Attachment 5

Black Cockatoo and Western Ringtail Possum Survey Report (Bamford, 2012)

Assessment of habitat for Black-Cockatoos and Western Ringtail Possums at Harewoods Road, Gelorup.

Western Ringtail Possum at Harewoods Road, Gelorup.

Prepared for: Bayley Environmental Services,
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EXECUTIVE SUMMARY

A field survey of Lots 1 and 313-317 Harewoods Road, Gelorup, involved measuring and assessing habitat trees with the potential to support nesting Black-Cockatoos, estimating Banksia density, searching for evidence of the Western Ringtail Possum, and assessing general vegetation present. This information was used to provide an ecological comparison between an area earmarked for development of a residential estate (RD) and that proposed as Regional Open Space (ROS).

Seven-hundred and twenty-nine habitat trees were assessed: 292 in the proposed RD area and 437 in the ROS. Of these, 161 trees (54 in the RD, 19%; 107 in the ROS, 24%) were identified as having hollows large enough to support nesting Black-Cockatoos currently, and a further 230 (74 in the RD, 25%; 156 in the ROS, 36%) contained small hollows which may be important future nest sites. Banksia density was very low in the area east of Minninup Road (5.8 trees per hectare) and Banksia trees were absent west of Minninup Road, compared with 150-200 per hectare around Perth.

One Western Ringtail Possum was located during a nocturnal spotlighting transect in the ROS area and eight dreys were found, though only one of these was active. One very old drey was found in the RD area but no possums were observed at this site.

The area east of Minninup Road (~118 ha) consisted of remnant Tuart woodland with a parkland-like structure, having almost no understorey plants and no fallen debris, the result of intense grazing pressure and clearing. About 90 ha of this Site is earmarked for the RD area, with the remainder (Lot 317, ~21 ha) to be incorporated into the ROS area. The size and age of remnant Tuart trees made the habitat suitable to support nesting Black-Cockatoos both now and in the future, though the low density of Banksia trees means food resources are limited. There are, however, bush remnants in the vicinity of Gelorup containing much higher densities of Banksia. The absence of understorey vegetation makes this habitat marginal for the Western Ringtail Possum which appears to be absent from the site, apart from occasional transient individuals utilising it as a corridor. Fox presence throughout the site would place high predation pressure on these animals.

The area west of Minninup Road (~73 ha) contained mostly cleared paddock and a large wetland occupying much of the site. Along with Lot 317, this is proposed to become ROS, which will have a total area of approximately 105 ha, of which ~50 ha contains remnant Tuart woodland. The western third of this area consists of relatively intact remnant Tuart woodland (~31 ha), with large trees and, in places, a dense understory of various plants, including Peppermint. There were fewer habitat trees than east of Minninup Road and tree spacing was greater, but this habitat still is potentially suitable to support nesting Black-Cockatoos. The denser understorey and vegetation diversity makes it highly suitable to support the Western Ringtail Possum, and the sighting of one possum and the presence of dreys indicates the species is still present in low numbers. Again, the presence of Foxes would place pressure on remaining individuals.

The value of retaining the ROS as an offset for developing the RD area would depend upon not simply retaining the ROS, but on enhancing its value such as through the planting of foraging habitat for Black-Cockatoos, revegetation of understorey plants for the WRP and other fauna, installation of nest hollows, possibly the relocation of

natural hollows from the RD area, and community education about the value of the site in a regional context.

Connectivity of habitat is also important. The habitat value of the ROS area is high given that the surrounding native bush on the south, east and west sides is planned to also be zoned as Regional Open Space. The ROS area will not be large enough to provide adequate habitat for WRPs on their own, however the retention of Black-Cockatoo foraging habitat in other areas of ROS to the east and west of the site will help to improve the success of any breeding birds in the area.

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1 INTRODUCTION

1.1 Introduction

Mr Colin Piacentini is seeking to clear remnant native vegetation from parts of Lots 1, 313, 314, 315 and 316 Harewoods Road, Gelorup, for the purpose of a residential development (Figure 1). In this report, this area is referred to as 'Residential Development' (RD) - see Figure 2. Lots 313 and part of 314 have already been cleared as part of an existing quarry (Figures 1 and 2). The parts of Lots 313-316 west of Minninup Road and all of Lot 317 are reserved as Regional Open Space (ROS).

The large eucalypt trees present on both sites, as well as a mid-storey of Banksia on part of the ROS, may provide potential nesting and foraging habitat for Carnaby's (*Calyptorhynchus latirostris*) and Baudin's (*C. baudinii*) Black-Cockatoos. Carnaby's Black-Cockatoo is listed as Endangered and Baudin's Vulnerable under the Federal *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), and both species are listed as Endangered under the West Australian *Wildlife Conservation Act 1950*. Furthermore, these two species are listed in the Action Plan for Australian Birds: Carnaby's as Endangered and Baudin's as Near Threatened (Garnett and Crowley 2000). (See Appendix 1 for detail on EPBC and WA Wildlife Conservation Act listings, and Appendix 2 for information on Carnaby's Black-Cockatoo threats).

A mid-storey of Peppermint (*Agonis flexuosa*) trees may also provide potential habitat for the Western Ringtail Possum (WRP, *Pseudocheirus occidentalis*), which is listed as Vulnerable under both the EPBC and Wildlife Conservation Acts. Although previous studies conducted on part of the RD area at this location (Elscot 2006; Harewood 2007) did not detect the WRP, they did locate several possum dreys (nests made out of sticks). As the species is known from the region of Gelorup, and the site may still contain suitable habitat, it may be present.

Bamford Consulting Ecologists (BCE) was commissioned to assess the potential habitat for both Black-Cockatoos and the WRP, and search for any signs of these two species at the site. BCE was also required to provide an ecological comparison between the Residential Development (RD) and Regional Open Space (ROS) areas, and in doing so assess the suitability of the ROS as offset areas for the proposed Residential Development.

This report contains the results of a field survey conducted at on 16th, 17th and 19th August 2011.

Figure 1. Regional location and layout of Harewoods Road site, showing Minninup Road and existing quarry.

1.2 Study Objectives

The objectives of the fauna assessment were to broadly determine the habitat values of the Project Area for Black-Cockatoos and the WRP, and determine the suitability of the ROS as an offset area for the proposed development (Figure 2). This provides government agencies with the information needed to assess the significance of impacts under State and Commonwealth legislation. The key objectives of the fauna studies are listed below:

- identify and describe general vegetation (habitats) present;
- investigate the potential habitat for Black-Cockatoos;
- investigate the presence/absence of the WRP;
- identify the suitability of the ROS as an offset for the planned RD;
- provide recommendations to minimise impacts to fauna.

The assessment was not intended to produce a definitive answer as to whether Black-Cockatoos or the WRP are present or currently utilising the site, but rather the potential of the site to provide habitat for these species now and in the future.

1.3 Site Description

The survey area was south of Harewoods Road in Gelorup, approximately 10 km south of Bunbury, WA. For regional location details see Figure 1.

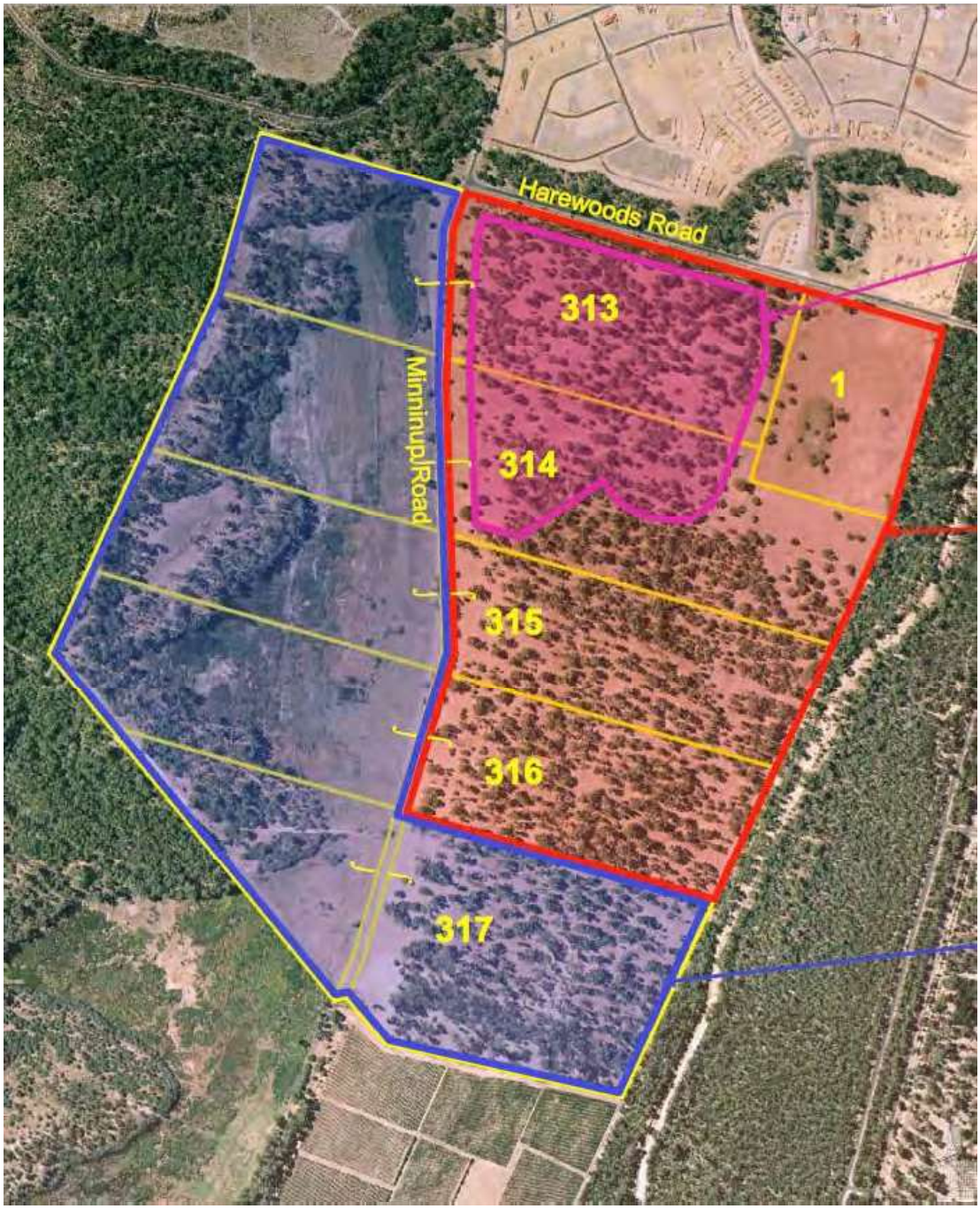

Figure 2. Location map of Harewoods Road site, showing proposed Residential Development (red), Regional Open Space (blue), and existing quarry (pink).

2 METHODS

2.1 Personnel

The following personnel were involved in the preparation of this report:

- Ms Gillian Basnett *BSc. (REM), MSc., MSc. (Res.)*
- Mr Simon Cherriman *BSc. Hons (Env. Biol.), MSc. submitted (Sci. Comm.)*
- Dr Mike Bamford *BSc. Hons (Biol.), PhD (Biol.*)

The field survey was undertaken by Simon Cherriman and Gillian Basnett and the report was prepared by Gillian Basnett, Simon Cherriman and Mike Bamford.

2.2 Licences and Permits

As the field assessment was observational in nature, no license or permit was required.

2.3 Nomenclature and Taxonomy

As per the recommendations of EPA (2004), the nomenclature and taxonomic order presented in this report are based largely upon the Western Australian Museum's *Checklist of the Vertebrates of Western Australia.* The authorities used for each vertebrate group are: amphibians and reptiles (Aplin and Smith 2001), birds (Christidis and Boles 2008), and mammals (How *et al.* 2001). English names (if available) are used in the text, with all Latin and English names presented on the first mention of the species and in Table 4.

2.4 Field Survey and Impact Assessment

A field survey was conducted on 16th, 17th and 19th August 2011. Weather conditions were typical for the time of year, being cool (daily maxima around 19.2°C) and damp after recent rain. Activities undertaken during the site inspection included:

- Description of general vegetation (habitats) present;
- Measurement and assessment of habitat trees with the potential for Black-Cockatoo nest sites;
- Measurement of Banksia density;
- Searching for evidence of the WRP, such as dreys, scats and possums; and
- Opportunistic observations on all other fauna.

All personnel involved in searching were familiar with the evidence of each species.

2.4.1 Measurement and Assessment of Habitat Trees

This involved walking through the sites and measuring all trees with a Diameter at Breast Height (DBH) greater than 500 mm, and making an assessment of any hollows in those trees. For nest sites, all species of Black-Cockatoo require trees that have a DBH greater than 500 mm, and where the entrance to the hollow cavity is at least 100 mm in diameter (Whitford 2001).

Each tree recorded was placed into a category based on the number and size of hollows present. These categories were:

1. No Obvious Hollows – no hollows or dead or broken branches evident.
2. Small Hollows – one or more smaller hollows of entrance diameter <100 mm.
3. Hollow Top – Trees with a broken-off top forming one vertical hollow, entrance diameter >200 mm.
4. Several Large Hollows – One to three large hollows with entrance diameter at least 100 mm, and usually >200 mm.
5. Multiple Large Hollows – More than three hollows with entrance diameter at least 100 mm, and usually >200 mm.

Large tree hollows were observed through binoculars for any evidence of nesting cockatoos, such as chew-marks at the hollow's entrance.

The proposed RD and ROS areas were assessed separately to enable a comparison to be made between each. Due to quarry operations and time constraints, the trees within the fenced area around the sand quarry (see Figure 1) were not assessed during this survey.

2.4.2 Measurement of Banksia Density

Banksias are an important food resource for Black-Cockatoos, particularly Carnaby's (Johnstone and Storr 1998). Banksia density was therefore estimated to determine the relative importance of the RD to foraging Black-Cockatoos. This was done by walking three 400 m transects and counting the number of Banksia trees within 50 m either side of each transect, giving three 100 x 400 m (4ha) samples of tree density (Figure 3). The numbers of Banksias in each sample were then averaged to give a total estimate of Banksia density.

Figure 3. Banksia transects carried out on the 11th August 2011.

2.4.3 Searching for Evidence of Western Ringtail Possums

While traversing the site, active searches were made for possum dreys and scats, with particular focus on dense stands of Peppermint and Banksia trees. All habitat trees

measured as potential Black-Cockatoo nest sites were searched for scratch marks likely to have been made by possums. A two hour spotlight transect (routes shown in Figure 4) was carried out on Tuesday 9th August between 7pm and 9pm, with one hour being spent at each site. Transects were driven at a very slow speed (<10 km/h); the transect on the eastern side of Minninup Road was driven in one direction only, whereas that on the western side was driven in both directions. Separate surveys were carried out on foot in areas of more dense vegetation, which included the southern end of Lot 317 and some dune swale areas of the ROS.

