

Woolgoolga to Ballina Pacific Highway upgrade

**Phased Resource Reduction for Koala
Wardell Road – Phase 1**

August 2017



Woolgoolga to Ballina Pacific
Highway Upgrade Phased
Resource Reduction for Koala –
Wardell Road phase 1 report.



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Cover Photo: Adult koala, Munro Wharf Road control site.

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Table of contents

1.	Introduction	1
2.	Study area	1
3.	Methods.....	1
3.1	Limit of clearing survey	1
3.2	Koala population survey transects.....	2
3.2	Tree mark-up	2
3.2.1	Habitat trees	2
3.2.2	Collared trees.....	3
3.2.3	Ring-barked trees	4
3.2.4	Trees with continuous canopy to feed trees	5
3.3	Koala population monitoring.....	5
3.3.1	Koala surveys	5
3.3.2	Scat collection.....	5
4.	Results	6
4.1	Tree mark-up	6
4.1.1	Habitat trees	6
4.1.2	Collared trees.....	6
4.1.3	Ring-barked trees	7
4.1.4	Trees with continuous canopy.....	8
4.2	Koala population monitoring	12
4.2.1	Koala population surveys.....	12
4.2.2	Scat Collection	12
5.	Discussion	15
5.1	Recommendations.....	16
8.	References	16
	Appendix A – Field data	17

List of tables

Table 1: Data summary for trees marked as part of the Phased Resource Reduction Project at Wardell Road. NR = not recorded. RB = ring-barked.	7
Table 2: Type and number of tree species to be collared, Wardell Road. * = introduced species.....	9
Table 3: Koala records obtained during the Phase 1 (baseline) koala surveys at Wardell Road. pr = probable identification; po = possible identification.....	12

List of figures

Figure 1: Distribution of collared trees (DBH >300mm), habitat trees, and feed trees within the Wardell Road site.	10
Figure 2: Distribution of collared trees (DBH >300mm), habitat trees, and feed trees within the Wardell Road site.	11
Figure 3: Distribution of koala records obtained during Phase 1 (baseline) surveys at the Wardell Road.....	13
Figure 1: Distribution of koala records obtained during Phase 1 (baseline) surveys at the Wardell Road.	14

List of plates

Plate 1: Delineation of the Limit of Clearing (LoC) boundary at Wardell Road. A collared tree is shown in the background.....	2
Plate 2: Habitat trees were marked with white paint and red and white tape. The LoC boundary is delineated with orange bunting.	3
Plate 3: Collared trees were marked using orange paint and orange tape. The tree in Plate 3 forms continuous canopy with a koala feed tree and will be collared and ring-barked. The addition of pink tape signify this tree as one that will be collared and ring-barked.	4
Plate 4: Trees that will be ring-barked only were marked with yellow paint rings.	4
Plate 5: Scats being collected at the Tucki Tucki control site.	6
Plate 6: Cluster of large fig trees at Wardell Road. Effective collaring of these trees will be difficult to due to their growth habit.	7

1. Introduction

The Woolgoolga to Ballina (W2B) Pacific Highway Upgrade Koala Management Plan proposed a staged approach to clearing in two koala hotspots in Section 10 of the upgrade. Koala hot-spots are situated at Laws Point and Wardell Road. The staged approach is referred to as ‘phased resource reduction’ (PRR) and involves the gradual reduction of food resources by ring-barking and collaring trees to facilitate the voluntary movement of koalas into adjacent habitat. The PRR method aims to reduce stress-induced impacts associated with clearing activities for the new alignment. The project also involves population surveys to monitor koala numbers throughout the PRR process. Due to logistical issues, the PRR program has been staged with work commencing at Laws Point prior to Wardell Road. Sandpiper Ecological (Sandpiper) has been contracted by Pacific Complete to implement the PRR program.

The program includes five phases:

- Phase 1 (Wks 1-3): Tag and map all trees to be collared/ring-barked and undertake six population surveys.
- Phase 2 (Wks 4-5): Collar 40%, ring-bark 20% of trees with continuous canopy to feed trees, ring-bark non-collared trees (DBH 100-300mm), and conduct two population surveys.
- Phase 3 (Wks 6-7): Collar a further 40% of trees, continue ring-barking non-collared trees (DBH 100-300mm), and conduct two population surveys.
- Phase 4 (Wks 8-10): Collar the remaining 20% of trees, finalise ring-barking, and conduct two population surveys.
- Phase 5 (Wks 11-17): Following clearing of the hotspot site undertake eight population surveys.

