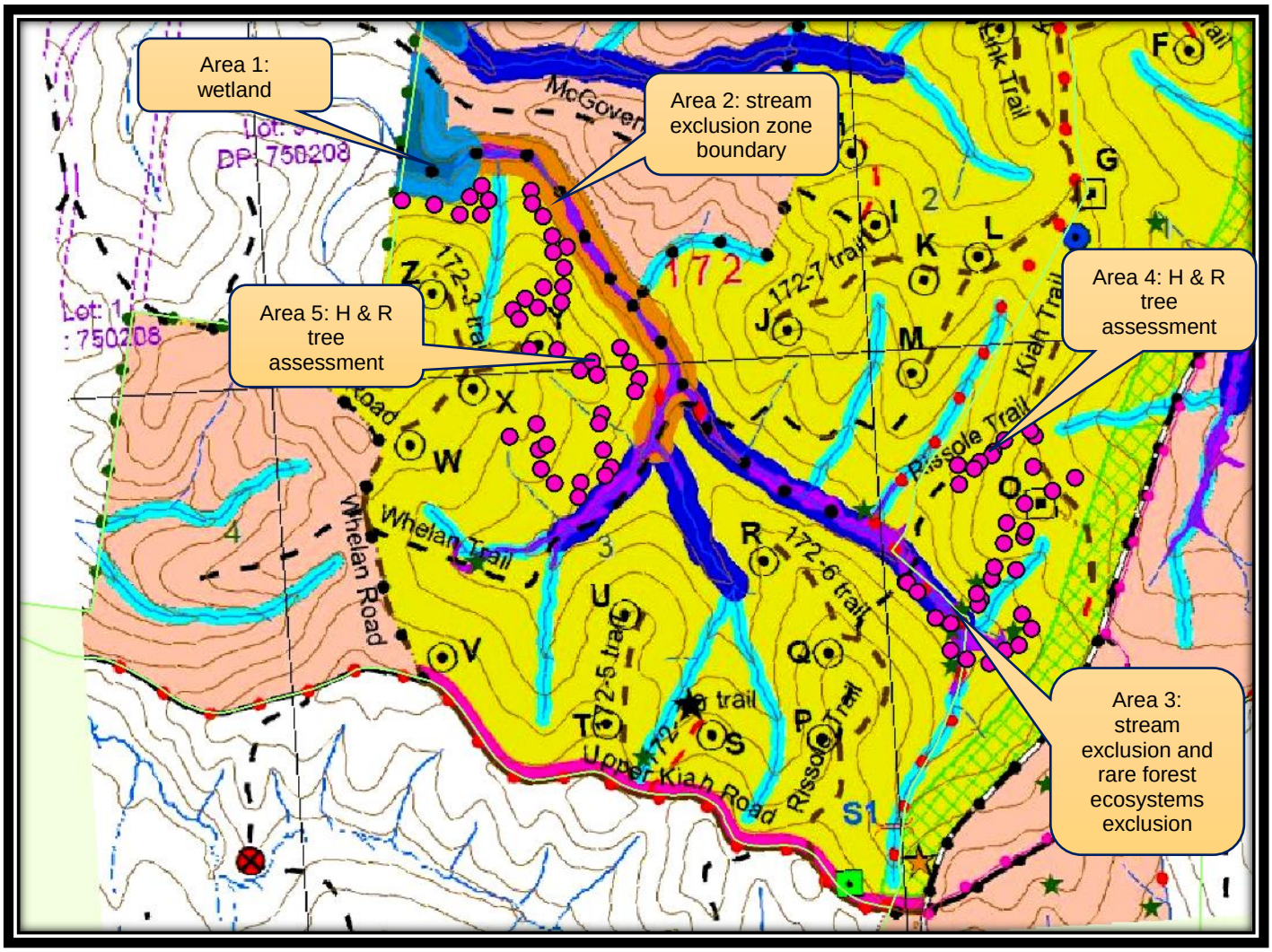
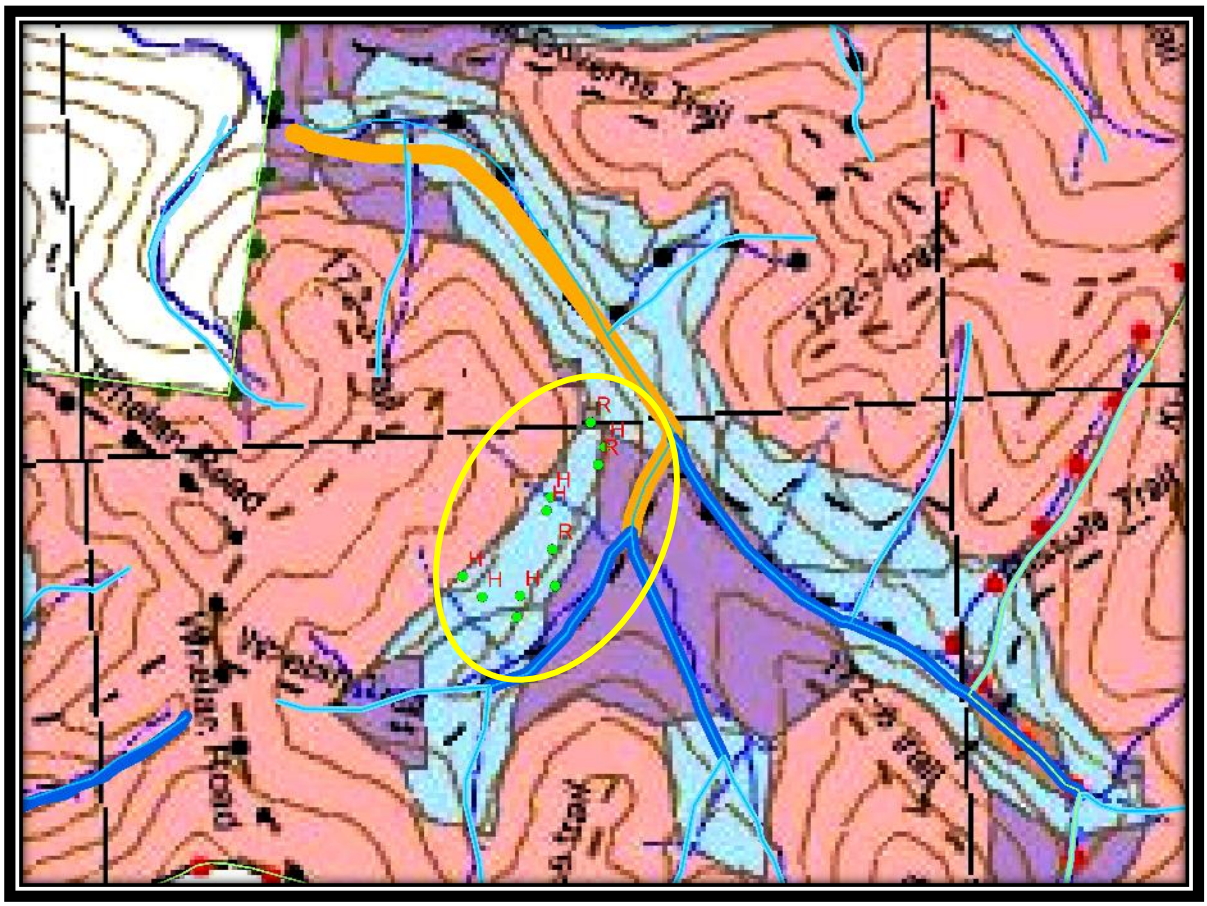
EPA AUDIT REPORT – CROWN FOREST
EAST BOYD STATE FOREST, COMPARTMENT 172

Auditee:	Forestry Corporation NSW
Audit scope:	East Boyd State Forest, compartment 172 (see **Map 1**, below). The field audit took 1 day to complete.
Region:	Eden Region
Date/Audit timing:	19 October 2016
Lead EPA auditor:	Dinka Dekaris
Assisting EPA auditors:	Pete Lezaich, John Forcier
Justification of audit:	Post-harvest audit focussing on EPA compliance priority areas
Audit objectives:	1. Determine compliance with Eden Region IFOA conditions 2. Determine compliance with relevant planning conditions that relate to threatened species surveys 3. Communicate compliance and non-compliances to FCNSW. 4. Outline requirements for any necessary follow-up action.
Audit criteria:	• 5.1 TSL, operational requirements, exclusion zones and exclusion zone buffers • Condition 5.5 TSL, rare forest ecosystems protection and mark-up • Condition 5.6 (g) TSL, non-regrowth **retention, selection, protection & mark-up** • Condition 5.7 TSL, stream exclusion zones, **protection & mark-up** • Condition 5.9 TSL, wetlands **protection & mark-up**
Summary of Operations	From the harvesting plan: "The stands to be harvested consist primarily of mature Silvertop Ash (*E.sieberi*), with some mature to over-mature Monkey Gum (*E.cypellocarpa*) & White Stringy Bark (*E.globoidea*). Mixed-age stands described above will be harvested in a modified shelter-wood silvicultural system in accordance with the Eden IFOA. It is proposed that the mixed-aged stands will next be available for commercial thinning operations in approximately 15-20 years time. The current integrated operation within part of the FMZ 3B area (as mapped on HPOM) is intended to remove sawlog and pulp products targeting sawlog, whilst maintaining the visual integrity of the forest. This will be achieved by retaining a 50% canopy cover of trees including those requiring retention under the TSL along with potential sawlog growers (trees within 2540cm diameter of good form)."