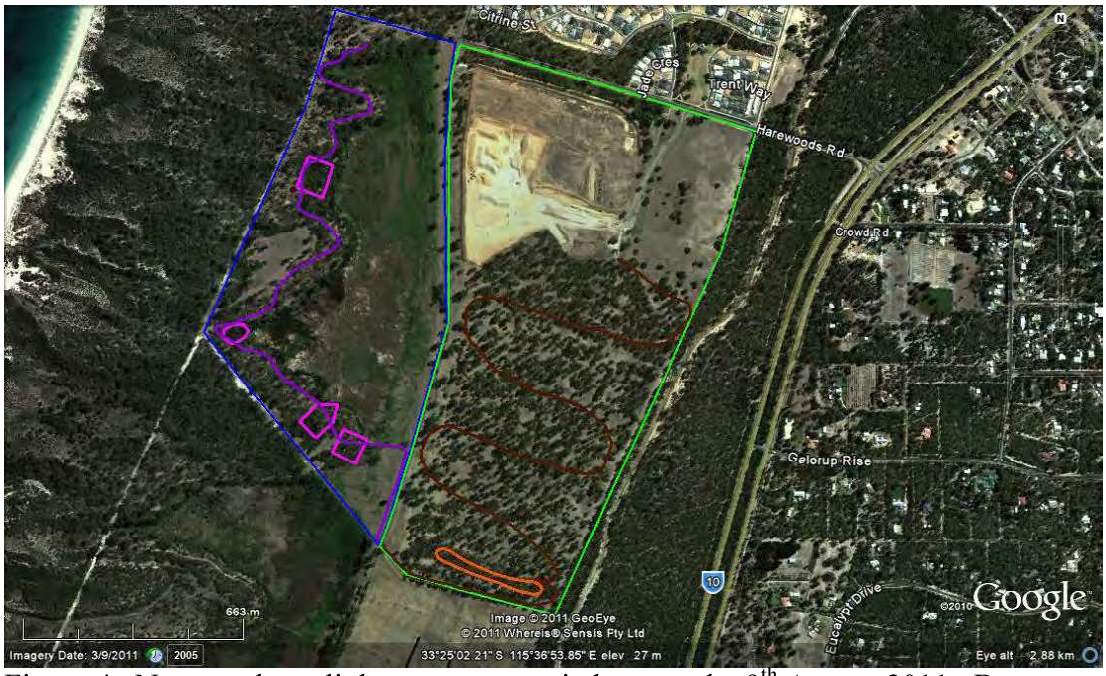

Figure 4. Nocturnal spotlight transects carried out on the 9th August 2011. Brown and purple lines indicate drive transects, orange and pink polygons show smaller walk transects.

2.4.4 Opportunistic Observations.

Opportunistic observations on fauna were made at all times during the site survey.

3 RESULTS AND DISCUSSION

3.1 General Vegetation

3.1.1 East of Minninup Road

The vegetation of all blocks east of Minninup Road, which includes the RD area and Lot 317, consisted of a stabilised sandy ridge with a parkland-like vegetation structure. The over-storey was dominated by large Tuart (*Eucalyptus gomphocephala*) trees with occasional Jarrah (*E. marginata*) and Marri (*Corymbia calophylla*) also present (Figure 5). Scattered Peppermint (*Agonis flexuosa*) trees and *Banksia* spp. made up the sparse mid-storey. The native understorey had largely been cleared and extensively grazed, and consisted mainly of introduced grasses and weeds, with scattered natives such as *Jacksonia* sp. Much of the fallen logs, trunks and branches (and thus terrestrial microhabitats) had been removed, apparently from regular gathering and burning by the landowner (Piacentini and Son Pty Ltd. employee, pers. comm.).

The southern end of this area (Part Lot 317) consisted of similar dominant eucalypt species but had a much denser mid-storey of Peppermint trees (Figure 6). The understorey here was still predominantly a mix of weeds and introduced grasses. About ten artificial nest boxes designed for Black-Cockatoos had been installed into a number of trees in this part of the site.

A cleared paddock with introduced grasses and weeds adjacent to Harewoods Rd was situated in the north-east corner this site (Lot 1; see Figure 1). This contained one large Tuart tree in the centre of the paddock, as well as a small dampland area of Swamp Paperbark (*Melaleuca rhaphiophylla*).

Figure 5. Typical parkland-like habitat east of Minninup Road with dominant Tuart (*Eucalyptus gomphocephala*) trees.

Figure 6. Denser mid-storey of Peppermint (*Agonis flexuosa*) at Lot 317.

3.1.2 West of Minninup Road

This section comprised most of the ROS area and consisted mostly of low-lying cleared paddock and a large wetland, with about a third of the area having relatively intact, dense Tuart woodland (see Figures 1, 7). The latter grew on a sandy ridge 5-15 m higher than the adjacent wetland. Exotic grasses and weeds, especially Kikuyu Grass (*Pennisetum clandestinum*), dominated the cleared area (Figures 7, 8). The wetland was covered with beds of native Jointed Twig-rush (*Baumea articulata*; Figure 9), introduced Bulrush (*Typha orientalis*) and occasional exotic grasses. Surface water (Figure 9), which probably disappears in the summer months, was observed along the western edge.

The transition zone from wetland to woodland consisted of a meandering, sloping embankment running approximately north-south along the edge of the wetland (Figure 9). This area was generally in very good condition and contained a variety of plants growing in dense thickets, as well as dense Tuart saplings covered in creepers (Figure 10). Species noted included Orange Wattle (*Acacia saligna*), Swamp Paperbark, Spreading Sword-sedge (*Lepidosperma effusum*), *Trymalium* sp., *Gahnia sp*., *Hardenbergia comptoniana* and *Cassytha sp*. This area provided the most suitable habitat for WRPs anywhere on the Harewoods Road blocks.

The woodland section varied from having fairly open stands of Tuart to areas with a fairly dense mid-storey of Peppermint trees, and understorey including *Xanthorrhoea*, *Hibbertia* and *Macrozamia* species (Figure 11). No Banksias were present. Occasional dune swales contained dense thickets of Peppermint, Spreading Sword-sedge and/or *Trymalium* sp. (Figure 12). The dominant over-storey tree was Tuart, however tree spacing was greater than in the area East of Minninup Road. Weed species were less evident in the woodland area than elsewhere on the site.

Figure 7. ROS area facing north north-west, showing wetland and remnant Tuart Woodland.

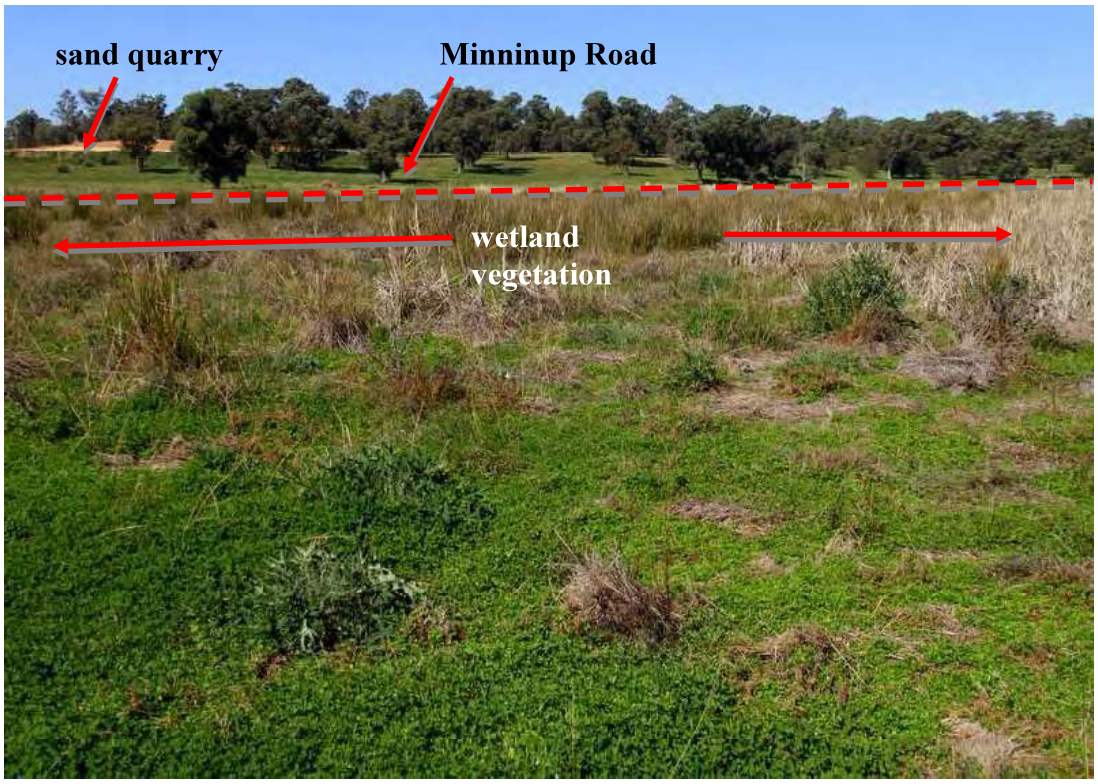

Figure 8. ROS area facing east south-east, showing low-lying cleared area (foreground), wetland vegetation (middle) and existing sand quarry (behind).

Figure 9. Wetland vegetation of ROS area, showing beds of Jointed Twig-rush (*Baumea articulata*), dense transition zone and remnant Tuart woodland.

Figure 10. Thick vegetation of transition zone between wetland and Tuart woodland of ROS area.

Figure 11. Typical vegetation of ROS area showing Tuart trees and dense Peppermint mid-storey.

Figure 12. Dune swale in ROS area with dense Peppermint and Spreading Sword-sedge (foreground).

3.2 Measurement and Assessment of Habitat Trees

Two-hundred and ninety-two habitat trees with a DBH over 500 mm were identified in the proposed RD area, and 437 in the ROS. The trees were widespread east of Minninup Road except in the active sand quarry and cleared paddocks of Lot 1 (Figure 13), but were largely confined to west of the wetland on the opposite side of Minninup Road (Figure 14).

Figure 15 shows the size distribution of trees. In both the RD and ROS, the majority of trees measured had a DBH between 500 mm and 1 m; 186 trees (64%) in the RD and 279 trees (64%) in the ROS (Figure 15). Less than 13% of all trees had a DBH greater than 1.5 m, and less than 4% had a DBH greater than 2 m.

The number and percentage of trees in each category, according to the type of hollows present, is shown in Figures 16 and 17, respectively. Of the trees measured in the RD, the majority (164; 56%) had no obvious hollows (Figure 16 and 17). Small hollows were found in 74 (25%), and while these trees are not currently suitable for Black-Cockatoo nest sites, they may become important future nest sites in the next 50 years or so. Fifty-four trees (19%) were placed in the remaining categories having at least one large hollow. These formed the best current potential nest sites for Black-Cockatoos, with many trees having multiple large hollows with entrance diameter greater than 200 mm. Figure 18 shows a typical example of one of these trees which contained five hollows suitable for Black-Cockatoo nests.

In the ROS area, 156 trees (36%) had small hollows, while the majority 174 (40%) had no obvious hollows. One-hundred and seven trees (24%) had at least one large hollow, and as with the RD area, many of these had multiple large hollows suitable as current Black-Cockatoo nest sites.

While many suitable hollows were observed, none contained nesting Black-Cockatoos or any evidence of recent occupancy. No Black-Cockatoos were seen or heard, and no feeding debris (chewed Banksia or Eucalypt fruits) was observed.

Six of the trees measured had Cockatoo nest-boxes installed. Another four boxes occurred in trees that had a DBH of less than 500 mm. These occurred in the southern section of Lot 317. Boxes consisted of ~1 m lengths of black piping with a hollow top and wooden base, placed vertically in each tree and secured in place with chains. Each box also had two ‘chewing blocks’ placed at the edge of the hollow entrance, and a wire ‘ladder’ extending into the box enabling birds to climb inside easily. The chewing block on tree A435 (GPS location 371168E, 6300845N) had faded chew-marks suggesting it may have been utilised by Black-Cockatoos, but no fresh signs were evident.

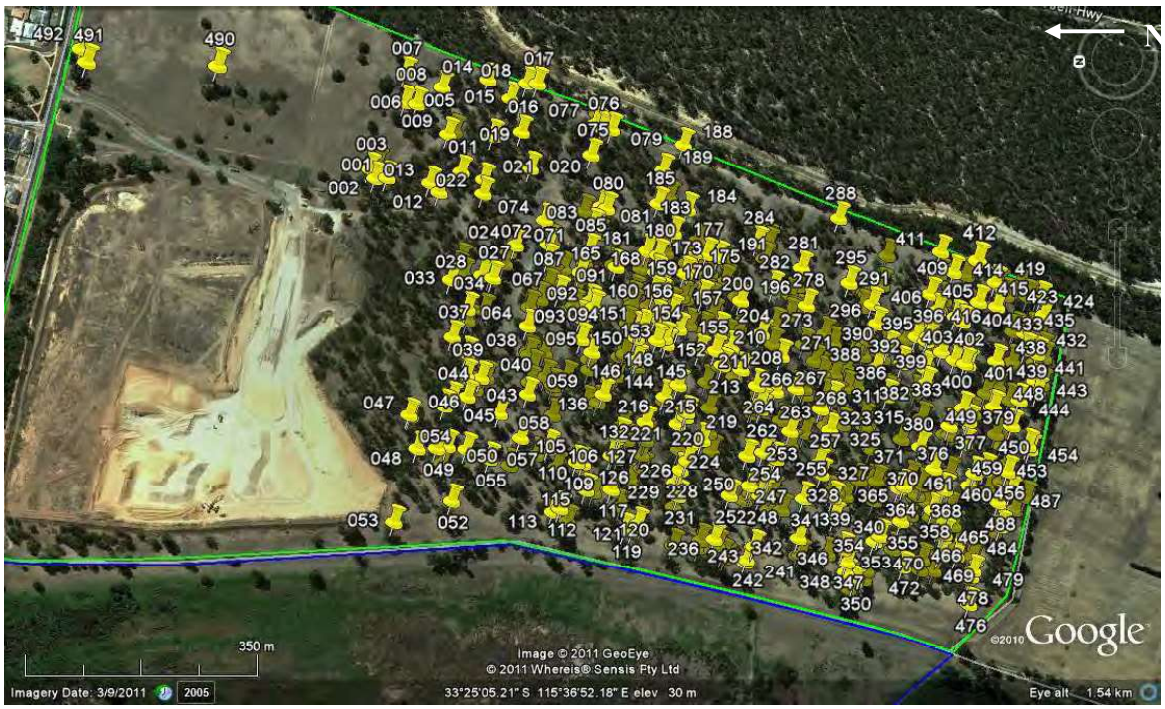

Figure 13. Location of habitat trees with a DBH of more than 500 mm found east of Minninup Road.

