

Black Cockatoo Survey

Lots 7 and 961, Quinninup

NOVEMBER 2020



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Common terms/acronyms

BC Act	WA <i>Biodiversity Conservation Act 2016</i>
DAWE	Federal Department of Agriculture, Water and the Environment, formerly Department of the Environment and Energy
DBCA	WA Department of Biodiversity, Conservation and Attractions, including the Parks and Wildlife Service
DBH	Diameter at Breast Height in centimetres
DWER	WA Department of Water and Environmental Regulation
EP Act	WA <i>Environmental Protection Act 1986</i>
EPBC Act	Federal <i>Environment Protection and Biodiversity Conservation Act 1999</i>
FRTBC	Forest Red-tailed Black Cockatoo
Project	The proposed action
Proposal area	The Project extent as provided by the client
Study area	The areas surveyed in this study
Suitable DBH tree	Tree of a suitable size to start developing hollows large enough for black cockatoo breeding based on the Commonwealth of Australia (2017).
WA	Western Australia

1 Introduction

1.1 Background

Mr. D. Ryan on behalf of the landowners of Lots 7 and 961 on Deposited Plan 44726, Quinninup, proposes to clear approximately 2.2 ha of native vegetation (herein referred to as the 'site') for the purposes of horticulture. Quinninup is located approximately 13 km east of Pemberton. The site includes mostly regrowth Jarrah (*Eucalyptus marginata*), Karri (*Eucalyptus diversicolor*) and Marri (*Corymbia calophylla*) vegetation along with several large paddock trees, as mapped in Figure 1 (Appendix A).

A clearing application (CPS 9021/1) was submitted to the Department of Water and Environmental Regulation (DWER). DWER's preliminary assessment has identified that a number of fauna species protected under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) are likely to be found in, or in proximity to, the application area. This includes Carnaby's cockatoo (*Calyptorhynchus latirostris*), Baudin's cockatoo (*Calyptorhynchus baudinii*) forest red-tailed black cockatoo (FRTBC) (*Calyptorhynchus banksii naso*). A Targeted Black Cockatoo Survey was required to provide information on the extent and quality of breeding and foraging habitat of these species within the study area and to further inform the clearing assessment

1.2 Scope of works

Additional information on the quality and quantity of black cockatoo habitat was required. The scope of the survey was to undertake a desktop assessment and black cockatoo breeding and foraging habitat assessment of the site to provide local context and identify site values to black cockatoos.

1.3 Regulatory context

Key environmental legislation relevant to the study is outlined in Table 1-1.

Table 1-1 Environmental legislation that may be relevant to the project

Legislation	Responsible Government Department	Aspect
Federal <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act)	Federal Department of Agriculture, Water and the Environment (DAWE)	Black cockatoos are listed as Matters of National Environmental Significance.
<i>Biodiversity Conservation Act 2016</i> (BC Act)	WA Department of Biodiversity, Conservation and Attractions Parks and Wildlife Service (DBCA)	Black cockatoos are listed as threatened species under the BC Act.
<i>Environmental Protection Act 1986</i> (EP Act)	Environmental Protection Authority or DWER	Environmental impact assessment and management and offsets.

Threatened fauna may be listed as critically endangered, endangered, or vulnerable species because they are under identifiable threat of extinction.

Threatened fauna species may be listed on the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* (as updated) under S171 of the *Biodiversity Conservation Regulations 2018* of Part 2 of the BC Act. They can also be listed as threatened species under the EPBC Act as 'Matters of National Environmental Significance' (MNES), as defined in *Section 179* of the Act.

All three black cockatoo species targeted in this survey are listed under the State BC Act and the Federal EPBC Act as:

- EN: Endangered species (Baudin's Cockatoo and Carnaby's Cockatoo)
- VU: Vulnerable species (FRTBC)

The survey methodologies were developed with consideration of:

- Environmental Protection Authority (2020) Technical Guidance – Terrestrial Guidance for Fauna Surveys for Environmental Impact Assessment. Perth, Western Australia
- Commonwealth Matters of National Environmental Significance – *Significant impact guidelines 1.1 Environmental Protection and Biodiversity Conservation Act 1999*, Department of the Environment, Water, Heritage and the Arts (DEWHA)', (2009).
- Commonwealth *EPBC Act referral guidelines for three threatened black cockatoo species: Carnaby's cockatoo (endangered), Calyptorhynchus latirostris, Baudin's cockatoo (vulnerable), Calyptorhynchus baudinii, and Forest red-tailed black cockatoo (vulnerable) Calyptorhynchus banksii naso* (SEWPaC 2012).
- *Revised draft referral guideline for three threatened black cockatoo species: Carnaby's Cockatoo, Baudin's Cockatoo and the Forest Red-tailed Black Cockatoo.* (Commonwealth of Australia 2017)