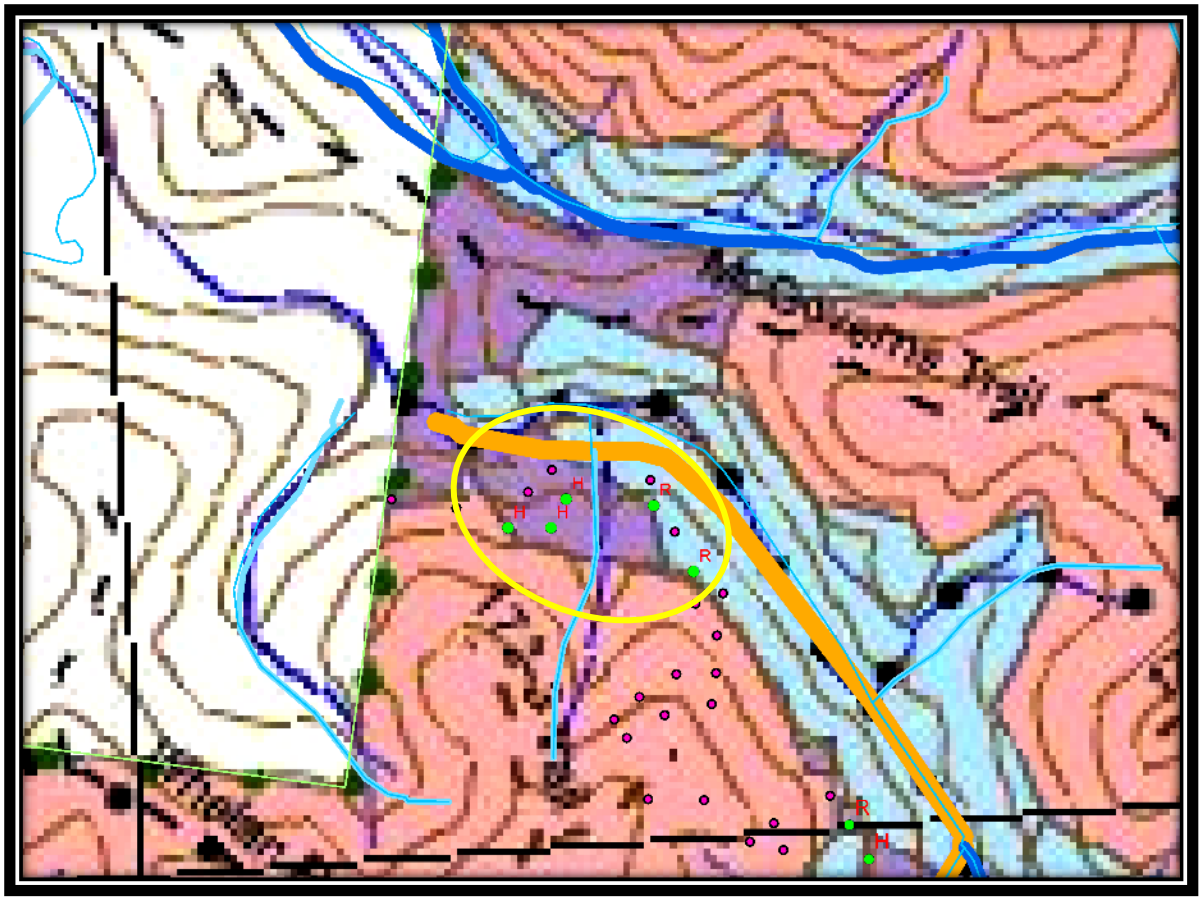
AREAS ASSESSED: H & R PLOTS, RIPARIAN PROTECTION ZONES, RAINFOREST AND RIDGE AND HEADWATER



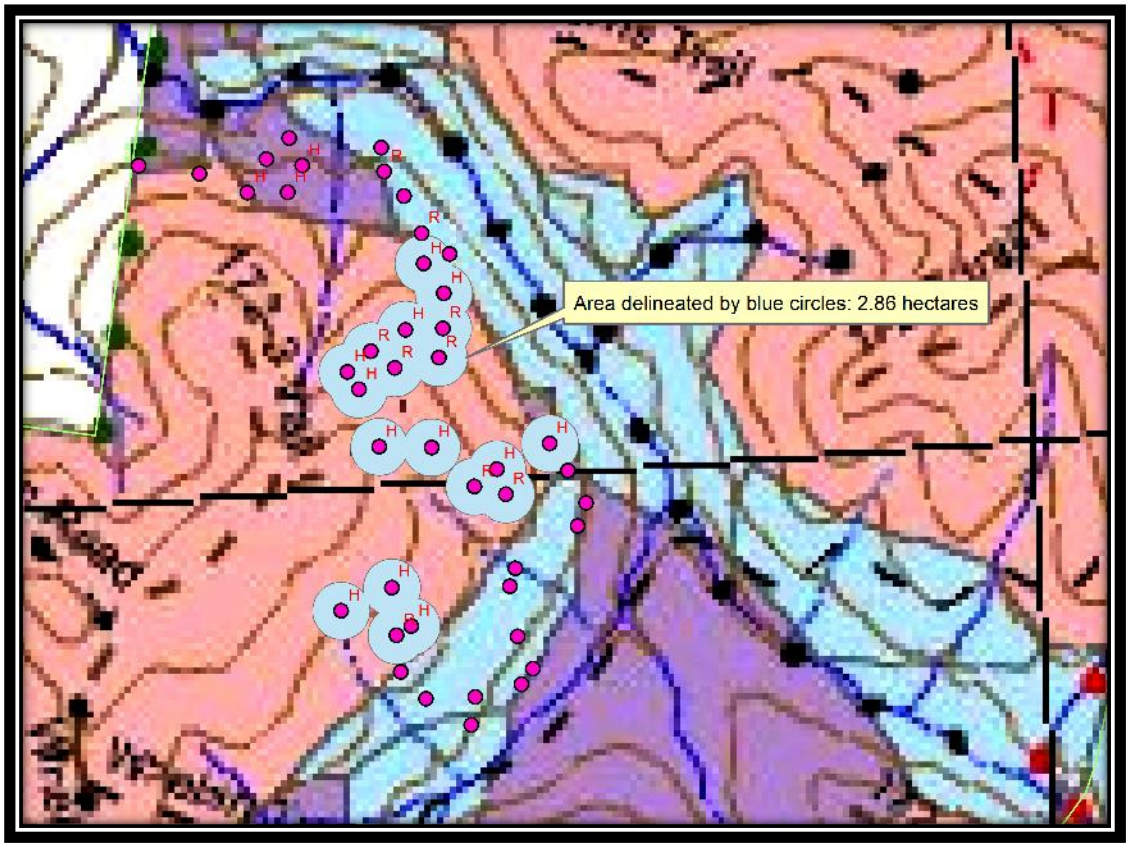
Map 1: Areas inspected during the EPA audit on 19 October 2016, compartment 172, East Boyd State Forest. The pink circles show the GPS waypoints recorded in the locations surveyed. The EPA recorded actual locations of marked H and R trees, feed trees, and boundary markings (pink and orange tape) observed in the field during the audit, at each of the locations surveyed.



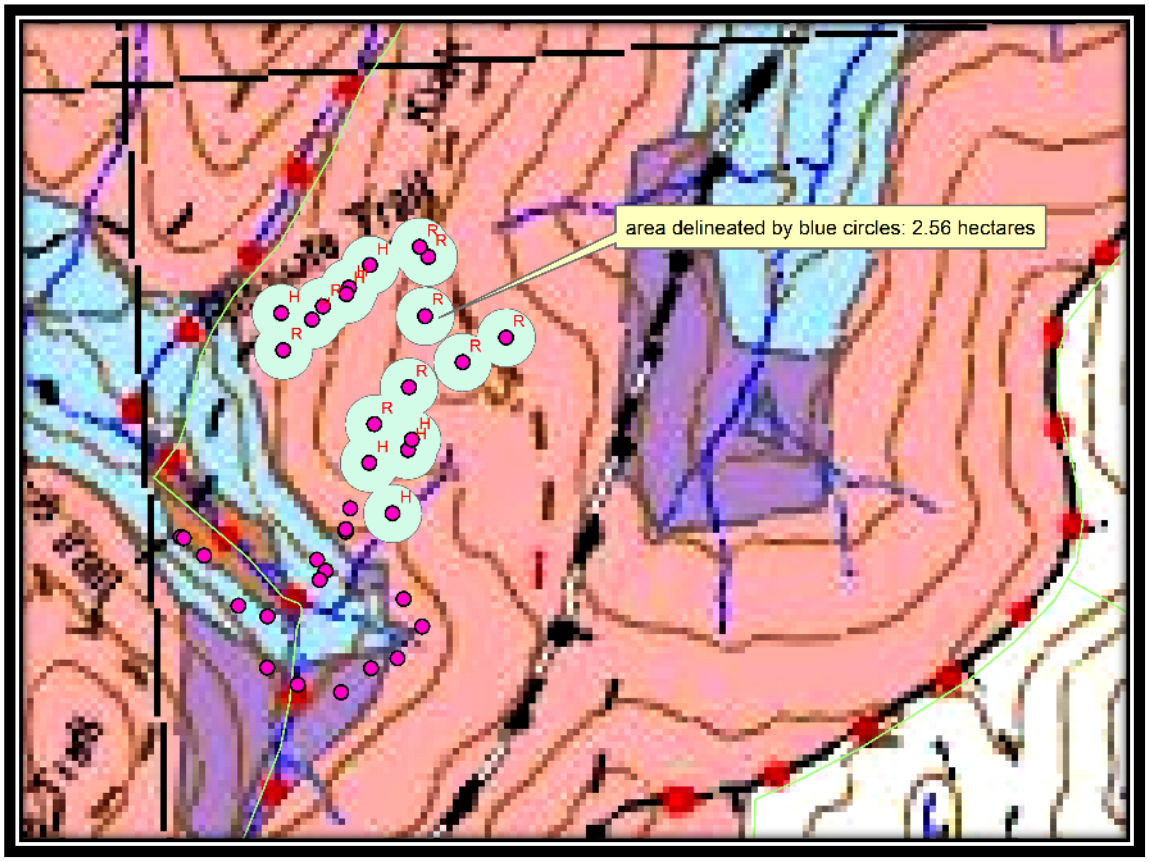
Map 2: Area of high quality habitat (light blue in colour, circled) surveyed by the EPA during the audit on 19 October 2016. Marked H and R trees are shown on the map. The area of high quality habitat circled above was 1.7 hectares.



Map 3: Area of moderate quality habitat (purple, circled) surveyed by the EPA during the audit on 19 October 2016. Marked H and R trees are shown on the map. The area of moderate quality habitat circled above was 1.1 hectares.



Map 4: Area of low quality habitat (pink in colour) surveyed by the EPA during the audit on 19 October 2016. Marked H and R trees observed in the field are shown on the map. The area surveyed was calculated in Arc Gis, based on circular plots shown above.