Figure 14. Location of habitat trees with a DBH of more than 500 mm found west of Minninup Road.

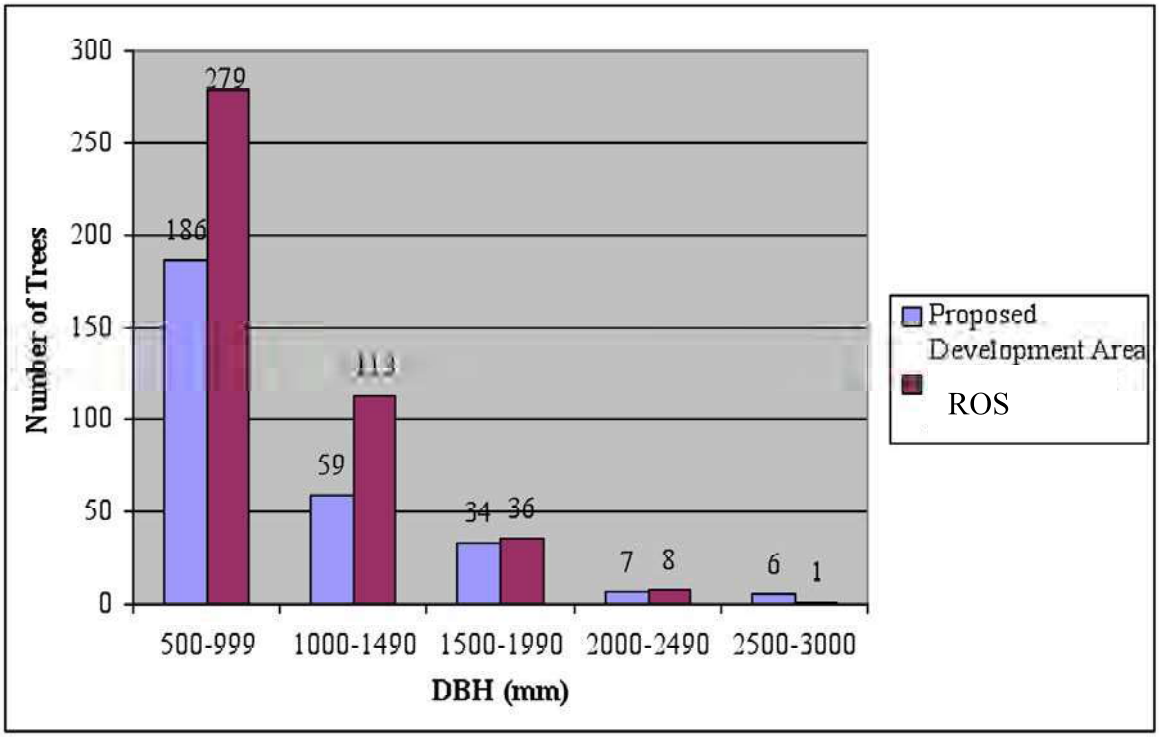

Figure 15. Size distribution, showing Diameter at Breast Height (DBH), of habitat trees at Harewoods Rd, Gelorup.

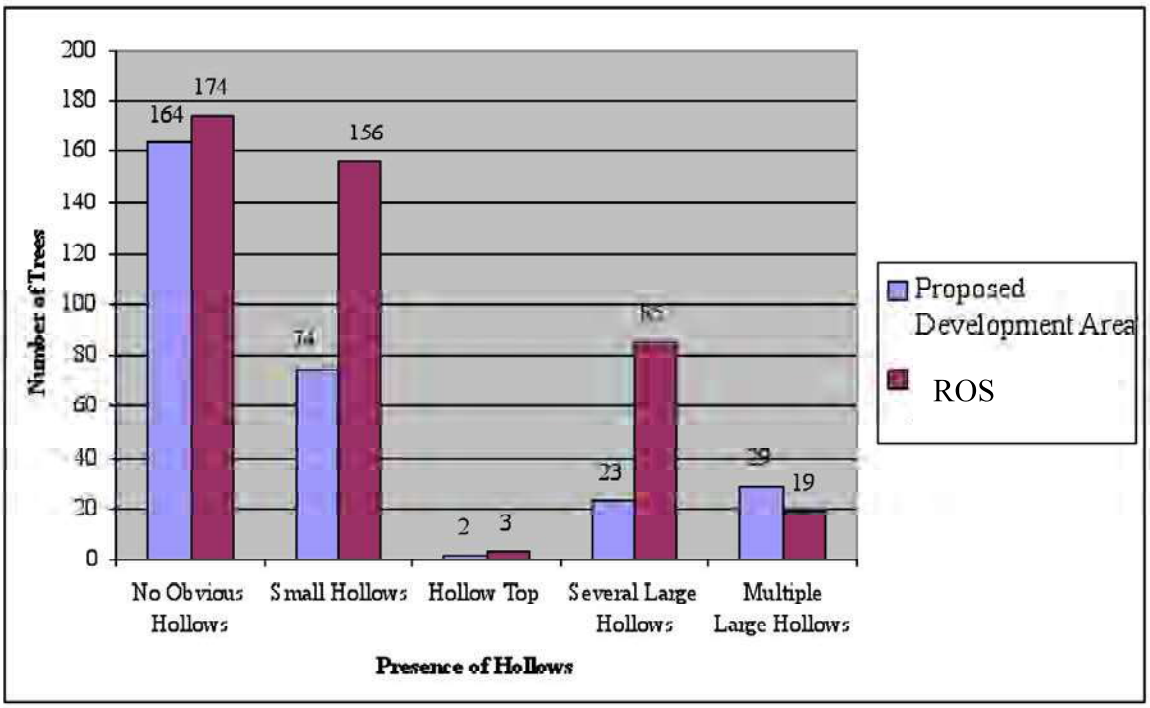

Figure 16. Number of trees in each category according to size of hollows at Harewoods Road, Gelorup.

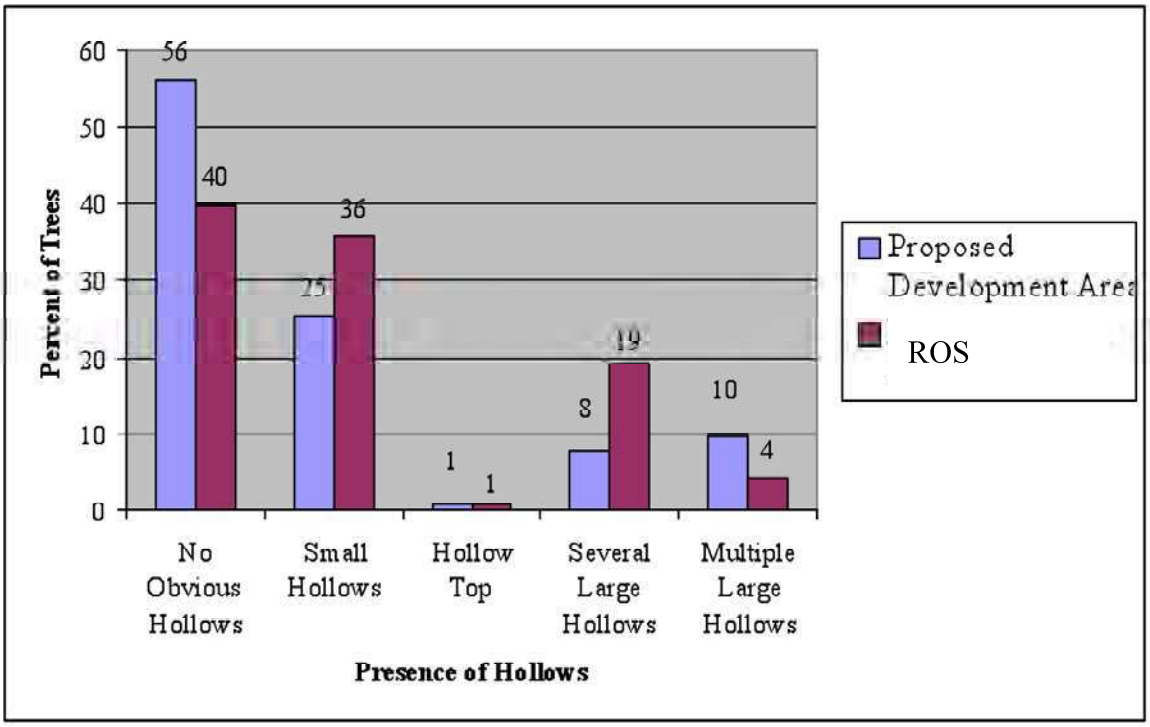

Figure 17. Proportion of trees in each category according to size of hollows at Harewoods Road, Gelorup.

Figure 18. Example of habitat tree from RD area containing multiple large hollows (indicated).

3.3 Measurement of Banksia Density

Banksias were sparse in the RD area and absent from the ROS, therefore density was only measured in the RD. Forty-four Banksias were counted along Transect 1, 18 along Transect 2 and eight along Transect 3 giving a total of 70 Banksias across all three transects (covering a total of 12ha). This equates to an average of 5.8 Banksias per hectare. This is much lower than the densities commonly found in healthy Banksia woodland around Perth, which are frequently around 150-200 trees/ha (M. Bamford unpubl. data). In contrast to the low Banksia densities on the site, there are other bush remnants in close proximity to Harewoods Road which have high densities of Banksias. This means that while the site provides limited foraging habitat, there are food sources nearby for Black-Cockatoos nesting in the region.

3.4 Evidence of Western Ringtail Possums

During the spotlight survey one WRP (Figure 19) was identified in a Swamp Paperbark thicket close to the wetland in the ROS area (Figure 20). No possums were observed in the RD area.

Figure 19. Western Ringtail Possum (*Pseudocheirus occidentalis*) observed in the ROS area during nocturnal spotlight survey on 16th August 2011, at Harewoods Road, Gelorup.

During the daytime habitat assessment, ten WRP dreys were found. None of the dreys identified contained possums at the time of the survey but one appeared to have been recently used. Maps showing the location of each drey are provided in Figures 20 and 21, and descriptions are provided below. The coordinates of each drey are shown in Table 3.

Drey No.	Details:
RTD01	Three metres up in large Tuart hollow. Highly deteriorated and inactive.
RTD02	Six metres up in Peppermint tree. Mostly intact but inactive.
RTD03	Five metres up in Banksia tree. Fully intact and recently used.
RTD04	Two metres above the ground in *Acacia/Cassytha* vine thicket. Mostly intact but not recently active.
RTD05	Three metres up in *Acacia*. Intact but not recently active.
RTD06	Five metres up in Tuart sapling. Deteriorated and inactive (Figure 21).
RTD07	Four metres up in Peppermint tree. Highly deteriorated and inactive.
RTD08	Four metres up in Peppermint tree, very close to RTD07. Only a few sticks remaining, inactive.
RTD09	Six metres up in hollow spout of Tuart. Partly deteriorated and inactive.
RTD10	Seven metres up in dense *Melaleuca* thicket over ephemeral water. Very old and inactive.

Based on descriptions of habitat and location, dreys were different to those discovered in previous surveys (Elscot 2006; Harewood 2007). Dreys found during previous surveys had almost certainly fully disintegrated by August 2011, as they were already in poor condition at the time of the earlier surveys The one drey found in the RD area (RTD 01) was in very poor condition. Another drey (RTD03) was observed outside the fence in thicker vegetation along the eastern boundary of lot 317. This was the only drey that was in excellent condition and contained signs of recent use, even though no possums were present during its inspection. The rest of the dreys were found in the western ROS area (Figures 20 and 21, Table 3). The deteriorated condition of one of these dreys (RTD06), and a site photo showing the habitat in which it was observed, are shown in Figures 22 and 23, respectively.

No other evidence of the WRP was found in the RD area or Lot 317 and it appears there are currently none occupying this area. This is consistent with the findings of Elscot (2006) and Harewood (2007).

The proposed RD area probably still supports small numbers of Common Brushtail Possum (*Trichosurus vulpecula*). Scats belonging to this species were found along the eastern boundary of Lots 314-317, and a very old skull (Figure 24) was located beneath a large habitat tree at the southern end of Lot 317. No individuals were seen during the spotlighting at either site.

The ROS area appears to be a more suitable habitat than the RD area for WRPs, as the understorey is more dense with thicker areas of Peppermint trees. There was evidence that the WRP still utilises the western ROS area and almost none to indicate its presence in the proposed RD. The neighbouring property to the east of Lot 317 also had thick vegetation which contained a WRP drey and is more likely to support WRPs than the proposed RD area. Despite this, there may be some movement of possums (and other fauna) through the RD area

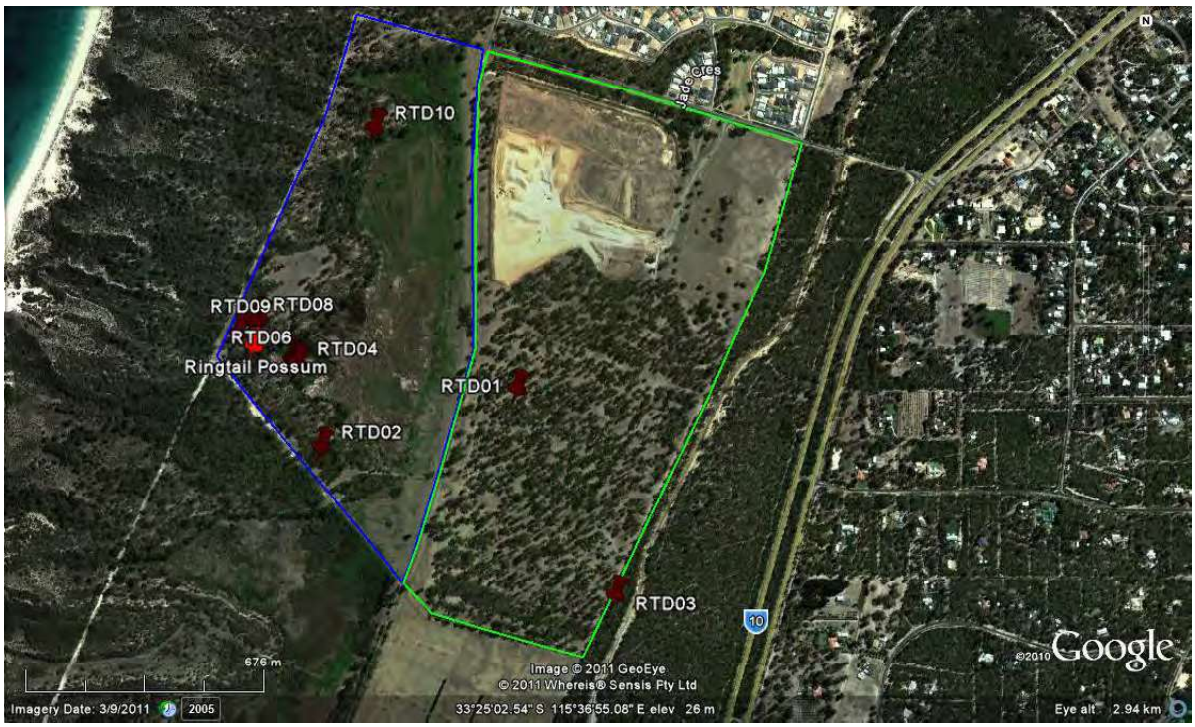

Figure 20. Western Ringtail Possum dreys (maroon) and possum (red) found during surveys carried out at Harewoods Road, Gelorup, during August 2011.