2 Methods

2.1 Desktop review

Prior to completing field surveys, a desktop review was completed and included:

- Review of relevant literature on the target species such as recovery plans, journal articles and other publications
- Review of relevant mapping and spatial datasets

2.2 Field survey

Field surveys included an assessment of suitable DBH¹ trees, breeding habitat, foraging habitat, and roost trees within the site on 11th November 2020 by SW Environmental Principal, Shane Priddle. The survey included the following:

- Suitable DBH tree and hollow tree survey: field assessment and mapping of tree species and size class. The number, height and size of hollows were also noted as size classes, along with suitability for black cockatoo breeding and evidence of use.
 - Medium hollows were those with 10-15cm apertures.
 - Large hollows 15-20 cm or 20+ cm.

Trees were identified through the use of transects over the whole study area.

For the majority of tree species (e.g. Marri and Jarrah) suitable DBH trees are those with a DBH >50cm as these are considered large enough to start developing large hollows important for hollow recruitment (SEWPAC 2012).

- Black cockatoo foraging habitat assessment: The amount and quality of potential black cockatoo foraging habitat on site was made including the recording of actual foraging evidence observed during the field survey.
- Roosting habitat survey: Direct and indirect evidence of black cockatoos roosting within trees on site was noted.

¹ DBH – Diameter at breast height

2.3 Limitations

In accordance with *Technical Guidance* (EPA 2020) potential survey limitations are identified below.

Table 2-1 Limitations of survey adequacy and accuracy

Aspect	Constraint	Comment
Competency / experience of the survey team, including experience in the bioregion surveyed	No	Suitably qualified individuals carried out the work: Shane Priddle (Ba Science; Certified Environmental Practitioner No.310) with nearly 20 years' experience conducting fauna surveys throughout NSW and WA.
Scope, e.g. where faunal groups were excluded from the survey	No	The scope is adequate to provide the information required to support a clearing assessment. Surveys targeted black cockatoos specifically.
Adequacy of the survey intensity and proportion of survey achieved	No	Suitable survey effort has been adopted to identify black cockatoo habitat values associated with the study area. A precautionary approach has also been adopted.
The proportion of the task achieved and further work	No	The surveys were completed adequately, to a sufficient level with respect to the scope.
Timing/weather/season	No	The surveys were completed in spring 2020. The survey timing and weather conditions were suitable.
Disturbances that may have affected results of survey	No	There were no disturbances that affected the survey.
Intensity (in retrospect, was the intensity adequate)	No	Based on the results the survey is considered adequate to meet the project scope.
Completeness (e.g. was relevant area fully surveyed);	No	The entire study area was surveyed.
Resources (e.g. degree of expertise available in animal identification to taxon level);	No	The surveys were completed adequately.
Access problems;	No	Site was on private land and accessible.
Identification of hollows	Low	<p>There are known limitations inherent in the ground survey of hollows – bias with multiple surveyors / survey times due to differing familiarity with tree types, levels of training / expertise, survey conditions such as weather and time of day, and survey technique (Gorrod & Keith 2008, Rayner et al. 2011). Poor visibility (such as overcast weather) is known to affect results also (Rayner et al. 2011).</p> <p>Ground-based counts of hollows are subjective, it is not possible to be certain that the feature is a hollow as seen from the ground. Limitations include the likelihood that some hollows may be missed, may not be observable or may be obscured, particularly hollows in branches and vertical hollows.</p> <p>As well as providing inaccurate counts of hollow abundance, ground-based surveys provide incomplete</p>

Aspect	Constraint	Comment
		<p>or inaccurate information on hollow dimensions and use of hollows by fauna (Koch 2008). Generally, ground-based surveys lead to overestimation of hollows (Rayner et al. 2011, Author pers obs.).</p> <p>The suitability of hollow may change over time. There is some risk, though low, that black cockatoos may be breeding in a hollow where evidence of use was not visible or hollow characteristics were atypical.</p> <p>It is also noted that not all active cockatoo hollows show signs of heavy chewing and active or past breeding hollows therefore may be missed.</p>

3 Desktop review

3.1 Species profile

Black cockatoos collectively includes Baudin's Cockatoo, Carnaby's Cockatoo and FRTBC.