Map 5: Second area of low quality habitat surveyed by the EPA during the audit on 19 October 2016. Marked H and R trees are shown on the map. The total area surveyed was calculated in Arc Gis, based on circular plots shown above.

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AUDIT FINDINGS - OVERVIEW

A summary of EPAs findings are shown in the table below.

IFOA condition	Non-compliances	Compliances	Not Determined
5.2 Eden TSL - Marking-up	0	1	0
5.6 TSL – H & R tree retention	2	1	0
5.6 TSL - H tree selection	1	30	0
5.6 TSL - R tree selection	2	24	0
5.6 TSL - H & R tree protection	20	37	0
5.5 TSL – Rare Forest Ecosystems	0	1	0
5.9 TSL - Wetlands	0	1	0
5.7 TSL – Stream Exclusion Zones	0	2	0
TOTAL	**53**	**64**	**0**

AUDIT RECOMMENDATIONS

Action Details	Non-compliance Code*	Target/Action Date
5.6 Hollow-bearing and Recruitment tree retention Failure to retain sufficient hollow-bearing and recruitment trees in moderate and high quality habitat within the Eden Region is a recurring issue in FCNSW logging operations and consequently, a serious breach of the TSL. The EPA requires FCNSW to find the cause of the problem and to take all measures necessary to ensure that sufficient numbers of recruitment trees are retained across all logging areas, consistent with the Eden TSL.	This non-compliance has a red risk category. The likelihood of environment harm is certain, because there are insufficient hollow-bearing and recruitment trees being retained in moderate and high quality habitat areas. The scale of harm is moderate, since high quality and habitat areas represent a relatively small part of the overall logging area in compartment 172, East Boyd State Forest.	Action on this issue must start immediately and must continue until the EPA is satisfied that there is no further risk of non-compliance.
5.6(l) Protection of retained trees No action plan has been developed to date to ensure that retained trees are protected as per TSL condition 5.6h (i and ii). The EPA notes that the issue is recurring and any actions taken have not been sufficient. FCNSW must take more active measures to (1) educate its contractors about the need to protect retained trees; (2) supervise logging operations more vigorously to ensure compliance; (3) improve systems processes and undertake any other changes necessary to address the problem of tree protection.	This non-compliance has a red risk category. The EPA finds there are large amounts of debris associated with modern logging operations. Damage to tree crowns and bark is also more likely with mechanised logging. The EPA notes that there is an increased risk of fire damage due to the large amounts of debris. The scale of harm is also high (considering rate of incidence and sensitivity of environment receptor).	Action on this issue must start immediately and must continue until the EPA is satisfied that there is no further risk of non-compliance.

Action Details	Non-compliance Code*	Target/Action Date
5.6(h) Hollow-bearing tree selection The EPA notes that FCNSW has a good record of marking hollow-bearing trees according to TSL selection criteria. The EPA also notes that some of the marked hollow-bearing trees did not have hollows because these were not available. Hence, non-hollow bearing trees were marked as "H" trees to satisfy TSL requirements. Despite this, the EPA found one marked H tree that was small and senescing and clearly did not meet the selection criteria. FCNSW must train all staff to ensure that larger trees are selected as hollow-bearing trees in resource poor areas.	This non-compliance has a yellow risk category. The likelihood of environment harm is less likely and the level of harm low, because only a few trees failed to meet the selection criteria.	Action on this issue must start as soon as practical and must continue until the EPA is satisfied that there is no further risk of non-compliance.
5.6(h) Recruitment tree selection FCNSW continue to mark small and immature trees as recruitment trees, contrary to the requirements of the TSL. The EPA notes that this is a recurring issue in FCNSW operations. No action plan has been developed to date, to address the issue. FCNSW must train all staff to ensure that recruitment trees are selected to be retained across the compartment having as many of the characteristics listed in the TSL condition 5.6(h), and consistent with the requirements of the R tree definition.	This non-compliance has a yellow risk category. The likelihood of environment harm is less likely and the level of harm low, because only a few trees failed to meet the selection criteria. However, since this is a recurring issue the EPA requires immediate action to address its causes and prevent recurrence.	Action on this issue must start immediately and must continue until the EPA is satisfied that there is no further risk of non-compliance.

AUDIT FINDINGS - FIELD COMPONENT

1. Tree Retention / Mark-up

This part of the audit focused on retention of hollow-bearing trees (H trees), recruitment trees (R trees), feed trees and any other trees that must be retained under the Eden IFOA / TSL conditions. For the purposes of this audit, the following requirements apply:

Hollow-bearing trees

- At least **twelve** (12) hollow-bearing trees must be retained in **every two hectares of high quality habitat.** (Condition 5.6(g)(i) of the TSL);
- At least **eight** (8) hollow-bearing trees must be retained in **every two hectares of moderate quality habitat** (Condition 5.6(g)(ii) of the TSL);
- At least **four** (4) hollow-bearing trees must be retained in **every two hectares of low quality habitat** (Condition 5.6(g)(iii) of the TSL);
- Where there are fewer than 12 / 8 / 4 hollow-bearing trees two hectares, the existing hollow-bearing trees must be retained **plus additional trees must be retained to meet the requirement of 12 / 8 / 4 in every two hectares**. The additional trees retained must be those with the largest dbhob (diameter at breast height over bark).

Recruitment trees

- In High Quality Habitat a minimum of **twelve** (12) recruitment trees must be retained **in every two hectares** of net logging area (Condition 5.6(h)(i) of the TSL).
- In Moderate Quality Habitat a minimum of **eight** (8) recruitment trees must be retained **in every two hectares** of net logging area (Condition 5.6(h)(ii) of the TSL).
- In Low Quality Habitat a minimum of **four** (4) recruitment trees must be retained **in every two hectares** of net logging area (Condition 5.6(h)(iii) of the TSL).
- Retained H and R trees **must be marked** for retention (Condition 5.6(l)(iii) of the TSL).

Comment and Evidence

The EPA found that FCNSW was **not compliant** with the above conditions in all areas assessed. In particular, the EPA found there were insufficient Hollow-bearing and Recruitment trees marked and retained in moderate and high quality habitats (see charts 1-3, below).

This finding is based on a survey of two separate moderate and high quality habitat areas (see Maps 2 and 3 at the start of this report). The EPA also surveyed two separate areas of low quality habitat (see Map 4 at the start of this report). In total, the EPA surveyed 1.7ha of high quality habitat, 1.1ha of moderate quality habitat, and 5.42ha of low quality habitat. Within the high quality habitat area surveyed, the EPA recorded 6 hollow-bearing trees and 3 recruitment trees. Within moderate quality habitat surveyed, the EPA recorded 3 hollow-bearing trees and one (1) recruitment tree. Within low quality habitat surveyed, the EPA recorded 21 hollow-bearing trees and 17 recruitment trees.

Pro-rata calculations were used to calculate the numbers of trees in every 2 hectares, based on the data recorded. The results are shown in the charts below. In summary, FCNSW have failed to retain sufficient numbers of hollow-bearing and recruitment trees within moderate and high quality habitat areas surveyed. Within low quality habitat areas, FCNSW have retained more than the required amount. In each case, the number of recruitment trees was lower than that of hollow-bearing trees.

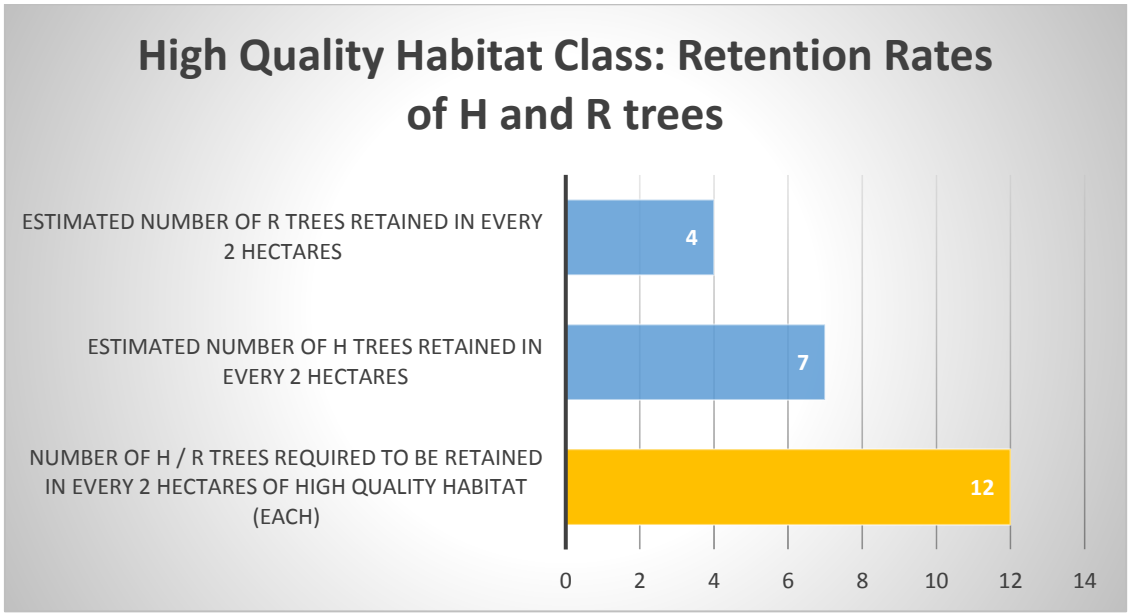


Chart 1: Retention rates (pro-rata) for H and R trees in high quality habitat.