Figure 21. South west corner of the ROS showing location of Western Ringtail Possum dreys (maroon) and possum observed during spotlighting (red).

Figure 22. Photo of a deteriorated WRP drey (RTD06) at the ROS area at Harewoods Rd, Gelorup.

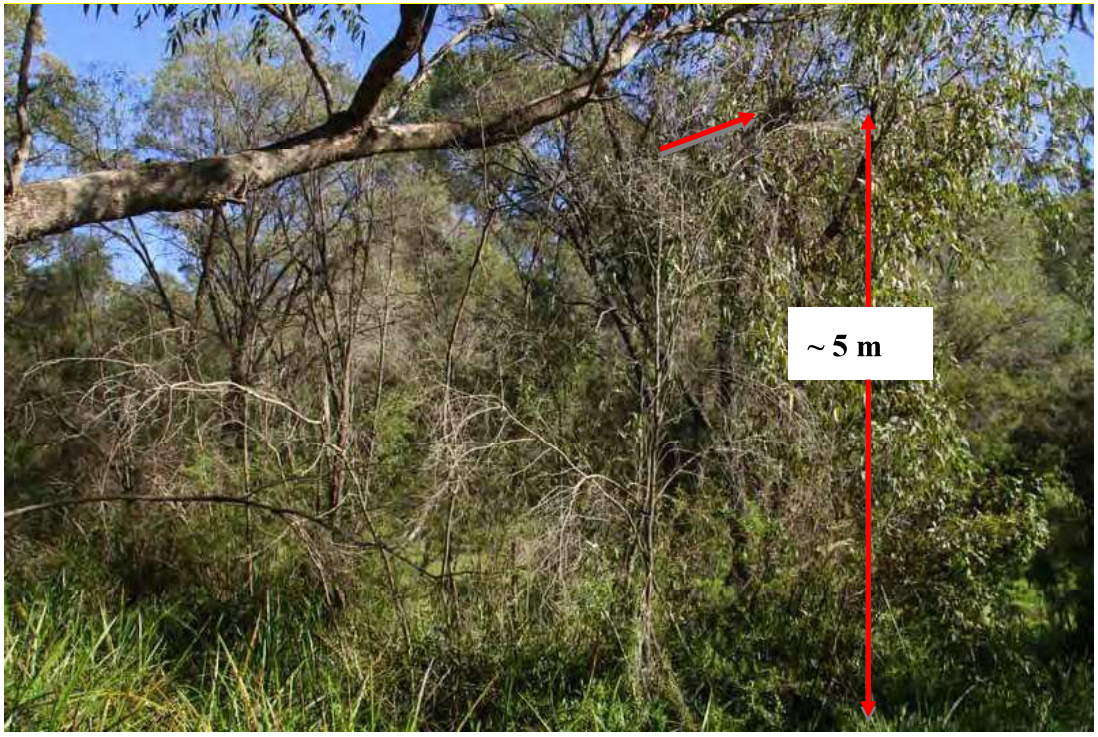

Figure 23. Site photo showing location of WRP drey (RTD06) at the ROS area at Harewoods Rd, Gelorup.

Figure 24. Skull of Common Brushtail Possum (*Trichosurus vulpecula*) located beneath habitat tree at Lot 317, Harewoods Road, Gelorup.

3.5 Opportunistic Observations

Although not part of the official survey, opportunistic sightings of fauna species were made while on site and a list of all other fauna detected is provided in Table 4. In the RD area, 36 species of birds and three species of mammals were observed. Sightings of 40 species of birds, four species of mammals, one species of reptile and five species of frog were made in the ROS. There did not appear to be a difference in the diversity of bird species between the two sites. The wetland in the ROS did result in the presence of a number of frog and waterbird species recorded. The areas which still have native vegetation in the ROS are in better condition than those in the RD area which has been grazed and the understorey and fallen timber cleared.

4 CONCLUSIONS AND RECOMMENDATIONS

Carnaby's Black-Cockatoo is known to nest in Tuart forest at Ludlow, approximately 15 km south-west of Gelorup (S. Cherriman pers. obs.). Given the suitability of tree hollows present at Harewoods Road, it is likely that the species could nest in habitat trees on the property in the future. This is especially applicable if habitat loss in its breeding range continues. In addition, the species is expanding its breeding range into coastal forests between Busselton and Perth (R.E. Johnstone, WA. Museum, pers. comm.), and therefore suitable but currently unused breeding habitat is likely to be occupied in the future.

The closest known record of Baudin's Black-Cockatoo nesting in the region is at Lowden, about 35 km east south-east of Gelorup (Johnstone and Storr, 1998). It is therefore possible this species could nest in the Harewoods Rd area in the future provided suitable habitat was available.

When considering only the number of current available nest sites, the proposed ROS appears to provide better nesting habitat for Black-Cockatoos, as there are more large trees present and more of these trees contain hollows suitable as nests. Black-Cockatoo habitat assessment does not just take into account present hollow trees but the potential of the area to provide nest hollows in the future, and the ROS contained both more current and more future habitat trees than the RD. Neither the ROS nor the RD had extensive foraging habitat for Black-Cockatoos, but nearby areas do provide foraging habitat that would support birds breeding in the area.

The Western Ringtail Possum was recorded only in the ROS, but it is possible that the species may occasionally utilise the RD area. The ROS has more suitable habitat for the Western Ring-tailed Possum, and probably more suitable habitat for a range of other fauna species, than the RD.

In terms of conservation value of the two Sites for Black-Cockatoos and the Western Ringtail Possum, clearing for the RD and retention of the ROS area would result in the loss of up to 128 potential breeding habitat trees for Black-Cockatoos (just under 50% of the total on the Piacentini landholding) but little loss of habitat for the possum. The impact of the development on the movement of possums between the western ROS and bushland to the east can be minimised by the retention of a vegetated corridor between the two areas through Lot 317.

The value of retaining the ROS as an offset for developing the RD area would depend upon not simply retaining the ROS, but on enhancing its value such as through the planting of foraging habitat for Black-Cockatoos, revegetation of understorey plants for the WRP and other fauna, installation of nest hollows, possibly the relocation of natural hollows from the RD area, and community education about the value of the site in a regional context.

Connectivity of habitat is also important. The habitat value of the ROS area is high given that the surrounding native bush on the south, east and west sides is planned to also be reserved as Regional Open Space. The proposed ROS area on the Harewoods Road block will not be large enough to provide adequate habitat for WRPs on their own, however retention of nearby Black-cockatoo foraging habitat in other ROS areas to the west and east of the site would help to improve the success of any breeding birds in the area.

In light of the above, the following recommendations for the ROS area are applicable:

- Enhance understorey for the WRP and Black-Cockatoos

  This could be done by planting local native species (e.g. *Agonis flexuosa)* in areas which are degraded or have been affected by weeds or erosion to increase vegetation density. Planting of *Banksia grandis* and *Banksia sessilis* could provide food for Black-Cockatoos.

- Maintain habitat connectivity

  Retain or create some habitat (perhaps within Lot 317) to allow for movement of possums between the ROS and bushland to the east. Note that both possum species will utilise narrow lines of trees and even gardens, although a wider belt of native vegetation would be more effective and support a greater range of species.

- Weed control

  Use appropriate weed-control techniques to remove weed species taking over native vegetation (e.g. frog-friendly spraying of Kikuyu grass).

- Relocate potential nesting hollows from RD area.

  Existing hollows can be removed from trees felled in the RD and placed in the ROS area either on the ground for terrestrial fauna, or have bases fitted and be hung in trees to provide 'nest boxes' for Black-Cockatoos.

- Community/resident education

  Install signage and conduct community workshops/activities to educate the community of the rarity and importance of Tuart forest, and how they can help protect species utilising this habitat.

- Wetland rehabilitation

  Conduct revegetation using local native wetland species (e.g. *Melaleuca rhaphiophylla, Baumea articulata*) to extend habitat around the eastern edge of the wetland, enhancing its value for the WRP.

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6 TABLES

Table 1. Information gathered from trees with a DBH measured over 50mm east of Minninup Road.

Tree Identification	Easting	Northing	Species	DBH (cm)	Hollows	No. of Stems (if more than 1)	Comments
A001	371441.789	6301795.358	Marri	162	Small Hollows		
A002	371441.361	6301813.54	Tuart	126	No Obvious Hollows		
A003	371456.697	6301821.285	Jarrah	78	No Obvious Hollows		
A004	371464.475	6301809.855	Tuart	190	Several Large Hollows		
A005	371556.04	6301764.05	Jarrah	124	No Obvious Hollows		
A006	371552.463	6301746.258	Tuart	194	No Obvious Hollows		
A007	371600.161	6301761.198	Jarrah	87	No Obvious Hollows		
A008	371576.332	6301706.651	Tuart	114	No Obvious Hollows	3	
A009	371504.336	6301700.594	Marri	94	No Obvious Hollows		
A010	371508.279	6301690.887	Marri	112	Small Hollows		
A011	371446.356	6301682.634	Marri	141	Small Hollows		
A012	371416.412	6301717.391	Marri	112	Small Hollows		
A013	371430.929	6301730.781	Marri	80	No Obvious Hollows		
A014	371584.702	6301636.674	Marri	165	No Obvious Hollows		
A015	371554.531	6301604.556	Tuart	83	Small Hollows		
A016	371503.304	6301589.347	Marri	72	Small Hollows		
A017	371575.739	6301562.252	Marri	135	Small Hollows		
A018	371576.734	6301578.346	Tuart	72	No Obvious Hollows	9	
A019	371498.819	6301632.871	Marri	103	Small Hollows		
A020	371447.56	6301578.071	Jarrah	172	No Obvious Hollows		
A021	371432.758	6301649.183	Tuart	86	Small Hollows		
A022	371411.532	6301650.786	Marri	100	Several Large Hollows		
A023	371320.576	6301615.863	Tuart	86	Small Hollows		
A024	371330.952	6301604.911	Tuart	67	No Obvious Hollows		
A025	371304.028	6301622.407	Tuart	55	No Obvious Hollows		
A026	371285.694	6301644.343	Tuart	86	No Obvious Hollows		
A027	371283.042	6301640.981	Tuart	64	No Obvious Hollows	2	
A028	371287.855	6301656.682	Tuart	83	Small Hollows		
A029	371290.079	6301685.213	Tuart	84	Small Hollows		
A030	371312.267	6301688.17	Tuart	90	No Obvious Hollows		
A031	371299.453	6301693.655	Tuart	58	No Obvious Hollows	5	
A032	371294.891	6301694.038	Tuart	69	No Obvious Hollows	10	
A033	371282.85	6301704.302	Tuart	91	Small Hollows		Dead
A034	371238.429	6301680.755	Tuart	170	Several Large Hollows		
A035	371235.039	6301655.979	Tuart	158	Multiple Large Hollows		
A036	371221.683	6301681.197	Tuart	272	Multiple Large Hollows		
A037	371196.725	6301704.708	Tuart	104	Small Hollows		
A038	371170.774	6301683.957	Tuart	198	Multiple Large Hollows		

Tree Identification	Easting	Northing	Species	DBH (cm)	Hollows	No. of Stems (if more than 1)	Comments
A039	371138.287	6301686.186	Tuart	186	Multiple Large Hollows		
A040	371133.282	6301663.939	Tuart	69	Small Hollows		Dead
A041	371133.572	6301656.18	Tuart	170	Multiple Large Hollows		
A042	371116.789	6301673.368	Tuart	174	Multiple Large Hollows		
A043	371105.834	6301685.864	Tuart	128	Small Hollows		
A044	371103.94	6301709.35	Tuart	100	Small Hollows		
A045	371093.001	6301720.627	Tuart	86	No Obvious Hollows		
A046	371081.781	6301773.931	Tuart	137	Several Large Hollows		
A047	371080.319	6301772.026	Tuart	287	Multiple Large Hollows		
A048	371030.297	6301764.04	Tuart	163	Several Large Hollows		
A049	371029.663	6301734.865	Tuart	108	No Obvious Hollows		
A050	371032.202	6301718.818	Tuart	153	Several Large Hollows		
A051	371006.781	6301728.128	Tuart	227	Several Large Hollows		
A052	370948.255	6301716.257	Tuart	152	No Obvious Hollows	14	
A053	370919.357	6301804.924	Tuart	169	Multiple Large Hollows		
A054	371025.974	6301690.677	Tuart	155	Multiple Large Hollows		
A055	371010.058	6301656.752	Tuart	164	Multiple Large Hollows		
A056	370999.391	6301626.777	Tuart	172	Multiple Large Hollows		
A057	371040.189	6301608.025	Tuart	78	No Obvious Hollows	2	
A058	371078.376	6301638.699	Tuart	231	Multiple Large Hollows		
A059	371106.021	6301595.04	Tuart	60	No Obvious Hollows		
A060	371124.016	6301591.62	Tuart	80	No Obvious Hollows		
A061	371165.134	6301590.726	Tuart	79	No Obvious Hollows		
A062	371169.116	6301591.999	Tuart	84	No Obvious Hollows		
A063	371171.255	6301592.027	Tuart	63	No Obvious Hollows		
A064	371208.747	6301591.085	Tuart	136	Several Large Hollows		
A065	371237.255	6301587.361	Tuart	63	No Obvious Hollows		
A066	371248.358	6301570.652	Tuart	94	No Obvious Hollows		
A067	371257.018	6301541.934	Tuart	163	Hollow Top		
A068	371268.055	6301558.161	Tuart	77	No Obvious Hollows		
A069	371275.756	6301552.497	Tuart	62	No Obvious Hollows	7	
A070	371292.822	6301534.98	Tuart	175	Several Large Hollows		
A071	371306.194	6301557.449	Tuart	100	Small Hollows		
A072	371330.404	6301555.22	Tuart	84	No Obvious Hollows	4	
A073	371334.574	6301549.398	Tuart	84	No Obvious Hollows		
A074	371367.272	6301559.26	Jarrah	82	No Obvious Hollows		
A075	371463.764	6301485.463	Tuart	160	No Obvious Hollows		
A076	371503.343	6301467.358	Tuart	68	No Obvious Hollows		
A077	371511.036	6301476.332	Tuart	55	No Obvious Hollows		
A078	371525.302	6301473.527	Tuart	86	No Obvious Hollows	5	Dead
A079	371501.489	6301452.916	Tuart	54	No Obvious Hollows		
A080	371381.261	6301465.402	Tuart	64	No Obvious Hollows		