Baudin's Cockatoo (*Calyptorhynchus baudinii*) EN (EPBC Act), EN (BC Act)

Baudin's Cockatoo is a large, iconic forest cockatoo endemic to the south west corner of WA. It has suffered a substantial decline in number in the past 50 years. Direct causes of this decline include large numbers shot by orchardists, fragmentation of habitat and the impact of hollow competitors (Johnstone and Kirkby 2008). Depending on their region of origin, Baudin's Cockatoo is a resident, a post nuptial nomad or migrant with the bulk of the population vacating the coldest parts of their range (i.e. the Karri forest block) in the autumn and migrating northwards during the non-breeding season. Small numbers also appear resident in a few places including Leeuwin – Naturaliste Ridge and Manjimup (Johnstone and Kirkby 2008). Flock sizes vary from small family groups to large aggregations at roosting sites.

Breeding mainly takes place in forested areas from August to November (egg laying dates) (Tony Kirkby pers comm).

In the non-breeding season, Baudin's Cockatoo is mainly an inhabitant of the Jarrah Marri forest but is also frequently seen in farmland and orchards. It feeds on a variety of foods including nectar and seeds from hakeas and banksia spp. Also apples, persimmons, and macadamias. Overall, its main food is Marri from which it takes seeds, grubs, and nectar. Its long bill is adapted to removing seeds from Marri fruit capsules.

Roost sites are usually in smooth barked eucalypts (occasionally rough barked eucalypts, i.e. Marri, Jarrah and Blackbutt) including Wandoo, Flooded Gum, Bullich and smooth barked exotic eucalypts including plantations (Johnstone and Kirkby 2008).

Carnaby's Cockatoo (*Calyptorhynchus latirostris*) EN (EPBC Act), EN (BC Act)

This species is a postnuptial nomad, tending to move west after breeding. Carnaby's cockatoo mainly occurs in or near eucalypt woodlands, especially those dominated by Wandoo or Salmon Gum, and sometimes reported in forests of Marri, Jarrah, Karri and Tuart. Nesting hollows may be located anywhere over two metres from ground, mainly in the Wheatbelt (Cale 2003, SPRAT 2019, WA Museum 2010).

It is known to forage in native shrubland, kwongan heathland and woodland dominated by proteaceous plant species such as Banksia spp. Hakea spp. And Grevillea spp. Forages in pine plantations, eucalypt woodland and forest that contains foraging species, individual trees and small stands of these species (SEWPAC 2012).

This species is currently expanding its breeding range westward and south into the Jarrah-Marri forests of the Darling Scarp and into the Tuart forests of the Swan Coastal Plain. This may be due to climate change. Breeding occurs mainly from early July to mid-December. Breeding success is largely dependent on suitable feeding habitat adjacent to the nest site to provide the necessary food for the survival of the chick, for example adjacent pine forest or remnant vegetation (Johnstone and Kirkby, Undated). Carnaby's Cockatoo is also known to breed in Karri forest at Porongurup, Walpole, Albany, Denmark and Mount Manypeaks.

Carnaby's Cockatoos are known to roost in Jarrah, Marri, Blackbutt, Bullich, exotic eucalypt species and pines.

Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksia naso*) VU (EPBC Act), VU (BC Act)

The FRTBC is a large, iconic forest cockatoo, endemic to the south-west corner of Western Australia. Formerly common, but now rare to uncommon and patchily distributed, it has disappeared from about 30% of its former range. It has suffered a marked decline in numbers over the past 60 years. The main reasons for this decline include the destruction and fragmentation of habitat (especially Jarrah-Marri forest), the apparent decline in Marri along the eastern side of the Darling Scarp, logging, the impact of hollow competitors, fire and possibly climate change (Johnstone, Kirkby and Sarti 2013a, b). FRTBC occurs throughout the Jarrah Marri Karri forested areas but in recent years has been foraging out on to the Swan Coastal Plain feeding on the seeds of Cape Lilac. Group sizes vary from small family groups and pairs to larger gatherings at roost sites.

FRTBC nest in hollows Jarrah, Marri, Blackbutt, Bullich and Wandoo. Hollows have been recorded from 6.5 – 33 m above ground (Johnstone Kirkby and Sarti 2015). FRTBC have been recorded breeding in all months but with peaks in Spring and Autumn. There are also years when very little if any breeding takes place i.e. 2008 and 2009 (Johnstone and Kirkby unpublished data).