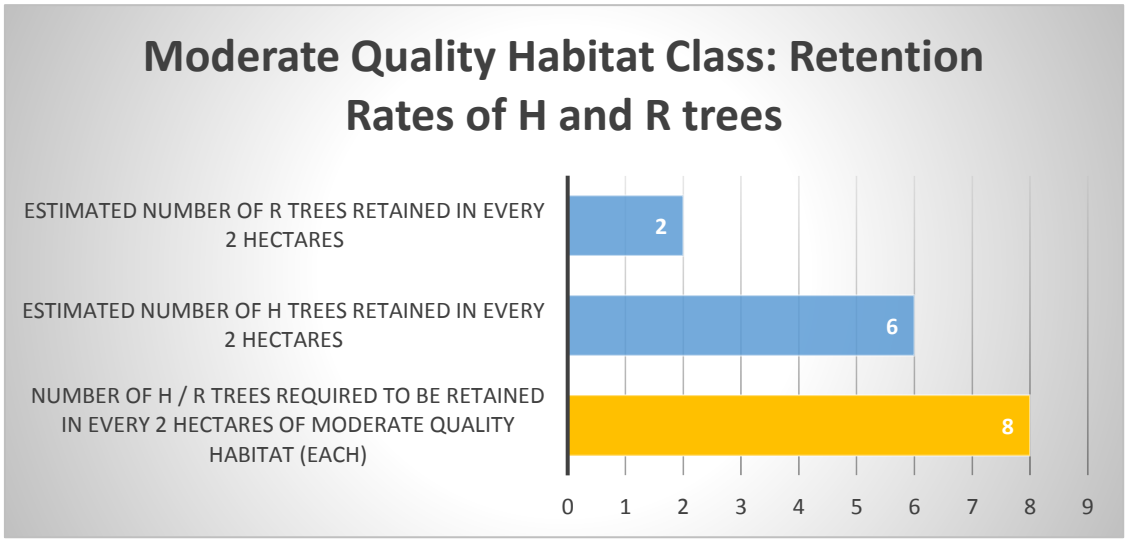


Chart 2: Retention rates (pro-rata) for H and R trees in moderate quality habitat.

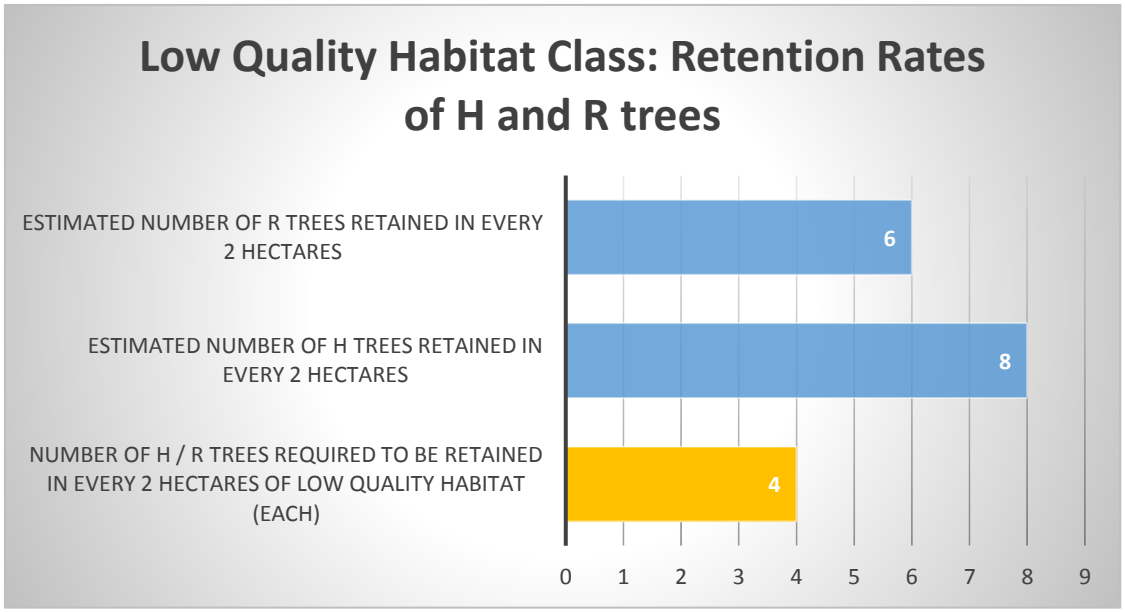


Chart 3: Retention rates (pro-rata) for H and R trees in low quality habitat.

Number of compliances / non-compliances

Within Eden Region, the EPA makes a finding of compliance or non-compliance in relation to each 2 hectares surveyed. This is in line with the TSL conditions, which require certain numbers of trees to be retained in every two hectares. Based on the data presented above, the EPA made a finding of two **non-compliances** in relation to the two areas of high and moderate quality habitats. The EPA also made a finding of two compliances in relation to low-quality habitat areas surveyed.

The non-compliances are a high environment risk (red risk code).

Why is it important?

The EPA considers it important that the required quantity of recruitment and habitat trees are retained, as required under the Eden TSL. The number of recruitment trees retained must equal the number of hollow-bearing trees, to provide for future hollow-bearing resources. By failing to retain the correct number of hollow-bearing trees, FCNSW have breached an important requirement of the TSL. In addition, the number of recruitment trees retained did not match the number of hollow-bearing trees – another breach of the TSL conditions (listed above). The EPA notes that Condition 5.6(m) of the Eden TSL requires FCNSW to conduct an audit of hollow-bearing and recruitment tree conditions 15 months from the commencement date. Specifically, condition 5.6(m)(iii) requires

> *a calculation of the total area in hectares of high, medium and low quality habitat that was implemented in both the non-regrowth and regrowth zones and a calculation of the corresponding area in hectares of high, medium and low quality habitat as mapped from the KB floristic assemblages.*

Condition 5.6(m)(iv) also requires FCNSW to carry out an assessment of the hollow-bearing and recruitment tree retention rate achieved in each compartment and whether the tree retention rate achieved complies with conditions 5.6 f), g) and h). Following this assessment, Condition 5.6(m)(v) requires FCNSW to make recommendations for improving the on-ground identification of habitat quality classes and hollow-bearing and recruitment tree retention. The overall effect of these conditions is to emphasise the importance of long-term tree retention in different habitat quality classes.

2. Hollow-bearing Trees: Selection

This part of the audit focused on selection of hollow-bearing trees (H trees) that must be retained under Condition 5.6 of the Southern Region TSL. For the purposes of this audit, the following requirements apply:

- In selecting hollow-bearing trees, priority must be given to those trees which exhibit evidence of occupancy by hollow dependent fauna and trees which contain multiple hollows or hollows of various sizes;
- Hollow-bearing trees must have as many of the following characteristics as possible:
    - Belonging to a cohort of trees with the largest dbhob
    - Good crown development
    - 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.

Comment and Evidence

The EPA found that FCNSW was **not compliant** with the above conditions in all areas assessed. This finding is based on the assessment of thirty one (31) marked hollow-bearing trees. The one non-compliance relates to a marked hollow-bearing tree that belonged to a small size cohort, thus failing the TSL criteria regarding size. The EPA did not record non-compliances for marked H trees without obvious

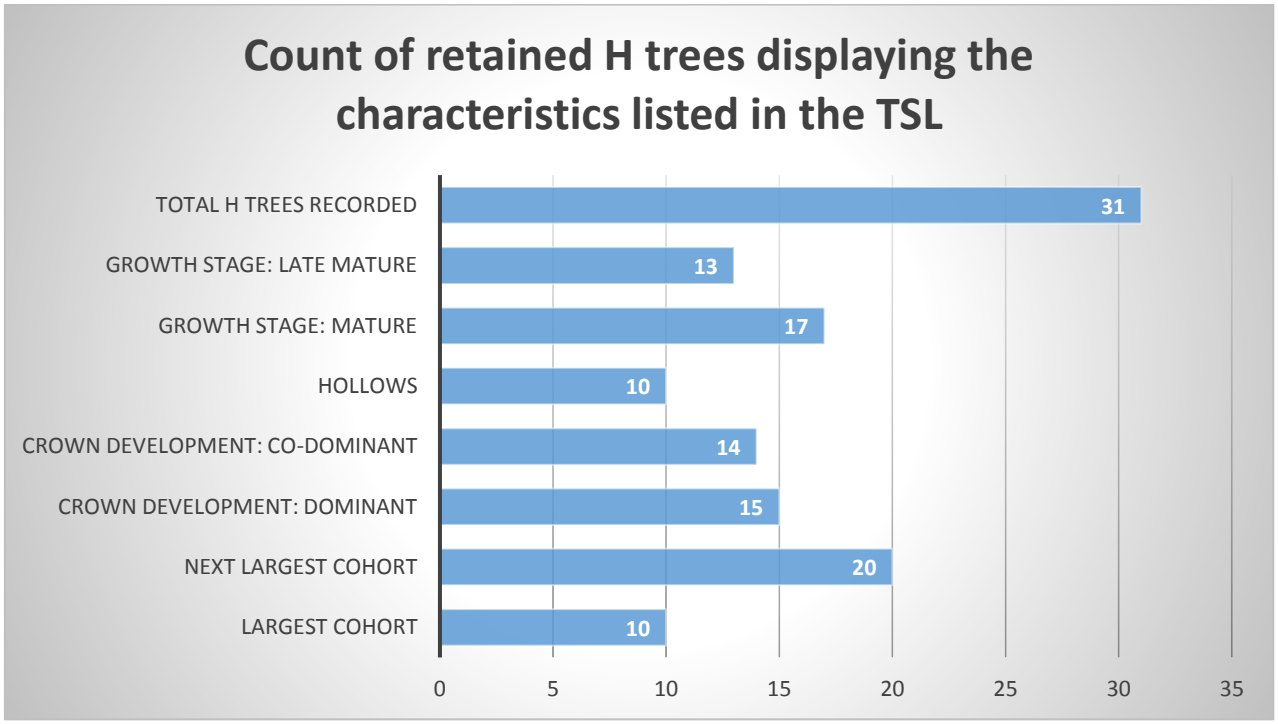
hollows, in recognition of the fact that some of the trees were marked as “H” in order to satisfy the TSL requirements regarding numbers (see the notes under “Retention” above).