Tree Identification	Easting	Northing	Species	DBH (cm)	Hollows	No. of Stems (if more than 1)	Comments
A081	371384.598	6301473.21	Tuart	63	No Obvious Hollows		
A082	371378.385	6301499.854	Tuart	99	No Obvious Hollows		
A083	371356.237	6301486.917	Tuart	78	Small Hollows		
A084	371343.21	6301480.422	Tuart	75	Small Hollows	3	
A085	371318.94	6301494.184	Tuart	204	Small Hollows		
A086	371298.567	6301501.676	Tuart	85	Small Hollows		
A087	371285.733	6301508.602	Tuart	64	Small Hollows	6	
A088	371252.602	6301517.366	Tuart	59	No Obvious Hollows		
A089	371236.659	6301520.37	Tuart	103	Several Large Hollows		
A090	371231.244	6301528.948	Tuart	157	Multiple Large Hollows		
A091	371242.377	6301496.048	Tuart	86	Small Hollows	4	
A092	371233.43	6301490.495	Tuart	56	No Obvious Hollows		
A093	371217.912	6301510.472	Tuart	80	No Obvious Hollows		
A094	371185.348	6301511.48	Tuart	103	No Obvious Hollows		Dead
A095	371165.281	6301495.908	Tuart	73	No Obvious Hollows		
A096	371154.424	6301501.087	Jarrah	62	No Obvious Hollows		
A097	371139.444	6301501.664	Tuart	72	Small Hollows		
A098	371128.945	6301535.792	Tuart	152	Small Hollows		
A099	371167.115	6301567.685	Tuart	78	No Obvious Hollows		
A100	371146.971	6301585.826	Tuart	66	No Obvious Hollows	4	
A101	371131.69	6301567.102	Tuart	74	No Obvious Hollows	2	
A102	371117.787	6301556.603	Tuart	63	No Obvious Hollows		
A103	371111.754	6301555.636	Tuart	72	No Obvious Hollows		
A104	371072.648	6301559.107	Tuart	251	Several Large Hollows		
A105	371023.167	6301566.432	Tuart	74	Small Hollows	5	
A106	371025.766	6301566.799	Tuart	58	No Obvious Hollows	4	
A107	371014.169	6301585.608	Tuart	72	No Obvious Hollows		Dead
A108	370993.73	6301556.169	Tuart	71	No Obvious Hollows		
A109	370999.903	6301525.643	Tuart	73	Small Hollows		
A110	370997.7	6301516.52	Tuart	110	No Obvious Hollows		
A111	370990.777	6301519.533	Tuart	53	No Obvious Hollows		
A112	370930.343	6301553.216	Tuart	104	Small Hollows	6	
A113	370925.168	6301564.681	Jarrah	64	No Obvious Hollows		
A114	370909.928	6301542.852	Tuart	140	Small Hollows		
A115	370957.007	6301513.426	Tuart	78	Small Hollows		
A116	370953.341	6301502.398	Tuart	77	Small Hollows		
A117	370956.22	6301474.822	Tuart	64	No Obvious Hollows	5	
A118	370929.333	6301461.599	Tuart	53	No Obvious Hollows		
A119	370893.126	6301456.902	Tuart	120	No Obvious Hollows		
A120	370890.2	6301446.216	Tuart	74	No Obvious Hollows		
A121	370901.389	6301437.05	Tuart	104	Small Hollows		Dead
A122	370970.006	6301445.285	Tuart	72	No Obvious Hollows	3	

Tree Identification	Easting	Northing	Species	DBH (cm)	Hollows	No. of Stems (if more than 1)	Comments
A123	370986.712	6301426.877	Tuart	171	Small Hollows		
A124	371002.96	6301463.802	Tuart	200	Multiple Large Hollows		
A125	371007.44	6301469.517	Tuart	55	No Obvious Hollows		
A126	371007.863	6301472.739	Tuart	68	No Obvious Hollows		
A127	371038.922	6301458.958	Tuart	134	Small Hollows		
A128	371030.691	6301448.534	Tuart	81	No Obvious Hollows	3	
A129	371007.254	6301427.705	Tuart	112	No Obvious Hollows	4	
A130	371028.739	6301420.562	Tuart	92	Small Hollows		
A131	371041.339	6301424.168	Tuart	96	Small Hollows		
A132	371056.552	6301420.156	Tuart	76	Small Hollows	2	
A133	371051.788	6301456.579	Tuart	73	No Obvious Hollows		
A134	371089.276	6301490.792	Tuart	148	Small Hollows		
A135	371089.988	6301507.104	Tuart	57	No Obvious Hollows	4	
A136	371101.303	6301481.526	Tuart	82	No Obvious Hollows		
A137	371121.609	6301472.148	Tuart	68	No Obvious Hollows		
A138	371121.611	6301472.037	Tuart	63	Small Hollows		
A139	371128.464	6301460.262	Jarrah	78	No Obvious Hollows		
A140	371157.082	6301455.21	Jarrah	195	Several Large Hollows		
A141	371160.624	6301447.605	Tuart	70	No Obvious Hollows		
A142	371157.646	6301447.787	Tuart	62	No Obvious Hollows		
A143	371152.087	6301432.187	Tuart	57	No Obvious Hollows		
A144	371151.009	6301429.4	Tuart	50	No Obvious Hollows		
A145	371148.677	6301429.923	Tuart	56	No Obvious Hollows		
A146	371148.767	6301430.146	Tuart	50	No Obvious Hollows		
A147	371140.685	6301429.484	Tuart	112	No Obvious Hollows		
A148	371184.037	6301428.398	Tuart	208	Several Large Hollows		
A149	371206.841	6301440.901	Tuart	81	Small Hollows		Dead
A150	371198.111	6301426.035	Jarrah	66	No Obvious Hollows		
A151	371201.11	6301417.314	Tuart	63	No Obvious Hollows		
A152	371179.414	6301398.394	Tuart	60	No Obvious Hollows		
A153	371173.186	6301384.226	Tuart	61	No Obvious Hollows		
A154	371182.362	6301386.567	Tuart	140	Small Hollows		
A155	371195.303	6301364.559	Tuart	122	Small Hollows		
A156	371215.408	6301398.208	Tuart	204	Multiple Large Hollows		Dead
A157	371222.257	6301372.681	Tuart	180	Multiple Large Hollows		Dead
A158	371233.656	6301375.716	Tuart	70	No Obvious Hollows		Dead
A159	371248.62	6301390.332	Tuart	63	No Obvious Hollows	3	
A160	371251.002	6301400.012	Tuart	69	Small Hollows		
A161	371231.164	6301409.175	Tuart	140	Multiple Large Hollows		Corellas Nesting
A162	371234.104	6301432.836	Tuart	73	No Obvious Hollows		
A163	371244.05	6301433.19	Tuart	165	Several Large Hollows		
A164	371252.937	6301429.316	Tuart	75	No Obvious Hollows		Dead

Tree Identification	Easting	Northing	Species	DBH (cm)	Hollows	No. of Stems (if more than 1)	Comments
A165	371291.848	6301454.454	Tuart	69	No Obvious Hollows		
A166	371294.852	6301459.373	Tuart	96	No Obvious Hollows		
A167	371288.062	6301417.473	Tuart	72	No Obvious Hollows		
A168	371281.478	6301395.095	Tuart	69	Small Hollows		
A169	371268.639	6301381.505	Tuart	165	Small Hollows		
A170	371261.427	6301385.402	Tuart	76	Small Hollows		
A171	371243.931	6301358.331	Tuart	69	Small Hollows		
A172	371240.565	6301352.741	Tuart	58	No Obvious Hollows	3	
A173	371278.239	6301352.023	Tuart	55	No Obvious Hollows	4	
A174	371293.353	6301348.342	Tuart	66	No Obvious Hollows		
A175	371283.189	6301343.438	Tuart	67	Small Hollows		
A176	371279.772	6301334.632	Tuart	63	Small Hollows		
A177	371305.854	6301317.457	Tuart	176	Multiple Large Hollows		
A178	371327.441	6301330.608	Tuart	62	No Obvious Hollows		
A179	371310.239	6301379.286	Tuart	131	Multiple Large Hollows		
A180	371306.926	6301390.665	Tuart	67	No Obvious Hollows		
A181	371313.678	6301407.39	Tuart	73	Small Hollows		
A182	371329.233	6301377.654	Tuart	66	No Obvious Hollows		
A183	371340.364	6301365.825	Tuart	59	No Obvious Hollows		
A184	371375.821	6301343.007	Tuart	111	Small Hollows		
A185	371386.023	6301387.059	Tuart	128	Several Large Hollows		
A186	371395.172	6301370.435	Tuart	56	No Obvious Hollows		
A187	371396.593	6301368.458	Tuart	71	No Obvious Hollows	2	
A188	371474.183	6301345.313	Tuart	61	No Obvious Hollows	3	
A189	371436.838	6301377.2	Tuart	63	No Obvious Hollows		
A190	371287.695	6301284.389	Tuart	71	No Obvious Hollows	4	
A191	371300.408	6301300.416	Tuart	53	No Obvious Hollows	3	
A192	371278.652	6301313.989	Tuart	255	Large Hollow Top		
A193	371278.65	6301314.1	Tuart	62	Small Hollows		
A194	371262.85	6301292.486	Tuart	77	Small Hollows		
A195	371240.472	6301275.886	Tuart	83	Small Hollows		
A196	371234.141	6301269.48	Tuart	92	Small Hollows	2	
A197	371215.993	6301312.379	Tuart	250	Multiple Large Hollows		
A198	371238.538	6301316.339	Tuart	61	No Obvious Hollows		
A199	371245.791	6301323.422	Tuart	58	No Obvious Hollows		
A200	371241.654	6301326.805	Tuart	59	No Obvious Hollows		
A201	371259.355	6301324.49	Tuart	67	No Obvious Hollows	4	
A202	371200.813	6301348.885	Tuart	61	No Obvious Hollows		
A203	371194.204	6301328.391	Tuart	119	No Obvious Hollows		
A204	371193.137	6301303.757	Tuart	67	No Obvious Hollows	5	
A205	371183.141	6301293.199	Jarrah	66	No Obvious Hollows		
A206	371183.82	6301277.128	Tuart	131	Small Hollows		

Tree Identification	Easting	Northing	Species	DBH (cm)	Hollows	No. of Stems (if more than 1)	Comments
A207	371194.824	6301274.834	Tuart	65	No Obvious Hollows		
A208	371163.137	6301286.944	Tuart	50	No Obvious Hollows		
A209	371154.169	6301296.916	Tuart	86	No Obvious Hollows		
A210	371160.305	6301310.972	Tuart	105	Small Hollows		
A211	371160.262	6301335.147	Tuart	66	No Obvious Hollows		
A212	371136.479	6301305.442	Tuart	58	No Obvious Hollows		Dead
A213	371138.396	6301301.142	Tuart	69	No Obvious Hollows		
A214	371113.876	6301326.655	Tuart	210	Multiple Large Hollows		Dead
A215	371111.269	6301368.763	Tuart	59	No Obvious Hollows	2	
A216	371094.247	6301389.939	Tuart	66	No Obvious Hollows		
A217	371087.721	6301391.183	Tuart	64	No Obvious Hollows		
A218	371087.313	6301386.853	Tuart	64	No Obvious Hollows		
A219	371069.106	6301357.443	Tuart	67	No Obvious Hollows	2	
A220	371061.825	6301359.453	Tuart	107	Small Hollows		
A221	371051.983	6301372.186	Tuart	172	Multiple Large Hollows		
A222	371074.394	6301323.467	Tuart	66	No Obvious Hollows		
A223	371037.168	6301325.522	Tuart	55	Small Hollows		
A224	371026.244	6301335.69	Tuart	114	Several Large Hollows		
A225	371009.307	6301322.599	Tuart	54	No Obvious Hollows	6	
A226	370995.421	6301359.677	Jarrah	75	No Obvious Hollows	3	
A227	371013.307	6301371.338	Tuart	86	No Obvious Hollows		
A228	370982.258	6301370.369	Tuart	136	Multiple Large Hollows		
A229	370962.989	6301378.762	Tuart	64	No Obvious Hollows		
A230	370960.49	6301377.842	Tuart	92	Small Hollows		
A231	370942.299	6301375.048	Tuart	134	Multiple Large Hollows		
A232	370926.116	6301382.152	Tuart	63	No Obvious Hollows	4	
A233	370866.658	6301384.463	Tuart	116	No Obvious Hollows		
A234	370861.962	6301346.14	Tuart	94	No Obvious Hollows		
A235	370873.261	6301342.742	Tuart	64	No Obvious Hollows		
A236	370874.095	6301322.015	Jarrah	56	No Obvious Hollows		
A237	370864.483	6301317.561	Jarrah	52	No Obvious Hollows		
A238	370856.947	6301324.78	Tuart	105	No Obvious Hollows		
A239	370849.605	6301310.487	Tuart	112	No Obvious Hollows		
A240	370844.635	6301306.539	Tuart	84	No Obvious Hollows		
A241	370835.559	6301275.92	Tuart	68	No Obvious Hollows		
A242	370840.227	6301274.541	Tuart	83	No Obvious Hollows	2	Dead
A243	370860.754	6301262.505	Tuart	61	No Obvious Hollows	2	Dead
A244	370915.354	6301219.983	Tuart	135	Several Large Hollows		
A245	370916.485	6301239.738	Tuart	140	Several Large Hollows		
A246	370945.036	6301232.689	Tuart	78	No Obvious Hollows		
A247	370969.068	6301236.78	Tuart	182	Small Hollows		
A248	370937.996	6301251.559	Tuart	52	No Obvious Hollows		