FRTBC feed mainly on the seeds of Jarrah and Marri but also Blackbutt, Albany Blackbutt, Sheoak, Snottygobble and introduced native and non-native species such as Lemon-scented Gum, Spotted Gum, Ilyarrie and Cape Lilac (SPRAT 2019).

FRTBC are known to roost in Jarrah, Marri, Blackbutt, Bullich and introduced eucalypt species.

3.2 Black cockatoo breeding requirements

Black cockatoos rely on large hollows for breeding, typically >20cm in diameter. Hollows take many years to form. The onset of hollow-formation is dependent on damage to the tree, from fire, animals (vertebrates or invertebrates), or dropping branches. Young and healthy trees can quickly heal after damage and subsequently trees less than 100 years old are unlikely to contain hollows.

For nesting, black cockatoos generally show a preference for

- large senescing trees,
- hollows not angled more than 45 degrees,

- entrances of at least 12cm but usually much larger (20-30cm),
- deep or well sheltered hollows in main trunk or large branches which are able to provide a floor space of at least 30cm diameter or more.

SW Environmental and Kirkby (2019)

All three species of black cockatoo are of similar size and utilise similar types of tree hollows when breeding. The actual species of tree is probably unimportant to each individual species, for example Carnaby's Cockatoo use Wandoo when in the wheatbelt areas and Marri, when in the Marri forest and Karri when in Karri forest areas. All three species are known to use the same individual hollows when not occupied in the breeding season by another black cockatoo species (Kirkby pers comm, 2019).

Jarrah trees are much less likely than Marri to develop hollows with suitable characteristics required for black cockatoo nesting (Johnstone et al 2013a). It is estimated that upwards of 95% of hollows utilised by black cockatoos in the Jarrah Marri forest are in large Marri rather than Jarrah (Johnstone et al 2013a) (SW Environmental and Kirkby 2019). Wayne (2005) also notes that Marri trees are more likely to develop usable hollows than Jarrah.

Hollows suitable for use by black cockatoos are usually in trees at least 150 years old (Koch 2009). Inions et al. (1989) found that in the Jarrah Forest, large hollows appear to develop in Marri when trees reach a mean age of about 200 years, and in Jarrah when trees reached a mean age of about 300 years, with the average age of trees inhabited being 400 years for Marri and 500 years for Jarrah. Hollows suitable for use by FRTBC are in Marri aged between 140 and 410 years of age (Johnstone et al 2015) and 120 – 150 years in Jarrah (Whitford et al 2013).

Marri and Jarrah are considered by Commonwealth of Australia (2017) to be large enough to develop hollows once they are >50cm DBH. Based on fieldwork experience by the author, Karri trees would need to be at least 75cm DBH, but likely even larger, to be old enough to develop large hollows. A size class of 75cm DBH was therefore adopted for Karri rather than 50 cm DBH (Jarrah and Marri).

3.3 Local and regional context

The project occurs within the known foraging and breeding modelled distribution for all three black cockatoo species, but on the southern edge for Carnaby's Cockatoo. Black cockatoos will forage up to 12 km from breeding hollows during the breeding season and rely on this proximity of foraging resources to breeding hollows to successfully raise chicks (Commonwealth of Australia 2017).

The vegetation remaining GIS datasets (DPIRD 2019a) was used to assess black cockatoo habitat within a regional context (i.e. up to 12 km from the project). Naturemap (2019) records were also mapped showing the previous sighting for each species. There is approximately 38, 000 ha of remnant vegetation, not including regrowth, within 12 km of the project (from a total area of 48, 400 ha). Not all would be suitable foraging or breeding habitat for black cockatoos. The potential habitat assessed, 2.2 ha, accounts for less than 0.005% of the vegetation remaining locally.

4 Results

Vegetation at the site includes patches of Jarrah, Karri and Marri regrowth in degraded condition (1.7 ha), and paddock trees of mostly Marri and Peppermint (*Agonis flexuosa*) over pasture grass (0.5 ha) in a completely degraded condition (refer to Photos 1 and 2).

Tree species are mapped in Figure 3, and consisted of a total of 53 suitable DBH trees:

- Three dead,
- 10 Jarrah,
- 19 Karri (only two over 75cm DBH²), and
- 21 Marri.