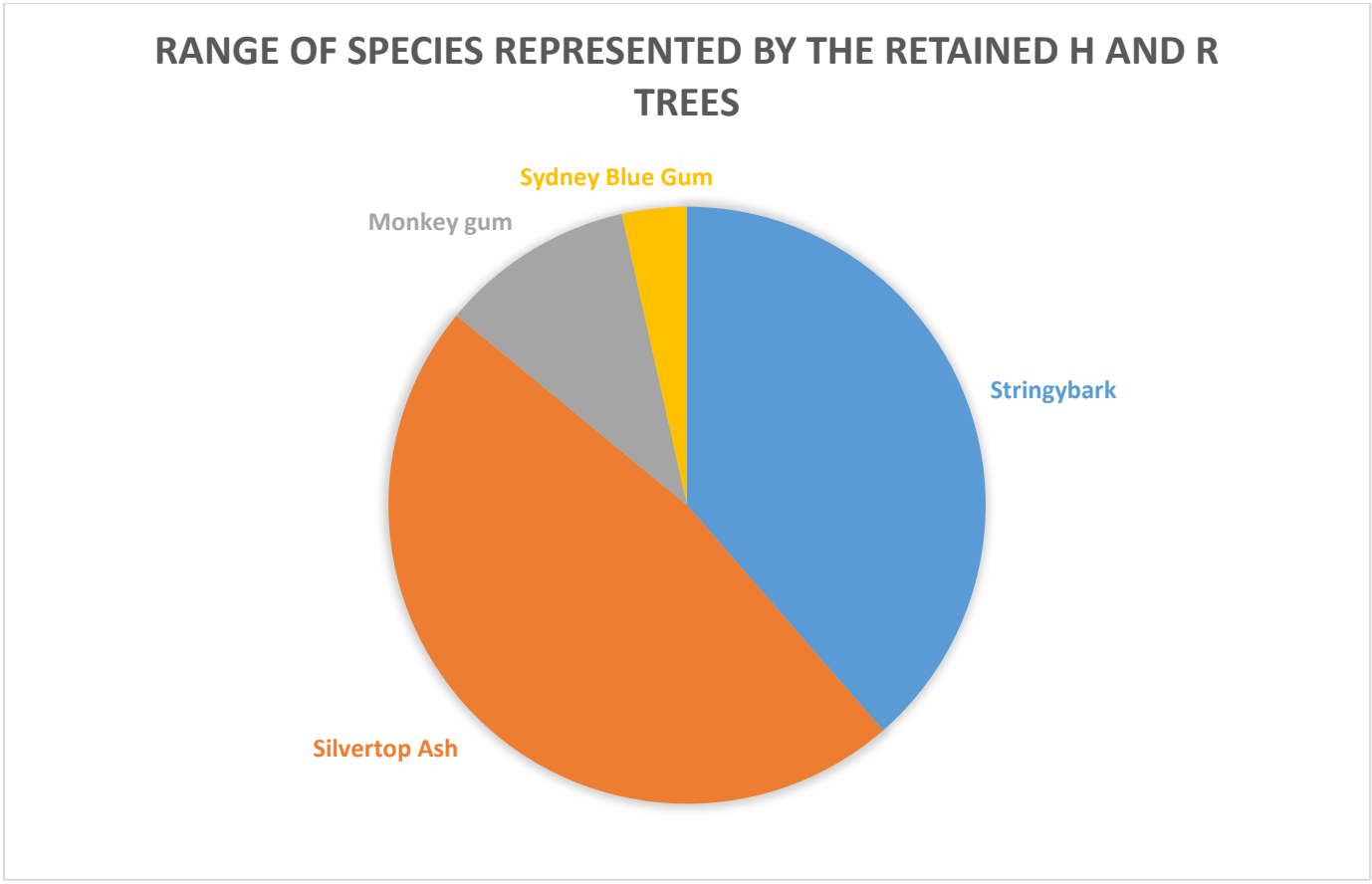
Table 2 in the “Data Tables and Figures” part of this report details the assessment of marked H and R trees recorded during the audit. As can be seen from the table and the graph below, the retained (marked) hollow-bearing trees in the audited area had all of the characteristics listed in the TSL. The EPA noted that the trees were evenly scattered through the area surveyed. The retained hollow-bearing trees also represented a range of species found in the area, with Silvertop Ash and Stringybark comprising the largest percentage as the dominant, hollow-forming species. The break down of species for H and R trees combined is shown in the pie chart on the next page.

Number of compliances / non-compliances

When assessing trees for selection criteria, the EPA records a separate finding of compliance / non-compliance for each tree assessed. Accordingly, for the purposes of this audit the EPA recorded a total of 30 compliances and one (1) non-compliance with regard to the selection of hollow-bearing trees.

Photo 1: A marked hollow-bearing tree displaying obvious hollows and belonging to the largest size cohort, in compartment 172, East Boyd State Forest.





3. Recruitment Trees: Selection

This part of the audit focused on selection of recruitment trees (R trees) that must be retained under Condition 5.6(h) of the Eden Region TSL. For the purposes of this audit, the following requirements apply:

- Retained recruitment trees must show potential for developing into hollow-bearing trees;
- Retained recruitment trees must have good crown development and should have minimal butt damage and should not be suppressed;
- Mature and late mature trees must be retained as recruitment trees where they are available;
- 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;
- Recruitment trees should not have developed hollows. The TSL Condition 5.6(a) defines a Recruitment tree as “a live tree of a mature or late mature growth stage within the net logging area that is not suppressed prior to harvesting and has **good potential for hollow development** and long term survival.”

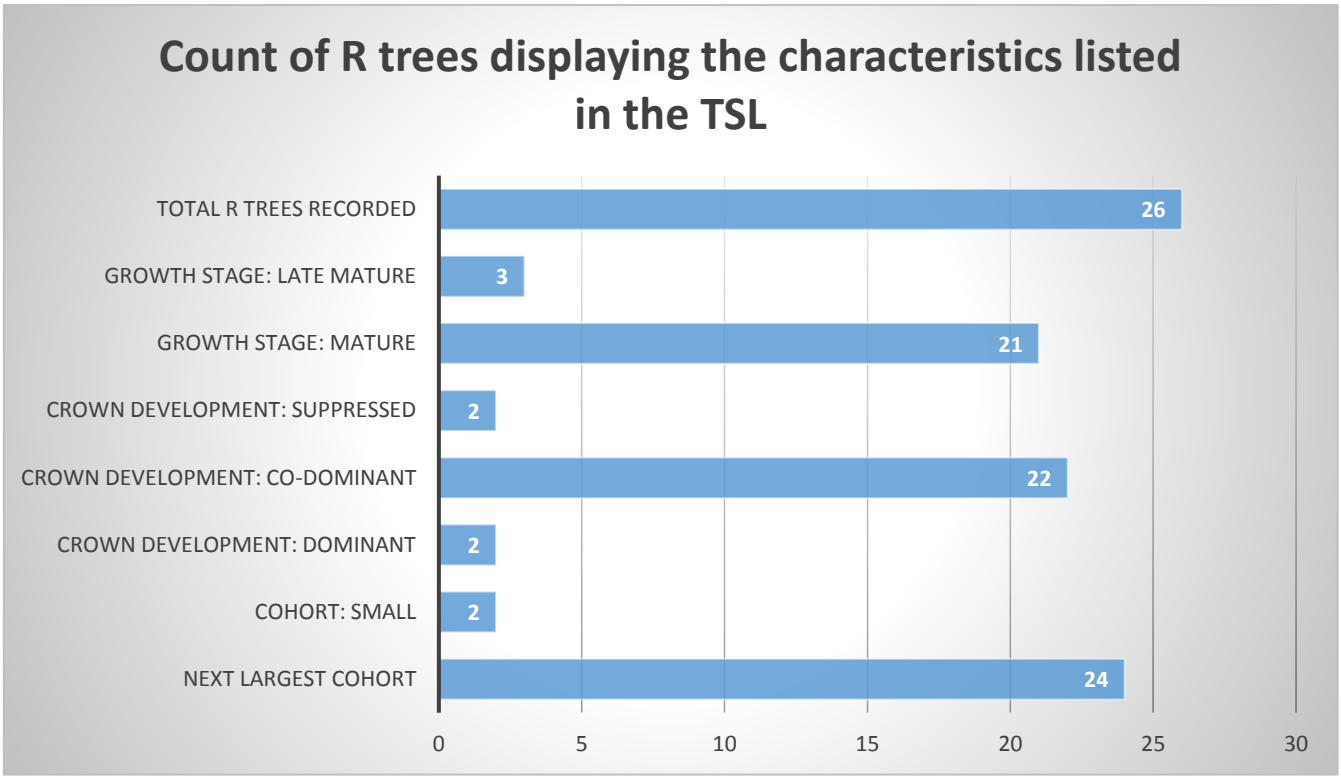
Comment and Evidence

The EPA found that FCNSW was **not compliant** with the above conditions in all areas assessed. The EPA recorded a total of two (2) non-compliances relating to the selection of Recruitment trees. These non-compliances are of high environmental risk (red risk code).

Table 2 in the Appendix to this report details the assessment of marked H and R trees recorded during the audit. As seen from the table and the graph below, two (2) of the marked R trees were small and suppressed or senescing. This was contrary to the TSL criteria for recruitment trees, listed above.

Number of compliances / non-compliances

When assessing trees for selection criteria, the EPA records a separate finding of compliance / non-compliance for each tree assessed. Accordingly, for the purposes of this audit the EPA recorded a total of twenty four (24) **compliances** and two (2) **non-compliances** out of the total 26 marked R trees assessed during the audit.



Why is it important?

The EPA considers it important that the required quantity **and quality** of recruitment trees are retained. Retention of recruitment trees – being the largest trees with the greatest potential to develop hollows, as stipulated in the TSL – is an important aspect of Ecologically Sustainable Forestry Management (ESFM). In a regrowth zone in particular, the principal aim of ESFM is to maintain an adequate level of forest structure and form, so as to ensure biodiversity values are maintained.

Photo 2 and left: a marked recruitment tree in compartment 172, East Boyd State Forest, belonging to a small size cohort and with a senescent crown. This tree did not satisfy the TSL criteria for selection of recruitment trees.

4. Protection of Retained Trees

This part of the audit focuses on protection of hollow-bearing trees (H trees) and recruitment trees (R trees) that have been marked for retention. Condition 5.6(l)(i) of the Eden Region Threatened Species Licence (TSL) requires damage to trees to be minimised using directional felling. Further to this, Condition 5.6(l)(ii) provides:

- Debris must not be accumulated higher than 1m within 5m radius of the retained trees,
- Mechanical disturbance to ground and understorey must be minimised to the greatest extent practicable within this five metre radius, and
- Retained trees must not be used as bumper trees during harvesting.