The following report details the results of Phase 1 of the PRR program at the Wardell Road hotspot site. Phase 1 at Wardell Road extended from 30 May 2017 to 5 July 2017. Work at the Laws Point koala hotspot commenced in March 2017 and is presently in Phase 4 (Sandpiper Ecological 2017a, b & c). Information gained from Laws Point will be used to improve methods at Wardell Road.

2. Study area

The Wardell Road study site is located approximately three kilometres west north west of the town of Wardell on the New South Wales north coast. Access to the site is via Wardell Road through RMS acquired land, adjoining private properties and Hillside Lane. The study site stretches for 1.3 kilometres and encompasses chainages 152200 to 153500 of the Woolgoolga to Ballina (W2B) Pacific Highway Upgrade. The survey area includes the subject site – section of W2B alignment between the abovementioned chainages, and study area – vegetation adjoining the subject site that contains eight, 1.3 km long koala survey transects.

3. Methods

3.1 Limit of clearing survey

Northern Rivers Land Solutions (NRLS) was subcontracted by Sandpiper Ecological Surveys to delineate the Limit of Clearing (LoC) within the subject site. The LoC boundary was marked with timber stakes positioned at 50m intervals on straight sections and at each change of direction. Each

stake was numbered numerically and labelled with the chainage. Sandpiper staff completed the demarcation of the LoC with the installation of bunting tied to star pickets (Plate 1).



Plate 1: Delineation of the Limit of Clearing (LoC) boundary at Wardell Road. A collared tree is shown in the background.

3.2 Koala population survey transects

Eight 1.3km transects were marked using a handheld GPS to enable staff to follow the pre-determined alignment. Transects were identified in the Koala Management Plan and their location uploaded to ArcGIS and transferred to MotionX or a Garmin GPS62. Pink flagging tape with reflective tape was tied to trees along each transect. The spacing of flagging tape was dependent on vegetation with the key determinant being visibility from one marker to the next. To reduce confusion between transects red and silver reflective tape was alternated between transects and the transect number written on the tape. Start and end points of each transect were marked with two pieces of flagging tape.

3.2 Tree mark-up

3.2.1 Habitat trees

Habitat trees are defined as any living or dead tree containing arboreal or basal hollows, fissures, decorticating bark, nests, dreys and termitaria with hollows. For the purpose of this assessment, only trees with obvious hollows that are likely to be used by scansorial fauna or possums were delineated. Habitat trees were identified by an ecologist and marked with red and white plastic tape and white spray paint (Plate 2). Habitat trees marked as part of early works across the study area were re-assessed against the abovementioned criteria. In some cases, these trees were not re-marked and subsequently contain old habitat tree markings and new collared tree markings. Data collected on habitat trees included date of mark-up, tree species, habitat tree number, coordinates (easting & northings GDA 94), Diameter at Breast Height (DBH), circumference, hollow size (small 10-50mm; medium 51-150mm; large 151-300mm and very large >300mm), number and type (i.e. branch, trunk or spout).



Plate 2: Habitat trees were marked with white paint and red and white tape. The LoC boundary is delineated with orange bunting.

3.2.2 Collared trees

Collared trees included any trees within the LoC that had a DBH equal to, or greater than, 300mm (RMS 2016). Collared trees were also marked in areas of retained vegetation, that is, vegetation within the LoC boundary that has been identified for retention. Collared trees were marked with orange flagging tape and an orange paint ring along with the letter 'C' and tree number spray painted on the trunk (Plate 3). Data collected on each collared tree included date of mark-up, tree species, tree number, coordinates (easting and northing, GDA 94), Diameter at Breast Height (DBH), circumference and the number of co-dominant stems.



Plate 3: Collared trees were marked using orange paint and orange tape. The tree in Plate 3 forms continuous canopy with a koala feed tree and will be collared and ring-barked. The addition of pink tape signify this tree as one that will be collared and ring-barked.

3.2.3 Ring-barked trees

Ring-barked trees had a DBH between 100mm and 300mm (RMS 2016) and were not within 10m of the LoC boundary. Ring-barked trees were marked with yellow spray-paint (Plate 4). No data were collected for ring-barked trees apart from a count of total numbers.



Plate 4: Trees that will be ring-barked only were marked with yellow paint rings.