Of these Jarrah and Marri are the most important foraging species within the site, including the regrowth (trees <50 DBH). Although suitable species occur at the site, there was no evidence of any of the three black cockatoos foraging at the site, recent or historic. This would indicate that the site is unlikely to currently provide high quality foraging habitat. It is noted that foraging value may vary between seasons.



Photo 1 Paddock trees (Marri) (left) and Jarrah, Karri, Marri regrowth block (right).

² Karri with a 50cm DBH are likely to be less than 100 years old and considered too small to develop the large hollows required by black cockatoos for breeding.



Photo 2 Jarrah, Karri, Marri regrowth that occurs as blocks in the centre of the site.

Five trees contained medium or large hollows suitable for black cockatoo breeding (Figure 3), including one dead tree (stag), one Jarrah and three Marri trees. The stag and two of the Marri trees did not show any evidence of use. A Jarrah and Marri (ID038 and ID058) both contained wear and / or evidence of use, though not characteristic black cockatoo chews. The Jarrah was possibly being used by Common Brushtail Possum (*Trichosurus vulpecula*) due to the presence of scat and low number of other hollows in the patch. The Marri was being used by a pair of nesting Kookaburras (*Dacelo novaeguineae*) which were observed using entering the hollow.

No evidence of roosting was identified in the proposal area (whitewash, chewed twigs or feathers).

Black cockatoos are mobile species and given that there are other areas of similar habitat locally, the project will not fragment habitat to a level that is likely to be detrimental to black cockatoos at a local scale.

5 Conclusions and Recommendations

The project occurs within the known foraging and breeding range for all three black cockatoo species. With the adoption of appropriate management measures however impacts to local populations of black cockatoos are likely to be low, considering the following:

- Clearing of up to 2.2 ha of which much of which includes regrowth Karri. Though Jarrah and Marri trees were present also there was no evidence of foraging residue. The site is therefore unlikely to be considered to be 'high quality foraging' habitat. Other stands of Peppermint (*Agonis flexuosa*) would offer little feed value.
- No evidence of roosting was identified.
- A total of 36 suitable DBH trees that are likely to develop hollows in the medium term (excluding Karri trees under 75cm DBH), five trees with medium or large hollows. None showed a high likelihood of black cockatoo breeding.
- The project will not fragment habitat to a level that is likely to be detrimental to black cockatoos at a local scale given the site accounts for less than 0.005% of the vegetation remaining locally.

Recommendations to ensure a low impact on black cockatoos include:

- Selectively retain the hollows trees and/or larger trees at the edge of the proposed clearing envelope, if possible.
- If possible, clearing should be conducted outside of spring to minimise impacts to breeding fauna.
- A licensed fauna spotter should be on site during the clearing, particularly during the clearing of hollow trees.
- Large hollows should be rechecked within a week prior to clearing to confirm that no black cockatoos are breeding.
- The final impact footprints should be checked against the significant impact criteria (SEWPAC 2012) for black cockatoos to determine the need to refer the project to DAWE. Although impacts to black cockatoos are likely to be low, it is noted that it is the proponent's responsibility to refer the action for legal certainty.

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Note not all referenced in the text.

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Appendix A Figures


Figure 1 Project site

Figure 2 Previous local black cockatoo records (Naturemap 2019)

Figure 3 Suitable DBH trees and hollows

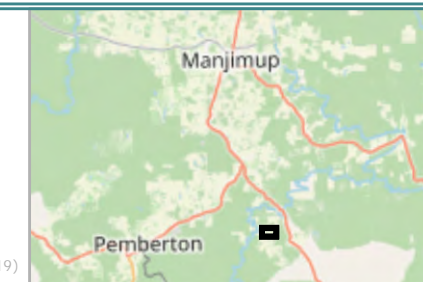


FIGURE 1
 BLACK COCKATOO SURVEY,
 LOTS 7 AND 961 QUINNINUP

 Proposed clearing (site)

Ref: SW294 F1
 Date: 16/11/2020 Author: SP

Source: Base map © Esri and its data suppliers. SLIP Landgate (2019)



A3 @ 1:4548

0 25 50 100 m

GRID: GDA zone 50


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FIGURE 2
 BLACK COCKATOO SURVEY,
 LOTS 7 AND 961 QUINNINUP

- Baudins Cockatoo (Naturemap 2019)
- Carnabys Cockatoo (Naturemap 2019)
- FRTBC (Naturemap 2019)
- Site buffer (12 km)
- ▨ Proposed clearing (site)
- DBCA managed land