Photo 3: debris accumulated around a marked hollow-bearing tree in compartment 172, East Boyd State Forest.

Condition 5.6(l)(iii) of the Eden TSL requires all retained trees to be marked for protection. Therefore, the EPA assessed only marked trees during the audit.

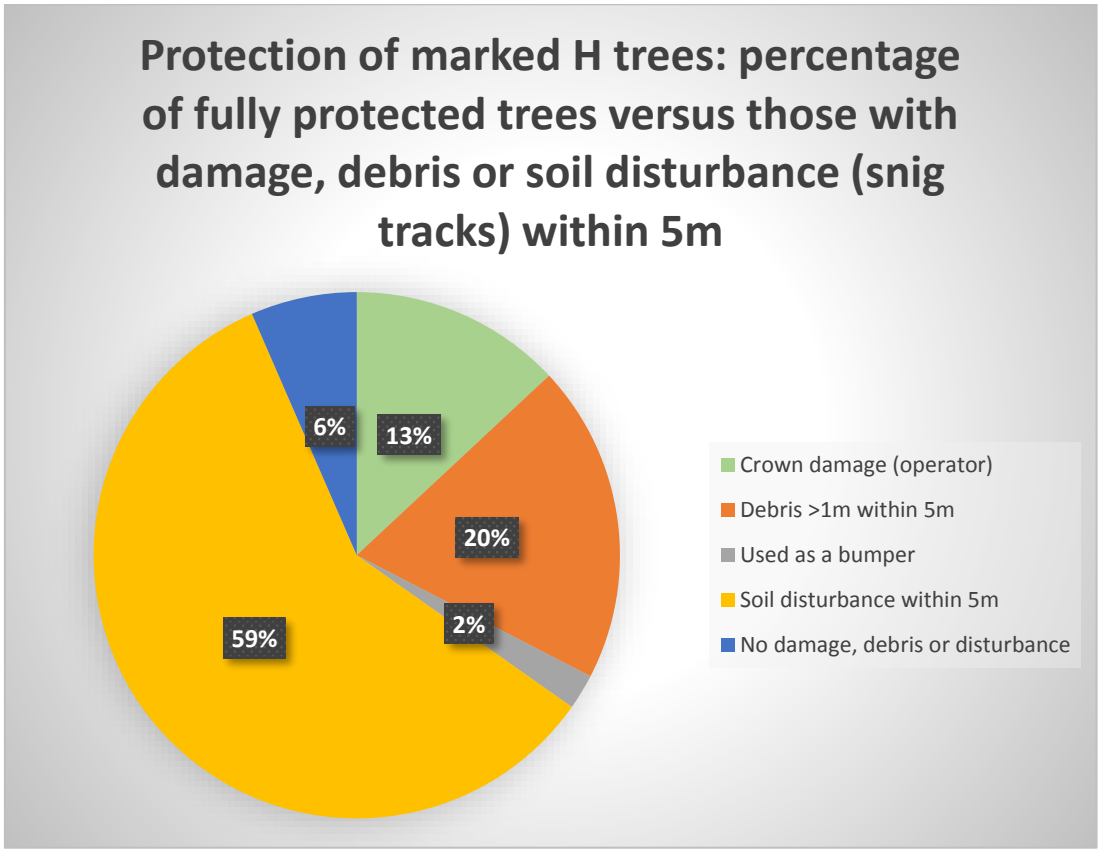
Comment and Evidence

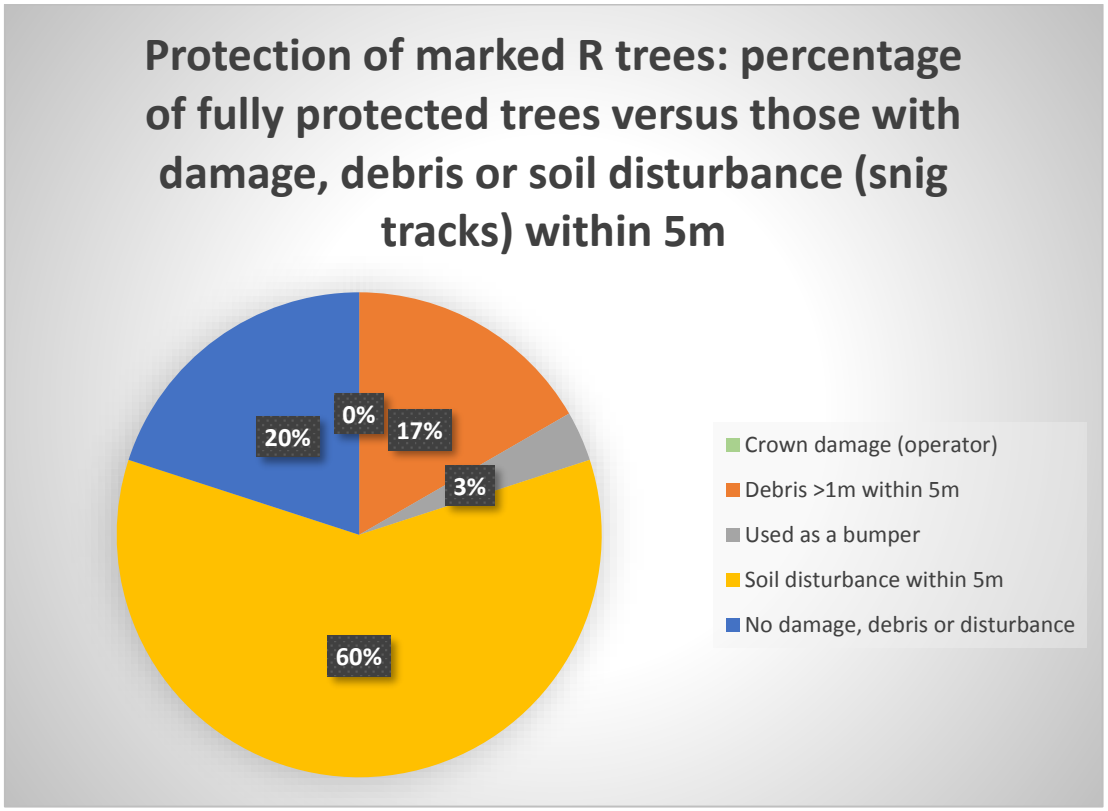
The EPA found that FCNSW was ***not compliant*** with the above conditions in all areas assessed.

The results of the audit with respect to protection of marked hollow-bearing and recruitment trees are summarised in the table below. For more detail, see **Table 3** in the "Data Tables and Figures" attached in the Appendix to this report.

	Crown damage (operator)	Debris >1m within 5m	Used as a bumper	Soil disturbance within 5m	No damage, debris or disturbance
% H trees	13	20	2	59	7
% R trees	0	17	3	60	20

Photo 4: Significant crown damage to a marked hollow-bearing tree caused by logging operations in compartment 172, East Boyd State Forest.





Number of compliances / non-compliances

When assessing trees against the protection criteria, the EPA records a separate finding of compliance / non-compliance for each tree assessed. This is in line with the relevant conditions of the TSL, which require each retained tree to be protected. Using this methodology, the EPA recorded thirty-seven (37) compliances and twenty (20) non-compliances in relation to tree protection. *Note: 28 of the trees had no debris or damage, with the only disturbance being ground disturbance in the form of snig tracks.* ***These***

28 potential non-compliances have been removed from the count for the purposes of the final audit findings.

There were only nine marked H and R trees that did not have damage, debris or soil disturbance (snig tracks or otherwise) around them.

Why is it important?

As shown in the pie charts above, FCNSW achieved full compliance (i.e. a 100% rate of protection) in just 6% of Hollow-bearing trees, and 20% of Recruitment trees. It is the EPA's view that these are very low rates of compliance, given the importance of the TSL provisions relating to the protection of retained trees. The highest percentage of non-compliance relates to ground disturbance, most of which was due to snig tracks being constructed adjacent to retained trees.

The EPA considers it important that hollow-bearing and recruitment are adequately protected from both logging operations and post-logging risks, such as hazard reduction burns and wild fires. Excessive logging debris in the immediate proximity of hollow-bearing or recruitment trees increases the risk of damage to the retained trees – or tree death if the fire is very hot – in the occurrence of a fire. This has a flow on effect on the long-term availability of hollow-bearing and recruitment resources as key forestry structural values.

Photo 5: Crown damage from logging operations to a marked Recruitment tree, compartment 172 East Boyd State Forest.

Photo 6: Damage to a marked Recruitment tree in compartment 172, East Boyd State Forest.

5. Marking-up of boundaries (compartment mark-up)

This part of the audit focuses on marking-up requirements specified in Condition 5.2 of the Eden Region TSL. In particular, Condition 5.2 requires the following features to be marked in the field prior to logging taking place:

- Nests and roosts for those species listed in Condition 5.13 of this licence;
- Dens of the following species: Yellow-bellied Glider, Squirrel Glider and Brush-tailed Phascogale;
- Koalas and Koala scats;
- Flying-fox camps;
- Latrine and den sites of the Spotted-tailed Quoll;
- Distinctive scats (e.g. Spotted-tailed Quoll, Koala);
- Allocasuraina or Casuarina spp. with chewed cones beneath;
- Yellow-bellied Glider and Squirrel Glider sap feed trees;
- Microchiropteran bat tree roosts;
- Microchiropteran bat subterranean roosts (caves, tunnels and disused mineshafts);
- Swift Parrot and Regent Honeyeater feed or nest trees;
- Permanent soaks and seepages in Heleioporous australiacus potential habitat;
- Threatened flora species and protected native plants likely to occur in the compartment requiring protection under Conditions 6.16, 6.17, 6.18 and 6.19 of this licence;
- Rocky outcrops and cliffs;
- Heath and scrub; and
- Wetlands.

During the audit of compartment 172 East Boyd State Forest the EPA observed marking-up of a wetland shown on **Map 1** at the start of this report, along with a number of Allocasuarina trees shown on the harvest plan operational map.

Comment and Evidence

The EPA found that FCNSW was ***compliant*** with the above conditions in all areas assessed.