Tree Identification	Easting	Northing	Species	DBH (cm)	Hollows	No. of Stems (if more than 1)	Comments
A249	370942.089	6301265.365	Tuart	56	No Obvious Hollows		
A250	370953.975	6301266.744	Tuart	160	Multiple Large Hollows		
A251	370931.895	6301276.652	Tuart	60	No Obvious Hollows		
A252	370940.727	6301297.73	Tuart	114	Several Large Hollows		
A253	370999.972	6301269.465	Tuart	101	Small Hollows		
A254	371004.113	6301244.9	Jarrah	63	No Obvious Hollows		
A255	370993.019	6301226.01	Tuart	73	No Obvious Hollows		
A256	371013.313	6301203.546	Tuart	78	No Obvious Hollows		
A257	371034.243	6301203.16	Tuart	65	No Obvious Hollows		
A258	371030.436	6301181.816	Tuart	143	Multiple Large Hollows		Dead
A259	371051.451	6301216.808	Tuart	171	Multiple Large Hollows		
A260	371063.352	6301258.887	Tuart	90	Small Hollows		
A261	371070.405	6301259.979	Tuart	88	No Obvious Hollows		
A262	371069.377	6301246.436	Tuart	57	Small Hollows		
A263	371079.609	6301246.239	Tuart	79	No Obvious Hollows		
A264	371105.31	6301250.685	Tuart	140	Several Large Hollows		Ringneck Parrot Nesting
A265	371120.116	6301284.153	Jarrah	69	No Obvious Hollows		
A266	371130.493	6301273.09	Tuart	124	Small Hollows		
A267	371095.639	6301222.72	Tuart	140	Small Hollows		
A268	371098.932	6301191.934	Tuart	72	No Obvious Hollows	4	
A269	371088.693	6301178.711	Tuart	145	Multiple Large Hollows		
A270	371098.165	6301179.725	Tuart	54	No Obvious Hollows		
A271	371148.141	6301211.887	Tuart	262	Small Hollows		
A272	371166.669	6301224.222	Tuart	84	Small Hollows		
A273	371183.563	6301240.527	Tuart	95	Small Hollows		
A274	371196.776	6301219.078	Tuart	92	No Obvious Hollows		
A275	371209.997	6301196.963	Tuart	75	No Obvious Hollows		
A276	371212.441	6301194.999	Tuart	67	No Obvious Hollows		Dead
A277	371213.752	6301180.378	Jarrah	165	Several Large Hollows		
A278	371223.097	6301169.967	Tuart	145	Multiple Large Hollows		
A279	371239.888	6301194.034	Marri	70	No Obvious Hollows		
A280	371252.774	6301183.115	Tuart	58	No Obvious Hollows	3	
A281	371279.763	6301174.603	Marri	73	No Obvious Hollows		
A282	371251.826	6301219.367	Jarrah	92	Small Hollows		
A283	371295.572	6301230.596	Tuart	62	No Obvious Hollows		
A284	371320.837	6301239.804	Tuart	130	Small Hollows		
A285	371318.17	6301223.577	Jarrah	83	No Obvious Hollows		
A286	371318.845	6301221.812	Tuart	64	No Obvious Hollows		
A287	371325.224	6301224.669	Tuart	80	No Obvious Hollows		
A288	371353.096	6301114.805	Tuart	133	Several Large Hollows		Dead
A289	371293.297	6301045.141	Tuart	140	Small Hollows		

Tree Identification	Easting	Northing	Species	DBH (cm)	Hollows	No. of Stems (if more than 1)	Comments
A290	371248.973	6301056.528	Tuart	83	No Obvious Hollows		Dead
A291	371221.712	6301071.469	Tuart	80	No Obvious Hollows		Dead
A292	371217.886	6301086.39	Tuart	110	No Obvious Hollows		
A293	371235.938	6301078.645	Tuart	92	No Obvious Hollows		
A294	371239.068	6301081.016	Tuart	52	No Obvious Hollows		
A295	371254.384	6301104.065	Tuart	138	Small Hollows		
A296	371191.65	6301066.3	Jarrah	120	Small Hollows		
A297	371166.915	6301080.166	Tuart	100	No Obvious Hollows		
A298	371157.429	6301087.137	Tuart	55	No Obvious Hollows		
A299	371143.925	6301088.62	Tuart	96	No Obvious Hollows		
A300	371144.266	6301104.927	Tuart	180	Several Large Hollows		
A301	371127.207	6301114.903	Tuart	110	Several Large Hollows		Dead
A302	371117.202	6301132.957	Tuart	200	Several Large Hollows		
A303	371119.659	6301150.956	Jarrah	63	No Obvious Hollows		
A304	371130.597	6301146.665	Tuart	62	No Obvious Hollows	3	
A305	371138.487	6301161.742	Tuart	72	No Obvious Hollows		Dead
A306	371164.262	6301132.697	Tuart	72	No Obvious Hollows		
A307	371179.445	6301144.766	Jarrah	128	No Obvious Hollows		
A308	371164.31	6301177.945	Jarrah	78	No Obvious Hollows		
A309	371086.039	6301147.624	Tuart	53	No Obvious Hollows		
A310	371079.229	6301142.21	Tuart	64	No Obvious Hollows		
A311	371082.359	6301137.594	Tuart	70	No Obvious Hollows		
A312	371083.252	6301133.392	Tuart	88	No Obvious Hollows	4	
A313	371097.437	6301115.726	Tuart	79	No Obvious Hollows		Dead
A314	371096.994	6301100.194	Tuart	61	Small Hollows		
A315	371081.87	6301055.743	Tuart	74	No Obvious Hollows	3	
A316	371089.242	6301053.845	Tuart	243	Hollow Top		
A317	371087.018	6301053.261	Tuart	66	No Obvious Hollows	2	
A318	371049.115	6301092.125	Tuart	82	No Obvious Hollows		
A319	371036.477	6301091.402	Tuart	55	No Obvious Hollows		
A320	371022.488	6301087.445	Tuart	83	No Obvious Hollows	3	
A321	371002.924	6301083.081	Tuart	80	No Obvious Hollows		
A322	371041.251	6301123.96	Tuart	78	No Obvious Hollows		
A323	371066.49	6301156.014	Jarrah	64	No Obvious Hollows		
A324	371040.72	6301149.792	Tuart	68	No Obvious Hollows		
A325	371033.743	6301143.045	Tuart	65	No Obvious Hollows		
A326	371010.233	6301148.609	Tuart	128	Several Large Hollows		
A327	370983.916	6301162.453	Tuart	130	Multiple Large Hollows		
A328	370967.787	6301158.578	Tuart	195	Multiple Large Hollows		
A329	370955.802	6301101.97	Tuart	95	Multiple Large Hollows	2	
A330	370954.092	6301083.76	Tuart	73	No Obvious Hollows		Dead
A331	370953.639	6301075.88	Tuart	66	No Obvious Hollows		

Tree Identification	Easting	Northing	Species	DBH (cm)	Hollows	No. of Stems (if more than 1)	Comments
A332	370952.141	6301076.636	Tuart	54	No Obvious Hollows		
A333	370947.383	6301077.793	Tuart	52	No Obvious Hollows		
A334	370941.385	6301074.275	Tuart	64	No Obvious Hollows		
A335	370924.087	6301081.252	Tuart	66	No Obvious Hollows	5	
A336	370932.172	6301123.502	Tuart	97	Several Large Hollows		
A337	370940.001	6301136.138	Tuart	130	Multiple Large Hollows		
A338	370939.4	6301146.333	Tuart	113	Multiple Large Hollows		
A339	370930.994	6301142.118	Tuart	122	Multiple Large Hollows		
A340	370901.058	6301141.385	Tuart	148	Multiple Large Hollows		
A341	370931.426	6301186.373	Tuart	147	Several Large Hollows		Dead
A342	370871.227	6301195.55	Tuart	155	Multiple Large Hollows		
A343	370844.964	6301198.415	Tuart	83	No Obvious Hollows		
A344	370845.402	6301193.431	Tuart	75	No Obvious Hollows		
A345	370845.202	6301152.728	Tuart	85	No Obvious Hollows		
A346	370852.497	6301128.76	Tuart	77	No Obvious Hollows		Dead
A347	370831.355	6301124.152	Tuart	74	No Obvious Hollows		
A348	370814.406	6301125.922	Tuart	63	No Obvious Hollows		
A349	370789.156	6301122.59	Tuart	110	No Obvious Hollows	3	
A350	370798.202	6301113.728	Tuart	57	No Obvious Hollows		
A351	370802.67	6301099.482	Tuart	105	No Obvious Hollows	6	
A352	370816.028	6301095.002	Tuart	95	No Obvious Hollows		
A353	370862.328	6301081.98	Tuart	103	No Obvious Hollows		
A354	370870.165	6301073.102	Tuart	57	No Obvious Hollows		
A355	370891.236	6301041.222	Tuart	140	Small Hollows		
A356	370900.455	6301026.374	Tuart	72	No Obvious Hollows		
A357	370896.749	6300997.49	Tuart	60	No Obvious Hollows		
A358	370906.481	6300992.962	Tuart	165	Several Large Hollows		Cocky Box
A359	370919.741	6301002.788	Tuart	70	Several Large Hollows		
A360	370919.261	6301003.89	Tuart	86	Several Large Hollows		
A361	370929.697	6301016.34	Tuart	71	No Obvious Hollows		
A362	370930.682	6301019.125	Tuart	88	No Obvious Hollows		
A363	370925.837	6301019.837	Tuart	66	No Obvious Hollows		
A364	370940.968	6301042.773	Tuart	114	Several Large Hollows		
A365	370944.139	6301035.164	Jarrah	55	Several Large Hollows		
A366	370957.189	6301025.911	Tuart	128	Several Large Hollows		
A367	370945.247	6301007.897	Tuart	205	Several Large Hollows		
A368	370936.948	6300974.738	Tuart	75	Small Hollows		
A369	370961.233	6300966.744	Tuart	88	No Obvious Hollows		
A370	370969.02	6300989.472	Tuart	144	Multiple Large Hollows		
A371	371003.075	6301009.001	Jarrah	90	No Obvious Hollows		
A372	371015.728	6301036.452	Tuart	212	Several Large Hollows		Dead
A373	371046.084	6301005.583	Tuart	76	No Obvious Hollows	2	Dead

Tree Identification	Easting	Northing	Species	DBH (cm)	Hollows	No. of Stems (if more than 1)	Comments
A374	371021.048	6300972.311	Tuart	90	No Obvious Hollows		
A375	371019.011	6300964.632	Jarrah	102	No Obvious Hollows		
A376	371005.068	6300943.264	Tuart	120	Small Hollows		Dead
A377	371039.116	6300935.401	Tuart	90	Small Hollows		
A378	371050.185	6300928.229	Tuart	72	No Obvious Hollows		Dead
A379	371059.097	6300943.319	Tuart	78	No Obvious Hollows		Dead
A380	371032.683	6300964.482	Tuart	93	Small Hollows		
A381	371086.338	6301013.55	Tuart	106	Small Hollows		
A382	371098.643	6300997.411	Tuart	183	Several Large Hollows		Dead
A383	371121.974	6300998.166	Tuart	76	No Obvious Hollows		
A384	371125.438	6300996.438	Tuart	70	No Obvious Hollows		
A385	371130.942	6300995.18	Tuart	66	No Obvious Hollows		
A386	371130.363	6301031.659	Tuart	67	No Obvious Hollows		
A387	371139	6301060.386	Tuart	97	Small Hollows		
A388	371125.106	6301070.182	Tuart	132	Small Hollows		
A389	371153.085	6301057.247	Tuart	92	No Obvious Hollows	2	
A390	371155.309	6301050.844	Tuart	60	No Obvious Hollows	2	
A391	371166.909	6301024.715	Tuart	186	Multiple Large Hollows		
A392	371169.633	6301008.782	Tuart	58	No Obvious Hollows		
A393	371169.664	6300999.467	Tuart	103	Several Large Hollows		Dead
A394	371166.399	6301000.2	Tuart	62	No Obvious Hollows		
A395	371168.761	6300990.472	Tuart	60	No Obvious Hollows		
A396	371162.296	6300994.045	Tuart	62	No Obvious Hollows		
A397	371153.753	6300993.155	Tuart	60	No Obvious Hollows		
A398	371150.478	6300973.704	Tuart	67	Small Hollows		
A399	371144.921	6300971.967	Tuart	68	No Obvious Hollows		
A400	371132.336	6300953.389	Tuart	163	Several Large Hollows		Dead
A401	371126.027	6300938.334	Tuart	82	Small Hollows	4	
A402	371124.322	6300933.653	Tuart	77	No Obvious Hollows		
A403	371145.554	6300931.496	Tuart	146	Several Large Hollows		
A404	371189.067	6300939.063	Tuart	69	No Obvious Hollows	2	
A405	371197.403	6300948.601	Tuart	110	Several Large Hollows		
A406	371207.645	6300975.575	Tuart	146	Several Large Hollows		
A407	371210.855	6300971.958	Tuart	54	No Obvious Hollows		
A408	371223.593	6300965.141	Tuart	92	Small Hollows		
A409	371232.914	6300984.451	Tuart	186	Small Hollows		
A410	371262.21	6300970.313	Tuart	100	No Obvious Hollows		Dead
A411	371295.577	6300964.658	Tuart	153	No Obvious Hollows		
A412	371277.516	6300910.298	Tuart	85	No Obvious Hollows		
A413	371259.043	6300928.794	Tuart	78	No Obvious Hollows		
A414	371264.093	6300947.603	Tuart	55	No Obvious Hollows	2	
A415	371217.881	6300912.276	Jarrah	62	No Obvious Hollows		

Tree Identification	Easting	Northing	Species	DBH (cm)	Hollows	No. of Stems (if more than 1)	Comments
A416	371210.245	6300885.115	Tuart	97	Small Hollows		
A417	371226.544	6300869.251	Marri	61	No Obvious Hollows		
A418	371242.669	6300880.445	Marri	95	No Obvious Hollows		
A419	371246.428	6300884.488	Tuart	60	No Obvious Hollows		
A420	371239.371	6300848.795	Tuart	67	Small Hollows		
A421	371223.348	6300836.937	Marri	76	No Obvious Hollows		Dead
A422	371220.187	6300822.921	Marri	57	No Obvious Hollows		
A423	371219.801	6300816.928	Jarrah	52	No Obvious Hollows		
A424	371195.39	6300813.497	Jarrah	62	Small Hollows		
A425	371164.403	6300821.956	Tuart	60	No Obvious Hollows		
A426	371167.715	6300824.662	Tuart	60	No Obvious Hollows		
A427	371162.355	6300829.138	Tuart	60	No Obvious Hollows		
A428	371142.678	6300819.338	Tuart	122	Several Large Hollows		Cocky Box
A429	371130.328	6300817.954	Tuart	80	Small Hollows		
A430	371124.389	6300830.961	Tuart	50	No Obvious Hollows		
A431	371123.719	6300832.393	Tuart	80	No Obvious Hollows		
A432	371136.704	6300828.02	Tuart	118	No Obvious Hollows		
A433	371143.914	6300845.194	Tuart	82	Small Hollows		
A434	371173.527	6300835.164	Tuart	56	No Obvious Hollows		
A435	371168.001	6300845.072	Tuart	92	Small Hollows		Cocky Box, Block Chewed
A436	371175.545	6300858.148	Tuart	75	Small Hollows		
A437	371171.677	6300862.31	Jarrah	107	Small Hollows		Dead
A438	371127.96	6300891.005	Tuart	64	No Obvious Hollows		
A439	371127.23	6300889.886	Tuart	64	No Obvious Hollows		
A440	371126.053	6300866.582	Tuart	82	Small Hollows	2	
A441	371095.439	6300833.125	Tuart	82	Small Hollows	2	
A442	371091.013	6300823.307	Tuart	75	No Obvious Hollows		
A443	371078.824	6300830.797	Tuart	93	Small Hollows		
A444	371067.578	6300858.261	Tuart	119	Several Large Hollows		
A445	371068.68	6300873.247	Tuart	135	Multiple Large Hollows		
A446	371089.84	6300890.386	Tuart	170	Small Hollows		
A447	371080.76	6300908.785	Tuart	95	Small Hollows		Dead
A448	371059.246	6300897.298	Tuart	66	No Obvious Hollows		Dead
A449	371058.554	6300900.394	Tuart	68	No Obvious Hollows		Dead
A450	371029.562	6300870.84	Tuart	78	Small Hollows		Dead
A451	370999.953	6300887.524	Tuart	167	Small Hollows		Dead
A452	371017.701	6300895.524	Tuart	107	Several Large Hollows		
A453	370993.086	6300844.625	Tuart	205	Multiple Large Hollows		Cocky Box
A454	370998.629	6300847.36	Tuart	90	Small Hollows		
A455	370972.703	6300880.728	Tuart	200	Multiple Large Hollows		Dead
A456	370960.168	6300879.341	Tuart	60	No Obvious Hollows		