A3 @ 1:110000
 0 0.5 1 2 km
 GRID: GDA zone 50

SW
 environmental
 www.swenvironmental.com.au

Ref: SW294 F2
 Date: 16/11/2020 Author: SP

Source: Base map © Esri and its data suppliers. SLIP Landgate (2019)

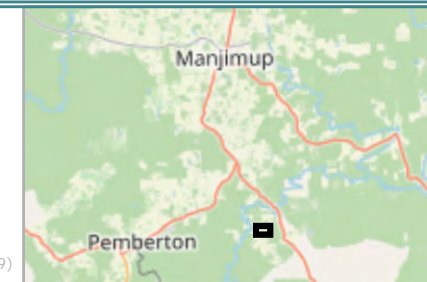


FIGURE 3
 BLACK COCKATOO SURVEY,
 LOTS 7 AND 961 QUINNINUP

- Suitable DBH tree no hollows observed (48)
- 1 medium or large hollows observed (3)
- 2 medium or large hollows observed (2)
- Dead
- Jarrah
- Karri
- Marri
- Proposed clearing (site)

Ref: SW294
 Date: 16/11/2020 Author: SP

Source: Base map © Esri and its data suppliers. SLIP Landgate (2019)



A3 @ 1:4500
 0 25 50 100 m
 GRID: GDA zone 50



Appendix B Suitable DBH tree table

Y proj	X proj	Tree id	Tree sp	dbh cm range	Hollows	h1 size	h1 type	h1 height	h1 notes	h1 notes other	h2 size	h2 type	h2 height	h2 notes
6189700	425885	16	jarrah	75 100										
6189962	425739	17	karri	50 75										
6190018	425796	18	marri	75 100										
6190015	425818	19	marri	50 75										
6189990	425846	20	marri	50 75										
6189678	425788	21	karri	50 75										
6189667	425793	22	karri	50 75										
6189663	425837	23	karri	50 75										
6189665	425856	24	karri	50 75										
6189665	425866	25	karri	50 75										
6189672	425889	26	marri	50 75										
6189652	425880	27	dead	50 75										
6189651	425849	28	jarrah	50 75										
6189630	425890	31	marri	50 75										
6189648	425935	34	marri	50 75										
6189651	425924	35	jarrah	>100										
6189665	425922	36	karri	50 75										
6189658	425934	37	jarrah	50 75										
6189663	425930	38	jarrah	50 75	1	15-20	knot angle suitable	10-15m	potentially suitable breeding, wear					
6189657	425943	39	jarrah	50 75										
6189660	425960	40	dead	50 75	1	15 20	vertical	>15m	no evidence of use					
6189665	425986	41	jarrah	75 100										
6189663	426005	42	karri	50 75										
6189686	425987	43	dead	50 75										
6189684	425971	44	jarrah	50 75										
6189678	425926	45	karri	50 75										
6189700	425918	46	marri	50 75										
6189693	425924	47	jarrah	75 100										
6189687	425928	48	karri	50 75										

Y proj	X proj	Tree id	Tree sp	dbh cm range	Hollows	h1 size	h1 type	h1 height	h1 notes	h1 notes other	h2 size	h2 type	h2 height	h2 notes
6189698	425946	49	karri	50 75										
6189701	425955	50	karri	50 75										
6189588	426005	53	marri	>100										
6189589	426025	54	karri	50 75										
6189578	426013	55	marri	50 75										
6189583	425978	56	karri	50 75										
6189583	425967	57	karri	50 75										
6189574	425972	58	marri	50 75	2	15 20	knot angle suitable	>15m	wear, other, Kookaburra		10 15cm	knot angle suitable	10 15m	wear, other Entry partially blocked
6189564	425968	59	karri	50 75										
6189566	425960	60	marri	50 75										
6189570	425954	61	karri	50 75										
6189511	425925	63	marri	75 100										
6189502	425940	64	marri	>100	2	20cm plus	knot angle suitable	>15m	no evidence of use		10 15cm	spout angle suitable	>15m	no evidence of use
6189517	425961	65	marri	75 100										
6189504	426100	66	marri	50 75										
6189338	426141	67	jarrah	>100										
6189254	425973	68	marri	>100	1	20cm plus	vertical	<10m	no evidence of use					
6189169	425950	69	marri	50 75										
6189117	425959	70	marri	50 75										
6189109	425964	71	marri	50 75										
6189038	426144	72	marri	>100										
6189049	426312	73	karri	>100										
6189064	426322	74	karri	>100										
6189151	426406	75	marri	>100										