This finding is based on a survey of a wetland boundary (buffer) in the north-west of the survey area (see **Map 1**, start of this report). The EPA also observed a number of marked Allocasuarina trees, which corresponded with the Glossy-Black Cockatoo trees marked on the harvest plan operational map. **Table 1** in the "Data Tables and Figures" in the Appendix to this report provides further details.

Number of compliances / non-compliances

The EPA records a single compliance or non-compliance finding in relation to compartment mark-up. Accordingly, the EPA recorded a single compliance finding in relation to compartment mark-up for the purposes of the audit.

Photo 7: Marked Allocasuarina Tree / Glossy Black Cockatoo Feed tree in compartment 172, East Boyd State Forest.

6. Rare Forest Ecosystems

This part of the audit focuses on the protection of rare forest ecosystems, as defined in Condition 5.5 of the Eden TSL. In particular, Condition 5.5 prohibits forestry activities within rare forest ecosystems, with the exception of road and snig track construction in accordance with Condition 5.5(e). Specified forestry activities, except road and snig track construction in accordance with Condition 5.5 e) and road re-opening, are prohibited within all Rare Forest Ecosystems. Trees must not be felled into Rare Forest Ecosystems. If a tree falls into an area of Rare Forest Ecosystem, then no part of that tree can be removed from that area. Harvesting machinery is prohibited within areas of Rare Forest Ecosystems, except for the purpose of road and snig track construction in accordance with Condition 5.5 e) and road re-opening.

Comment and Evidence

The EPA found that FCNSW was ***compliant*** with the above conditions in all areas assessed.

This finding is based on a survey of a rare forest ecosystem boundary in the east of the survey area (see **Map 1**, start of this report). The EPA observed a marked boundary that was in excess of the mapped extent of the forest ecosystem. There were no forestry activities near the marked boundary.

Photo 8: Marked boundary of a rare forest ecosystem, with logging operations visible several metres away (background).

Number of compliances / non-compliances

The EPA records a single finding of compliance / non-compliance in relation to each segment of boundary assessed. During the audit of compartment 172 East Boyd State Forest, the EPA assessed a single length of rare forest ecosystem boundary shown on Map 1. Accordingly, the EPA recorded a single compliance in relation to rare forest ecosystem protection.

7. Wetlands

This part of the audit focuses on the protection of wetlands, as provided for in Condition 5.9 of the Eden Region TSL. Specifically, Condition 5.9 requires ten metre exclusion zones to be implemented around all wetlands less than 0.5 hectares in size, 40m exclusion zones around all wetlands greater than 0.5 hectares, and 40m exclusions around all SEPP14 wetlands irrespective of size. Specified forestry activities are prohibited in all wetlands, irrespective of the size of the wetland and their surrounding exclusion zones.

Comment and Evidence

The EPA found that FCNSW was ***compliant*** with the above conditions in all areas assessed.

This finding is based on a survey of a wetland boundary (buffer) in the north-west of the survey area (see **Map 1**, start of this report). The EPA observed a marked boundary that was more than 40m away from the wetland edge (measured by a range finder). There were no forestry activities over the marked boundary.

Number of compliances / non-compliances

The EPA records a single finding of compliance / non-compliance in relation to each segment of boundary assessed. During the audit of compartment 172 East Boyd State Forest, the EPA assessed a single length of wetland boundary shown on Map 1. Accordingly, the EPA recorded a single compliance in relation to wetland protection.

8. Stream Exclusion Zones

This part of the audit focuses on the protection of streams and associated exclusion zones. The Eden Region TSL requires all stream exclusion zones to be marked in the field. There is no distinction between "soft" and "hard" boundaries around streams, as occurs in other IFOA Regions. Instead, Condition 5.7 of the Eden TSL provides for a single hard exclusion zone to be implemented on both sides of all streams, with the required width varying according to stream order:

- For first order streams, exclusion zones of at least ten (10) metres wide must be implemented;
- For second order streams, exclusion zones of at least 20 metres wide must be implemented;
- For third order streams, exclusion zones of at least 30 metres wide must be implemented;
- For fourth and higher order streams, exclusion zones of at least 50 metres wide must be implemented;

The width of stream exclusion zones must 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. Specified forestry activities, except road and snig track construction in accordance with condition 5.7 (i) and road re-opening, are prohibited within Stream Exclusion Zones implemented under conditions 5.7 (a), (b), (c) and (d) above. Trees must not be felled into Stream Exclusion Zones. If a tree falls into an area of Stream Exclusion Zone, then no part of that tree can be removed from that area.

Harvesting machinery is prohibited within Stream Exclusion Zones, except for the purpose of road and snig track construction in accordance with condition 5.7 (i) and road re-opening.

Comment and Evidence

The EPA found that FCNSW was ***compliant*** with the above conditions in all areas assessed.

This finding is based on the assessment of a second order stream and a third order stream shown on **Map 1** at the start of this report (Area 2 and Area 3). As detailed in Table 1 in the Appendix to this report, EPA officers observed pink tape marking stream exclusion zones in all of the locations surveyed. The distances from the marked boundary to the stream were in excess of the required distances in each location.

Number of compliances / non-compliances

The EPA records a single finding of compliance / non-compliance for each length of riparian zone assessed. Accordingly, the EPA has recorded **two (2) compliances** in relation to riparian zone protection, for the purposes of the audit.

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.

APPENDIX: DATA TABLES AND FIGURES

Table 1: waypoints recorded in compartment 172 East Boyd State Forest, during an audit, 19 October 2016.

FID	ident	Latitude	Longitude	Easting	Northing
0	19-10-2016 10:06:56	-37.16869	149.8497	753022	5882611
1	eb1. 19-10-2016 10:07:07	-37.16869	149.84969	753021	5882611
2	IMG_20161019_100850.	-37.1687	149.84972	753024	5882610
3	eb2. 19-10-2016 10:16:03	-37.16884	149.84991	753040	5882593
4	eb3. 19-10-2016 10:23:13	-37.16924	149.85023	753068	5882548
5	feed tree 19-10-2016 10	-37.16933	149.85051	753092	5882538
6	eb4. 19-10-2016 10:31:24	-37.16973	149.85049	753089	5882493
7	feed tree. 19-10-2016 1	-37.16987	149.85078	753114	5882477
8	eb5. 19-10-2016 10:36:23	-37.16994	149.8512	753151	5882468
9	eb6. 19-10-2016 10:38:34	-37.16976	149.8515	753179	5882487
10	eb7. 19-10-2016 10:41:15	-37.16969	149.85176	753202	5882494
11	feed tree. 19-10-2016 1	-37.16945	149.85201	753225	5882520
12	eb8. 19-10-2016 10:46:34	-37.16923	149.85184	753211	5882545
13	eb8. 19-10-2016 10:53:05	-37.16899	149.85109	753145	5882574
14	feed tree. 19-10-2016 1	-37.16906	149.85103	753139	5882566
15	r1. 19-10-2016 10:56:04	-37.1689	149.85101	753138	5882584
16	feed tree. 19-10-2016 1	-37.16869	149.8513	753164	5882606
17	r2. 19-10-2016 11:01:43	-37.16867	149.8513	753164	5882609
18	h1. 19-10-2016 11:06:58	-37.16851	149.85135	753169	5882626
19	h2. 19-10-2016 11:10:26	-37.16856	149.85176	753206	5882620
20	h3. 19-10-2016 11:12:36	-37.16816	149.85155	753188	5882665
21	r3. 19-10-2016 11:17:51	-37.16786	149.85161	753195	5882698
22	h4. 19-10-2016 11:21:49	-37.16807	149.85193	753222	5882674
23	h5. 19-10-2016 11:22:27	-37.16799	149.85197	753226	5882682
24	r4. 19-10-2016 11:23:58	-37.16758	149.85196	753227	5882728
25	19-10-2016 11:28:43	-37.16703	149.85214	753245	5882788
26	r5. 19-10-2016 11:28:53	-37.16703	149.85214	753245	5882788
27	r6. 19-10-2016 11:31:08	-37.1674	149.85249	753274	5882746
28	r7. 19-10-2016 11:32:09	-37.16722	149.85292	753313	5882765
29	r8. 19-10-2016 11:35:02	-37.16657	149.85219	753250	5882839
30	r9. 19-10-2016 11:37:54	-37.16649	149.85211	753244	5882848
31	h6. 19-10-2016 11:39:53	-37.16662	149.85162	753200	5882835
32	h7. 19-10-2016 11:41:35	-37.16679	149.85141	753180	5882817

FID	ident	Latitude	Longitude	Easting	Northing
33	h8. 19-10-2016 11:44:35	-37.16684	149.85138	753178	5882812
34	r10. 19-10-2016 11:45:08	-37.16693	149.85115	753157	5882802
35	h9. 19-10-2016 11:47:08	-37.16703	149.85104	753147	5882791
36	h10. 19-10-2016 11:49:21	-37.16697	149.85074	753120	5882799
37	r11. 19-10-2016 11:52:17	-37.16726	149.85075	753120	5882767
38	w1. 19-10-2016 13:37:51	-37.16274	149.84053	752228	5883295
39	w2. 19-10-2016 13:44:10	-37.16282	149.84113	752281	5883285
40	w3. 19-10-2016 13:49:17	-37.16272	149.8418	752341	5883294
41	w4. 19-10-2016 13:55:12	-37.16256	149.84203	752362	5883311
42	h11. 19-10-2016 14:03:54	-37.16278	149.84215	752371	5883287
43	h12. 19-10-2016 14:06:16	-37.16299	149.842	752357	5883264
44	h13. 19-10-2016 14:08:11	-37.16298	149.8416	752322	5883266
45	eb9. 19-10-2016 14:14:02	-37.16266	149.84294	752442	5883298
46	r13 19-10-2016 14:27:54	-37.16285	149.84296	752443	5883277
47	eb10. 19-10-2016 14:34:	-37.16305	149.84315	752459	5883254
48	eb11. 19-10-2016 14:40	-37.16352	149.84358	752496	5883201
49	h14. 19-10-2016 14:43:05	-37.16359	149.84332	752473	5883194
50	r14. 19-10-2016 14:46:52	-37.16335	149.84331	752473	5883220
51	h15. 19-10-2016 14:49:16	-37.16383	149.84351	752489	5883167
52	r15. 19-10-2016 14:51:34	-37.16411	149.84349	752486	5883136
53	h16. 19-10-2016 14:53:28	-37.16411	149.84312	752453	5883137
54	r16. 19-10-2016 14:56:00	-37.16434	149.84344	752481	5883110
55	r17. 19-10-2016 14:57:25	-37.16441	149.843	752442	5883104
56	r18. 19-10-2016 14:59:06	-37.16427	149.84277	752422	5883120
57	h17. 19-10-2016 15:00:31	-37.16443	149.84253	752400	5883103
58	h18. 19-10-2016 15:02:11	-37.16457	149.84264	752409	5883087
59	h19. 19-10-2016 15:04:08	-37.16503	149.84282	752423	5883035
60	h20. 19-10-2016 15:22:13	-37.16505	149.84334	752470	5883032
61	r19. 19-10-2016 15:24:21	-37.16537	149.84375	752505	5882995