Tree Identification	Easting	Northing	Species	DBH (cm)	Hollows	No. of Stems (if more than 1)	Comments
A457	370946.843	6300888.257	Tuart	110	Several Large Hollows		
A458	370945.896	6300889.575	Tuart	122	Several Large Hollows		Cocky Box
A459	370964.553	6300913.113	Tuart	92	Small Hollows		
A460	370959.686	6300929.35	Tuart	50	No Obvious Hollows		
A461	370941.719	6300937.761	Tuart	80	No Obvious Hollows		
A462	370937.466	6300935.93	Tuart	64	Small Hollows	3	
A463	370907.567	6300967.359	Tuart	156	Multiple Large Hollows		
A464	370881.775	6300962.8	Tuart	60	No Obvious Hollows		
A465	370879.441	6300984.395	Tuart	165	Several Large Hollows		
A466	370869.314	6300976.718	Tuart	54	No Obvious Hollows		
A467	370865.994	6300981.553	Tuart	92	No Obvious Hollows		
A468	370848.638	6300958.143	Tuart	162	Several Large Hollows		Cocky Box
A469	370835.516	6300958.855	Tuart	67	No Obvious Hollows		
A470	370837.867	6300984.727	Tuart	122	Small Hollows		
A471	370831.563	6301011.148	Jarrah	64	No Obvious Hollows		
A472	370820.016	6301040.16	Tuart	53	No Obvious Hollows		
A473	370849.209	6301054.634	Tuart	68	No Obvious Hollows	7	
A474	370813.95	6301013.907	Tuart	92	No Obvious Hollows		
A475	370812.259	6300994.255	Tuart	144	Small Hollows		
A476	370758.287	6300941.188	Tuart	75	No Obvious Hollows		
A477	370797.157	6300941.375	Tuart	70	Small Hollows	6	
A478	370800.647	6300937.651	Tuart	109	Small Hollows		
A479	370810.363	6300934.343	Tuart	175	Small Hollows		
A480	370832.418	6300933.196	Tuart	128	Several Large Hollows		
A481	370833.696	6300934.988	Tuart	105	Hollow Top		Dead
A482	370833.449	6300939.531	Tuart	175	Small Hollows		
A483	370870.496	6300902.098	Tuart	67	No Obvious Hollows		
A484	370877.325	6300892.097	Jarrah	55	No Obvious Hollows		
A485	370902.169	6300870.138	Tuart	68	No Obvious Hollows		Dead
A486	370919.976	6300852.854	Tuart	193	Several Large Hollows		Dead
A487	370929.726	6300874.831	Tuart	120	Several Large Hollows		
A488	370914.217	6300894.143	Tuart	90	Small Hollows		
A489	370933.263	6300909.368	Tuart	172	Several Large Hollows		
A490	371624	6302050	Tuart	120	Several Large Hollows		
A491	371642	6302247	Tuart	110	Small Hollows		
A492	371670	6302257	Tuart	100	No Obvious Hollows		

Table 2. Information gathered from trees with a DBH measured over 50mm west of Minninup Road.

Tree Identification	Easting	Northing	Species	DBH (cm)	Hollows	No. of Stems (if more than 1)	Comments
B1	370592.366	6301262.244	Tuart	110	No Obvious Hollows		
B2	370568.253	6301340.66	Tuart	65	No Obvious Hollows	3	
B3	370530.66	6301321.415	Tuart	69	No Obvious Hollows		
B4	370529.269	6301321.064	Tuart	75	No Obvious Hollows	3	
B5	370522.929	6301336.172	Tuart	100	Small Hollows		
B6	370508.576	6301352.393	Tuart	115	Small Hollows		
B7	370489.978	6301338.393	Tuart	155	Several Large Hollows		
B8	370461.474	6301334.906	Tuart	145	Several Large Hollows		
B9	370460.666	6301325.801	Tuart	70	Small Hollows		
B10	370417.661	6301321.787	Tuart	73	Small Hollows	4	
B11	370421.323	6301353.886	Tuart	117	Small Hollows		
B12	370389.292	6301391.496	Tuart	100	Small Hollows		
B13	370372.303	6301403.134	Tuart	71	No Obvious Hollows		
B14	370401.686	6301431.253	Tuart	145	Small Hollows		
B15	370413.543	6301441.726	Tuart	68	Small Hollows		
B16	370440.354	6301453.619	Tuart	255	Small Hollows		
B17	370463.053	6301473.885	Tuart	135	Small Hollows		
B18	370466.069	6301457.069	Tuart	88	Small Hollows		
B19	370470.981	6301451.368	Tuart	60	No Obvious Hollows	5	
B20	370456.71	6301440.641	Tuart	115	No Obvious Hollows		
B21	370456.539	6301418.68	Tuart	154	Small Hollows		
B22	370462.734	6301386.602	Tuart	103	Small Hollows		
B23	370507.862	6301426.576	Tuart	84	Small Hollows	2	
B24	370510.6	6301423.508	Tuart	95	Small Hollows		
B25	370536.728	6301430.844	Tuart	97	Several Large Hollows		
B26	370533.208	6301422.812	Tuart	100	Several Large Hollows		
B27	370529.407	6301414.998	Tuart	80	Small Hollows		
B28	370522.628	6301407.255	Tuart	60	Small Hollows	3	
B29	370516.892	6301405.071	Tuart	110	Small Hollows		
B30	370504.269	6301410.115	Tuart	68	Small Hollows		
B31	370537.049	6301379.058	Tuart	73	Small Hollows		
B32	370538.851	6301383.407	Tuart	58	No Obvious Hollows		
B33	370539.04	6301383.188	Tuart	64	No Obvious Hollows		
B34	370548.782	6301377.884	Tuart	74	Small Hollows		
B35	370556.188	6301380.423	Tuart	88	Small Hollows		
B36	370563.962	6301383.3	Tuart	74	Hollow Top		
B37	370578.439	6301378.614	Tuart	120	Several Large Hollows		
B38	370400.65	6301522.511	Tuart	90	Small Hollows		
B39	370412.781	6301512.47	Tuart	107	Small Hollows		
B40	370386.355	6301534.296	Tuart	82	Several Large Hollows		
B41	370366.774	6301552	Tuart	57	No Obvious Hollows		

B42	370381.4	6301522.363	Tuart	152	Several Large Hollows	
B43	370357.424	6301521.044	Tuart	93	Small Hollows	2
B44	370313.816	6301506.486	Tuart	120	Several Large Hollows	
B45	370329.296	6301544.954	Tuart	75	No Obvious Hollows	
B46	370295.43	6301566.791	Tuart	105	Small Hollows	
B47	370285.862	6301572.873	Tuart	81	Small Hollows	
B48	370271.266	6301579.442	Tuart	66	Small Hollows	
B49	370261.148	6301598.825	Tuart	87	Small Hollows	
B50	370270.654	6301604.276	Tuart	82	Small Hollows	
B51	370293.582	6301600.591	Tuart	96	Small Hollows	
B52	370302.354	6301605.255	Tuart	75	Small Hollows	
B53	370322.455	6301625.154	Tuart	115	Small Hollows	2
B54	370331.478	6301618.067	Tuart	75	Small Hollows	
B55	370359.493	6301630.309	Tuart	96	Several Large Hollows	
B56	370402.364	6301658.276	Tuart	128	Several Large Hollows	
B57	370410.929	6301657.614	Tuart	90	Small Hollows	
B58	370411.483	6301657.954	Tuart	88	Small Hollows	
B59	370427.636	6301667.043	Tuart	95	Several Large Hollows	
B60	370429.03	6301667.172	Tuart	107	Small Hollows	
B61	370429.121	6301667.284	Tuart	52	Small Hollows	
B62	370448.981	6301670.434	Tuart	60	No Obvious Hollows	
B63	370473.073	6301690.94	Tuart	72	Small Hollows	
B64	370471.26	6301694.354	Tuart	75	Small Hollows	
B65	370461.985	6301720.291	Tuart	150	Several Large Hollows	
B66	370449.288	6301744.741	Tuart	58	Small Hollows	
B67	370415.743	6301749.504	Tuart	106	Several Large Hollows	
B68	370407.624	6301744.627	Tuart	180	Several Large Hollows	
B69	370396.027	6301721.737	Tuart	196	Several Large Hollows	
B70	370384.404	6301749.306	Tuart	62	No Obvious Hollows	
B71	370391.288	6301686.74	Tuart	80	No Obvious Hollows	6
B72	370360.838	6301647.96	Tuart	62	No Obvious Hollows	2
B73	370322.774	6301705.34	Tuart	70	No Obvious Hollows	
B74	370316.849	6301696.388	Tuart	71	Small Hollows	
B75	370280.194	6301662.626	Tuart	68	No Obvious Hollows	
B76	370239.643	6301655.872	Tuart	107	No Obvious Hollows	
B77	370239.677	6301653.322	Tuart	72	No Obvious Hollows	
B78	370218.266	6301647.933	Tuart	113	No Obvious Hollows	
B79	370217.854	6301623.197	Tuart	223	Several Large Hollows	
B80	370197.113	6301574.787	Tuart	68	No Obvious Hollows	
B81	370248.872	6301543.321	Tuart	134	Small Hollows	
B82	370248.683	6301543.54	Tuart	63	No Obvious Hollows	2
B83	370270.445	6301550.486	Tuart	87	Small Hollows	
B84	370271.284	6301550.386	Tuart	83	No Obvious Hollows	
B85	370274.496	6301553.535	Tuart	120	Small Hollows	
B86	370234.268	6301592.032	Tuart	130	Several Large Hollows	

B87	370455.697	6301793.956	Tuart	145	Several Large Hollows	
B88	370450.041	6301778.798	Tuart	113	Several Large Hollows	
B89	370456.65	6301750.607	Tuart	59	No Obvious Hollows	
B90	370462.738	6301754.348	Tuart	66	No Obvious Hollows	
B91	370473.082	6301745.836	Tuart	104	Small Hollows	
B92	370496.37	6301722.194	Tuart	120	Several Large Hollows	
B93	370506.885	6301728.767	Tuart	94	Several Large Hollows	
B94	370533.746	6301750.863	Tuart	95	Several Large Hollows	
B95	370524.923	6301756.844	Tuart	72	Small Hollows	
B96	370530.355	6301754.033	Tuart	60	No Obvious Hollows	
B97	370532.312	6301753.727	Tuart	79	Small Hollows	
B98	370547.253	6301763.132	Tuart	62	No Obvious Hollows	
B99	370546.202	6301765.225	Tuart	58	Small Hollows	
B100	370549.818	6301766.049	Tuart	81	Small Hollows	
B101	370562.77	6301778.089	Tuart	90	Small Hollows	
B102	370566.371	6301780.023	Tuart	75	Small Hollows	
B103	370568.616	6301786.041	Tuart	80	Small Hollows	
B104	370565.124	6301796.752	Tuart	88	Small Hollows	
B105	370569.165	6301807.563	Tuart	97	Small Hollows	
B106	370582.631	6301836.799	Tuart	86	Small Hollows	
B107	370595.735	6301809.693	Tuart	60	No Obvious Hollows	
B108	370606.119	6301833.01	Tuart	68	Small Hollows	
B109	370603.667	6301835.528	Tuart	71	No Obvious Hollows	
B110	370605.962	6301837.777	Tuart	93	Small Hollows	
B111	370612.394	6301843.63	Tuart	64	Small Hollows	
B112	370613.393	6301845.418	Tuart	65	Small Hollows	
B113	370618.799	6301858.465	Tuart	105	Several Large Hollows	
B114	370619.02	6301876.656	Tuart	72	Small Hollows	
B115	370618.506	6301880.309	Tuart	94	Small Hollows	
B116	370617.777	6301886.177	Tuart	68	No Obvious Hollows	
B117	370612.194	6301893.31	Tuart	82	Several Large Hollows	
B118	370609.258	6301904.25	Tuart	93	Small Hollows	
B119	370594.58	6301896.069	Tuart	84	No Obvious Hollows	
B120	370585.197	6301895.278	Tuart	92	Small Hollows	
B121	370581.968	6301886.363	Tuart	102	Several Large Hollows	
B122	370579.535	6301873.577	Tuart	84	Small Hollows	
B123	370576.709	6301862.338	Tuart	80	No Obvious Hollows	
B124	370576.252	6301861.778	Tuart	115	Small Hollows	
B125	370601.723	6301855.686	Tuart	94	Small Hollows	
B126	370599.998	6301852.558	Tuart	85	Small Hollows	
B127	370577.017	6301846.262	Tuart	91	Small Hollows	
B128	370553.857	6301832.533	Tuart	160	Small Hollows	
B129	370513.875	6301804.051	Tuart	81	Small Hollows	
B130	370479.139	6301807.467	Tuart	136	Several Large Hollows	
B131	370485.673	6301840.381	Tuart	71	No Obvious Hollows	2