FID	ident	Latitude	Longitude	Easting	Northing
62	h21. 19-10-2016 15:26:04	-37.16524	149.84398	752526	5883009
63	r20. 19-10-2016 15:27:35	-37.16544	149.84406	752532	5882986
64	h22 19-10-2016 15:31:02	-37.16505	149.84451	752573	5883028
65	r21. 19-10-2016 15:33:24	-37.16527	149.84468	752588	5883004
66	h23. 19-10-2016 15:35:59	-37.16553	149.84485	752602	5882974
67	r22. 19-10-2016 15:40:54	-37.16571	149.84476	752593	5882955
68	h24. 19-10-2016 15:47:05	-37.16603	149.84413	752536	5882921
69	h25. 19-10-2016 15:48:37	-37.16617	149.84407	752531	5882905
70	r23. 19-10-2016 15:50:49	-37.16657	149.84413	752535	5882861
71	eb12. 19-10-2016 15:52:	-37.16683	149.84427	752546	5882832
72	eb13. 19-10-2016 15:55:	-37.16695	149.84415	752535	5882819
73	h26. 19-10-2016 15:57:20	-37.16704	149.84369	752494	5882810
74	eb14. 19-10-2016 15:59:	-37.16726	149.84364	752489	5882786
75	h27. 19-10-2016 16:03:46	-37.16704	149.8432	752451	5882811
76	h28. 19-10-2016 16:05:24	-37.16682	149.84296	752430	5882836
77	r24. 19-10-2016 16:06:59	-37.16653	149.84293	752428	5882868
78	h29. 19-10-2016 16:08:05	-37.16646	149.84308	752442	5882876
79	h30. 19-10-2016 16:10:35	-37.16615	149.8429	752427	5882911
80	h31. 19-10-2016 16:13:15	-37.16632	149.84239	752381	5882893

Table 2: Hollow-bearing (H) and Recruitment (R) trees recorded in compartment 172 East Boyd State Forest, during the audit undertaken on 19 October 2016. This table displays the data used to determine compliance with SELECTION requirements of the Southern Region Threatened Species licence. The highlighted rows show Recruitment trees that were too small to satisfy the TSL criteria for size.

Marked	Species	Cohort	Hollows	Dominance class	Growth stage
R	Stringybark	Next largest	No	Co-Dom	Mature
R	Stringybark	Next largest	No	Co-Dom	Mature
H	Stringybark	Next largest	No	Co-Dom	Late mature
H	Stringybark	Next largest	Yes	Dom	Late mature
H	Stringybark	Largest	No	Dom	Late mature
R	Silvertop Ash	Next largest	No	Dom	Mature
H	Stringybark	Next largest	Yes	Dom	Late mature
H	Silvertop Ash	Next largest	No	Dom	Mature
R	Silvertop Ash	Next largest	No	Co-Dom	Mature
R	Silvertop Ash	Next largest	No	Co-Dom	Mature

Marked	Species	Cohort	Hollows	Dominance class	Growth stage
R	Silvertop Ash	Next largest	No	Co-Dom	Mature
R	Silvertop Ash	Next largest	No	Co-Dom	Mature
R	Silvertop Ash	Next largest	No	Co-Dom	Mature
R	Silvertop Ash	Next largest	No	Co-Dom	Mature
R	Silvertop Ash	Next largest	No	Co-Dom	Mature
H	Silvertop Ash	Largest	No	Dom	Mature
H	Silvertop Ash	Next largest	No	Dom	Mature
H	Silvertop Ash	Next largest	Yes	Co-Dom	Mature
R	Silvertop Ash	Next largest	No	Co-Dom	Mature
H	Silvertop Ash	Next largest	No	Co-Dom	Mature
H	Silvertop Ash	Next largest	No	Co-Dom	Mature
R	Silvertop Ash	Next largest	No	Co-Dom	Mature
H	Monkey Gum	Largest	Yes	Dom	Late Mature
H	Monkey Gum	Largest	Yes	Dom	Late Mature
H	Monkey Gum	Largest	Yes	Dom	Late Mature
R	Stringybark	Next largest	No	Dom	Late Mature
R	Monkey Gum	Small	No	Suppressed	Late mature
H	Sydney Blue Gum	Largest	Yes	Dom	Late mature
R	Stringybark	Next largest	No	Co-Dom	Mature
H	Silvertop Ash	Next largest	No	Co-Dom	Mature
R	Silvertop Ash	Next largest	No	Co-Dom	Mature
H	Silvertop Ash	Next largest	No	Co-Dom	Mature
R	Silvertop Ash	Next largest	No	Co-Dom	Mature
R	Silvertop Ash	Next largest	No	Co-Dom	Mature
R	Stringybark	Small	No	Suppressed	Senescing
H	Monkey Gum	Next largest	No	Co-Dom	Mature
H	Stringybark	Next largest	No	Co-Dom	Mature
H	Stringybark	Next largest	No	Suppressed	Late mature
H	Stringybark	Next largest	No	Co-Dom	Mature
R	Silvertop Ash	Next largest	No	Co-Dom	Mature
H	Silvertop Ash	Largest	Yes	Dom	Late mature
R	Stringybark	Next largest	No	Co-Dom	Late mature
H	Monkey Gum	Largest	Yes	Dom	Late mature
R	Stringybark	Next largest	No	Co-Dom	Mature
H	Stringybark	Largest	Yes	Dom	Late mature
R	Silvertop Ash	Next largest	No	Co-Dom	Mature
H	Stringybark	Next largest	No	Co-Dom	Mature
H	Stringybark	Next largest	No	Co-Dom	Mature
R	Stringybark	Next largest	No	Co-Dom	Mature
H	Stringybark	Largest	No	Dom	Late mature
H	Stringybark	Next largest	No	Co-Dom	Mature
H	Stringybark	Next largest	No	Co-Dom	Mature
R	Silvertop Ash	Next largest	No	Co-Dom	Mature
H	Silvertop Ash	Next largest	No	Co-Dom	Mature
R	Silvertop Ash	Next largest	No	Co-Dom	Early Mature
H	Stringybark	Small	No	Sub-dom	Early Mature
H	Sydney Blue Gum	Next largest	No	Dom	Mature

Table 3: Hollow-bearing (H) and Recruitment (R) trees recorded in compartment 172 East Boyd State Forest, during the audit on 19 October 2016. This table displays the data used to determine compliance with PROTECTION of retained trees requirements of the Eden Region Threatened Species licence. Note: "natural-operator" damage denotes mostly natural crown damage.

Tree no	Marked	Crown damage	Debris >1m within 5m	Tree used as a bumper	Soil Disturbance within 5m (snig tracks included)
1	R	Nil	Nil	No	None
2	R	Nil	Nil	No	Yes
3	H	Nil	Nil	No	Yes
4	H	Natural	Nil	No	None
5	H	Nil	Nil	No	Yes
6	R	Nil	Yes	No	N/A
7	H	Natural	Yes	No	Yes
8	H	Nil	Yes	No	Yes
9	R	Nil	Nil	No	Yes
10	R	Nil	Yes	No	Yes
11	R	Nil	Nil	No	Yes
12	R	Nil	Nil	Yes	Yes
13	R	Nil	Nil	No	Yes
14	R	Nil	Nil	No	Yes
15	R	Nil	Nil	No	Yes
16	H	Nil	Nil	No	Yes
17	H	Yes	Yes	No	Yes
18	H	Nil	Nil	No	Yes
19	R	Nil	Nil	No	None
20	H	Yes	Nil	No	None
21	H	Nil	Yes	No	Yes
22	R	Nil	Nil	No	Yes
23	H	Natural	Nil	No	Yes
24	H	Natural	Nil	No	Yes
25	H	Natural	Nil	No	None
26	R	Nil	Nil	No	None
27	R	Nil	Nil	No	None
28	H	Yes	Yes	No	Yes
29	R	Nil	Yes	No	Yes
30	H	Nil	Yes	Yes	Yes
31	R	Nil	Nil	No	Yes
32	H	Nil	Nil	No	Yes
33	R	Nil	Nil	No	Yes
34	R	Nil	Nil	No	Yes
35	R	Natural	Nil	No	None
36	H	Natural	Nil	No	None
37	H	Natural	Nil	No	Yes
38	H	Yes	Nil	No	Yes
39	H	Yes	Nil	No	Yes
40	R	Nil	Nil	No	None
41	H	Natural	Nil	No	Yes
42	R	Natural	Nil	No	Yes
43	H	Natural	Yes	No	Yes
44	R	Natural	Yes	No	None

Tree no	Marked	Crown damage	Debris >1m within 5m	Tree used as a bumper	Soil Disturbance within 5m (snig tracks included)
45	H	Natural	Yes	No	Yes
46	R	Nil	Yes	No	Yes
47	H	Natural	Nil	No	Yes
48	H	Natural	No	No	Yes
49	R	Natural	No	No	Yes
50	H	Yes	Nil	No	Yes
51	H	Nil	Nil	No	Yes
52	H	Natural	Nil	No	Yes
53	R	Nil	Nil	No	Yes
54	H	Natural	Nil	No	Yes
55	R	Nil	Nil	No	Yes
56	H	Nil	Yes	No	Yes
57	H	Natural	Nil	No	Yes