B132	370489.375	6301876.473	Tuart	88	No Obvious Hollows	
B133	370528.757	6301887.314	Tuart	105	No Obvious Hollows	
B134	370484.809	6301932.75	Tuart	58	No Obvious Hollows	
B135	370495.448	6301943.871	Tuart	90	Small Hollows	
B136	370500.039	6301941.382	Tuart	104	Several Large Hollows	
B137	370497.407	6301943.454	Tuart	96	Several Large Hollows	
B138	370501.82	6301940.297	Tuart	88	Several Large Hollows	
B139	370521.319	6301907.953	Tuart	97	Several Large Hollows	
B140	370579.629	6301936.015	Tuart	90	Small Hollows	
B141	370566.808	6301941.943	Tuart	90	No Obvious Hollows	
B142	370554.547	6301947.768	Tuart	64	Small Hollows	
B143	370541.224	6301956.461	Tuart	90	Several Large Hollows	
B144	370533.763	6301958.025	Tuart	174	Several Large Hollows	
B145	370519.323	6301959.828	Tuart	56	No Obvious Hollows	
B146	370496.48	6301964.069	Tuart	66	No Obvious Hollows	
B147	370471.749	6301963.405	Tuart	67	Small Hollows	
B148	370470.53	6301964.165	Tuart	75	No Obvious Hollows	
B149	370471.596	6301974.826	Tuart	185	Small Hollows	
B150	370472.243	6301975.167	Tuart	62	Small Hollows	
B151	370473.345	6301976.18	Tuart	70	Small Hollows	
B152	370474.83	6301983.408	Tuart	82	Small Hollows	
B153	370482.633	6301991.054	Tuart	62	Small Hollows	
B154	370487.062	6302007.527	Tuart	92	Small Hollows	
B155	370494.705	6302027.147	Tuart	77	Small Hollows	
B156	370495.76	6302052.558	Tuart	101	Small Hollows	
B157	370479.828	6302054.673	Tuart	126	Several Large Hollows	
B158	370493.625	6302066.17	Tuart	135	Several Large Hollows	
B159	370492.378	6302082.899	Tuart	100	Several Large Hollows	Dead
B160	370465.011	6302084.64	Tuart	84	Small Hollows	
B161	370464.467	6302083.523	Tuart	155	Several Large Hollows	
B162	370461.429	6302053.429	Tuart	102	Small Hollows	
B163	370433.244	6302067.69	Tuart	140	Multiple Large Hollows	
B164	370416.084	6302043.395	Tuart	109	Several Large Hollows	
B165	370452.858	6302033.685	Tuart	96	Small Hollows	
B166	370410.565	6302004.062	Tuart	90	Small Hollows	
B167	370412.358	6302002.201	Tuart	82	Small Hollows	
B168	370414.044	6301980.487	Tuart	190	Multiple Large Hollows	
B169	370378.79	6301939.203	Tuart	87	Small Hollows	
B170	370498.358	6302108.597	Tuart	94	Small Hollows	
B171	370509.257	6302121.164	Tuart	108	Small Hollows	
B172	370501.511	6302144.017	Tuart	160	Small Hollows	
B173	370485.602	6302144.358	Tuart	90	Small Hollows	
B174	370480.161	6302154.821	Tuart	75	No Obvious Hollows	
B175	370473.701	6302185.786	Tuart	110	Small Hollows	
B176	370477.422	6302206.575	Tuart	140	Small Hollows	

B177	370507.724	6302180.142	Tuart	112	Several Large Hollows		
B178	370533.64	6302161.747	Tuart	81	Small Hollows		
B179	370540.082	6302152.961	Tuart	88	No Obvious Hollows		
B180	370561.14	6302157.014	Tuart	100	Small Hollows		
B181	370564.007	6302158.272	Tuart	102	No Obvious Hollows		
B182	370567.605	6302160.427	Tuart	55	Small Hollows		
B183	370567.334	6302152.882	Tuart	108	Several Large Hollows		
B184	370573.93	6302153.414	Tuart	51	Small Hollows		
B185	370579.276	6302157.035	Tuart	70	Small Hollows		
B186	370524.778	6302226.283	Tuart	178	Several Large Hollows		
B187	370537.013	6302215.468	Tuart	131	Several Large Hollows		
B188	370558.187	6302217.858	Tuart	82	No Obvious Hollows		
B189	370585.4	6302213.787	Tuart	104	Small Hollows		
B190	370597.863	6302213.731	Tuart	95	Multiple Large Hollows		
B191	370617.392	6302227.855	Tuart	76	No Obvious Hollows		
B192	370628.959	6302239.211	Tuart	64	No Obvious Hollows		
B193	370657.653	6302242.589	Tuart	87	Small Hollows		
B194	370694.147	6302239.972	Tuart	141	Small Hollows		
B195	370700.96	6302321.685	Tuart	80	No Obvious Hollows		Dead
B196	370676.463	6302331.339	Tuart	66	No Obvious Hollows	4	
B197	370633.487	6302345.736	Tuart	85	Several Large Hollows		
B198	370622.767	6302347.478	Tuart	66	No Obvious Hollows		
B199	370605.556	6302354.789	Tuart	58	No Obvious Hollows		
B200	370570.399	6302354.762	Tuart	145	Several Large Hollows		
B201	370555.647	6302365.987	Tuart	113	Several Large Hollows		
B202	370531.052	6302348.136	Tuart	90	Several Large Hollows		
B203	370550.289	6302342.405	Tuart	128	Several Large Hollows		
B204	370574.623	6302337.962	Tuart	97	No Obvious Hollows		
B205	370638.201	6302306.207	Tuart	130	Small Hollows		
B206	370664.13	6302286.814	Tuart	74	No Obvious Hollows		
B207	370628.72	6302243.2	Tuart	80	No Obvious Hollows		
B208	370596.594	6302239.111	Tuart	167	Several Large Hollows		
B210	370544.875	6302441.144	Tuart	102	Small Hollows		
B211	370595.948	6302495.947	Tuart	110	Small Hollows		
B212	370600.555	6302520.074	Tuart	134	Small Hollows		
B213	370617.668	6302485.369	Tuart	50	No Obvious Hollows		
B214	370618.151	6302484.045	Tuart	82	No Obvious Hollows		
B215	370608.785	6302481.923	Tuart	61	Small Hollows		
B216	370608.774	6302468.837	Tuart	72	No Obvious Hollows		
B217	370644.922	6302436.494	Tuart	94	No Obvious Hollows		
B218	370682.167	6302433.443	Tuart	88	Small Hollows		
B219	370699.213	6302431.564	Tuart	90	No Obvious Hollows		Dead
B220	370691.396	6302445.766	Tuart	145	Multiple Large Hollows		
B221	370686.919	6302481.526	Tuart	150	Small Hollows		
B222	370548.885	6302509.845	Tuart	90	Small Hollows		

B223	370333.087	6301948.904	Tuart	104	Small Hollows	2
B224	370332.139	6301929.484	Tuart	90	Small Hollows	2
B225	370336.384	6301924.994	Tuart	123	Small Hollows	
B226	370336.462,	6301884.517	Tuart	108	Several Large Hollows	
B227	370325.428	6301882.04	Tuart	130	Several Large Hollows	
B228	370274.704	6301822.36	Tuart	107	Several Large Hollows	
B229	370898.669	6302330.647	Tuart	117	Several Large Hollows	
B230	370905.903	6302318.212	Tuart	145	Small Hollows	
B231	370889.393	6302217.294	Tuart	240	Multiple Large Hollows	
B232	370860.415	6302005.31	Tuart	75	No Obvious Hollows	2
B233	370861.89	6301922.709	Tuart	165	No Obvious Hollows	
B234	370889.859	6301854.879	Tuart	170	Several Large Hollows	
B235	370897.541	6301676.543	Tuart	155	Several Large Hollows	
B236	370897.635	6301606.788	Tuart	132	Several Large Hollows	
B237	370873.41	6301519.63	Tuart	135	Small Hollows	
B238	370864.703	6301447.317	Jarrah	100	No Obvious Hollows	

Table 3. Coordinates of Western Ringtail Possum (RT) and Western Ringtail Possum Dreys (RTD) found at Harewoods Rd, Gelorup, August 2011.

ID	Easting	Northing
RT01	370263.753	6301584.886
RTD01	371013.059	6301473.585
RTD02	370458.386	6301301.594
RTD03	371298.824	6300895.388
RTD04	370386.417	6301536.626
RTD05	370370.638	6301548.17
RTD06	370277.518	6301668.025
RTD07	370264.627	6301651.438
RTD08	370259.656	6301661.464
RTD09	370219.181	6301621.329
RTD10	370597.969	6302205.859

Table 4. Opportunistic sightings of species in Harewoods Rd site. * = introduced species

Species Name		RD	ROS	Evidence of presence
BIRDS				
Musk Duck	*Biziura lobata*		X	Seen and head
Black Swan	*Cygnus atratus*		X	Seen
Australian Shelduck	*Tadorna tadornaoides*	X	X	Seen and heard
Pacific Black Duck	*Anas superciliosa*		X	Seen
Black-shouldered Kite	*Elanus axillaris*		X	Seen
Square-tailed Kite	*Lophoictinia isura*		X	Seen
Whistling Kite	*Haliastur sphenurus*	X	X	Seen and heard
Little Eagle	*Hieraaetus morphnoides*	X		Seen
Wedge-tailed Eagle	*Aquila audax*	X		Seen
Swamp Harrier	*Circus approximans*		X	Seen
Nankeen Kestrel	*Falco cenchroides*		X	Seen
Purple Swamphen	*Porphyrio porphyrio*		X	Seen and heard
Common Bronzewing	*Phaps chalcoptera*		X	Seen
Galah	*Eolophus roseicapillus*	X		Seen
Western Corella	*Cacatua pastinator*	X		Seen
Regent Parrot	*Polytelis anthopeplus*	X	X	Seen and heard
Western Rosella	*Platycercus icterotis*		X	Seen and heard
Red-capped Parrot	*Purpureicephalus spurius*	X	X	Seen and heard
Australian Ringneck	*Barnardius zonarius*	X	X	Seen and heard
Elegant Parrot	*Neophema elegans*	X		Seen and heard
Fan-tailed Cuckoo	*Cacomantis flabelliformis*	X	X	Seen and heard
Shining Bronze-Cuckoo	*Chalcites lucidus*	X	X	Seen and heard
Southern Boobook	*Ninox novaeseelandiae*		X	Seen and heard
Tawny Frogmouth	*Podargus strigoides*	X		Seen
*Laughing Kookaburra	*Dacelo novaeguineae*	X	X	Seen and heard
Splendid Fairy-wren	*Malurus splendens*		X	Seen and heard
Spotted Pardalote	*Pardalotus punctatus*	X	X	Heard
Striated Pardalote	*Pardalotus striatus*	X	X	Heard
White-browed Scrubwren	*Sericornis frontalis*		X	Heard
Western Gerygone	*Gerygone fusca*	X	X	Seen and heard
Inland Thornbill	*Acanthiza apicalis*	X	X	Seen and heard
Yellow-rumped Thornbill	*Acanthiza chrysorrhoa*	X		Seen and heard
Weebill	*Smicrornis brevirostris*	X	X	Seen and heard
Red Wattlebird	*Anthochaera carunculata*	X	X	Seen and heard
White-naped Honeyeater	*Melithreptus lunatus*	X		Seen and heard
Brown Honeyeater	*Lichmera indistincta*		X	Heard
Scarlet Robin	*Petroica boodang*	X	X	Seen and heard
Varied Sittella	*Daphoenositta chrysoptera*	X	X	Seen and heard
Golden Whistler	*Pachycephala pectoralis*	X	X	Seen and heard
Rufous Whistler	*Pachycephala rufiventris*	X		Heard
Grey Shrike-thrush	*Collurincincla harmonica*	X		Heard
Grey Fantail	*Rhipidura albiscapa*	X	X	Seen and heard
Willie Wagtail	*Rhipidura leucophrys*		X	Seen and heard
Black-faced Cuckoo-shrike	*Coracina novaehollandiae*	X	X	Seen and heard
Dusky Woodswallow	*Artamus cyanopterus*	X		Seen and heard
Grey Butcherbird	*Cracticus torquatus*	X	X	Seen and heard
Magpie-lark	*Grallina cyanoleuca*	X	X	Seen
Australian Magpie	*Gymnorhina tibicen*	X	X	Seen and heard
Australian Raven	*Corvus coronoides*	X	X	Seen and heard
Tree Martin	*Petrochelidon nigricans*	X		Seen and heard
Little Grassbird	*Megalurus gramineus*		X	Heard
Silvereye	*Zosterops lateralis*	X	X	Seen and heard
Total Species		**36**	**40**	

MAMMALS				
Western Ringtail Possum	*Pseudocheirus occidentalis*		X	Seen, dreys located
Common Brushtail Possum	*Trichosurus vulpecula*	X		Skull and scats
* Fox	*Vulpes vulpes*	X	X	Scats, tracks, diggings & seen in ROS.
* European Rabbit	*Oryctolagus cuniculus*	X	X	Scats, tracks, diggings
* Dog	*Canis lupus*		X	Tracks
Total Species		**3**	**4**	
REPTILES				
Fence Skink	*Cryptoblepharus buchananii*		X	Seen
Total Species		**0**	**1**	
AMPHIBIANS				
Motorbike Frog	*Litoria moorei*		X	Heard
Slender Tree Frog	*Litoria adelaidensis*		X	Heard
Clicking Froglet	*Crinia glauerti*		X	Heard
Lea's Froglet	*Geocrinia leai*		X	Heard
Banjo Frog	*Limnodynastes dorsalis*		X	Heard
Total Species		**0**	**5**	

7 APPENDICES

7.1 Appendix 1. Categories used in the assessment of conservation status.

Environment Protection and Biodiversity Conservation (EPBC) Act and the WA Wildlife Conservation Act [categories from IUCN, based on review by Mace and Stuart (1994)].

Extinct	Taxa not definitely located in the wild during the past 50 years.
Extinct in the wild	Taxa known to survive only in captivity.
Critically Endangered	Taxa facing an extremely high risk of extinction in the wild in the immediate future.
Endangered	Taxa facing a very high risk of extinction in the wild in the near future.
Vulnerable	Taxa facing a very high risk of extinction in the wild in the medium-term future.
Near Threatened	Taxa that risk becoming Vulnerable in the wild.
Conservation Dependent	Taxa whose survival depends upon ongoing conservation measures. Without these measures, a conservation dependent taxon would be classed as Vulnerable or more severely threatened.
Data Deficient	Taxa suspected of being Rare, Vulnerable or Endangered, but whose true status cannot be determined without more information.
Least Concern	Taxa that are not Threatened.

WA Department of Conservation and Land Management Priority species
(species not listed under the Conservation Act, but for which there is some concern).

Schedule 1 (S1)	Fauna that is Rare or Likely to Become Extinct
Schedule 2 (S2)	Fauna that is Presumed to be Extinct
Schedule 3 (S3)	Migratory Birds Protected under an International Agreement
Schedule 4 (S4)	Other Specially Protected Fauna
Priority 1.	Taxa with few, poorly known populations on threatened lands.
Priority 2.	Taxa with few, poorly known populations on conservation lands; or taxa with several, poorly known populations not on conservation lands.
Priority 3.	Taxa with several, poorly known populations, some on conservation lands.
Priority 4.	Taxa in need of monitoring.
Priority 5.	Conservation dependent species.