3.2.4 Trees with continuous canopy to feed trees

The project brief specified that “... a percentage of trees that are identified to aid koala movement through the canopy onto collared food trees will also be ring-barked to induce de-foliation.” The requirement was further defined as “it is proposed that approximately 20% of trees within each hot-spot, that form continuous canopy with neighboring food trees, be ring-barked.” Food trees were those identified in a previous study (see RMS 2016) and included primary feed tree species in Ballina Shire (BSC 2016). At Wardell Road, primary feed trees consisted of tallowwood (*Eucalyptus microcorys*) on high nutrient soils, forest red gum (*E. tereticornis*), and swamp mahogany (*E. robusta*).

Feed trees were recorded during collared and ring-barked tree mark-up, and the number of trees with continuous canopy counted. Based on results at Laws Point, and the fragmented nature of the Wardell Road site it is proposed to amend this component of the program to ring-bark additional feed trees wherever possible (refer Recommendations).

3.3 Koala population monitoring

3.3.1 Koala surveys

Three diurnal, and three nocturnal koala population monitoring surveys were conducted in Phase 1. Nocturnal surveys preceded diurnal surveys, which were conducted on the following day. One team of three people sampled all eight transects within one survey session. The team consisted of one person walking the transect centre line flanked by a person 20m away on each side. Nocturnal surveys were conducted with handheld spotlights (Led Lenser P14) and all personnel were equipped with binoculars for both nocturnal and diurnal surveys. Each 1.3km transect took between 30 and 45 minutes to complete. Surveys were conducted on 30 and 31 May, 5 and 6 June and 3 and 4 July 2017.

Data recorded during each survey included; date, survey number, observer names, start and end time, temperature range, cloud cover, wind, rain and moon phase. Data collected on each koala observed included: date, time, transect number, coordinates (easting & northing GDA 94), tree species including DBH, temperature, weather, sex, breeding status, and health (i.e. signs of conjunctivitis or wet bottom). Each tree with a koala was marked with red and white tape so it could be re-located the following day.

3.3.2 Scat collection

To support a study being undertaken by Roads and Maritime Services and Sydney University on cortisol levels in koalas fresh koala scats were collected at Wardell Road (impact site) and Tucki Tucki (control site) following each diurnal survey. At Wardell Road, each tree containing a koala, or where a koala was recorded the previous night, was revisited and a search conducted for fresh koala scats. Fresh scats were identified by their colour (paler green) and presence of a moist coating. Scats were subsequently collected from the same number, and if possible same sex ratio, of koalas at Tucki Tucki. The Tucki Tucki site was visited on the afternoon following the diurnal koala survey at Wardell Road and trees containing suitable koalas were marked. These trees were revisited the following morning and fresh scats collected. Where possible between five and six scats were collected from each tree and scat collection was conducted during dry weather.

Data collected at each scat collection site included; location (easting & northing GDA 94), tree species, weather (temperature, cloud cover, rainfall), time since last sunny day, tree size, koala behaviour,

koala health, date, and observer. Scats were collected with a toothpick and placed immediately into a Styrofoam block positioned in a plastic container (Plate 5). Scats were then stored in a cool dry location.



Plate 5: Scats being collected at the Tucki Tucki control site.

4. Results

4.1 Tree mark-up

4.1.1 Habitat trees

Only trees containing obvious arboreal hollows, dreys and termitaria with hollows were recorded. Habitat trees had an average DBH of 0.93m and average circumference of 2.92m (Table 1, Appendix 1). All habitat trees had a DBH greater than 300mm and will have a collar installed between 0.7 and 1.3m above ground. Seven habitat trees were recorded across the site. Four along Hillside Lane, two east of Wardell Road (approx. chainage 152800) and one at the south west end of the study area at chainage 152300 (Figure 1). No habitat trees were recorded within the northern half of the study area.

4.1.2 Collared trees

A total of 297 trees were identified and marked for collaring (Table 1; Appendix 1). Of these, 56 had co-dominant trunks, ranging in number from two to seven, and the total number of trunks to be collared at Wardell Road is 398. Average DBH of collared trees was 0.45m and average circumference was 1.43m. The cumulative circumference of collared trees is 550m.

Table 1: Data summary for trees marked as part of the Phased Resource Reduction Project at Wardell Road. NR = not recorded. RB = ring-barked.

Type	Total species	Total trees	Total co-dominant trunks	Total trunks	Average DBH (m)	Average circumference (m)
Habitat tree	3	7	0	7	0.93 (SD 0.32; n7)	2.92 (SD 1.01; n7)
Collared	33	297	57	398	0.452 (SD 0.353; n384)	1.43 (SD 1.12; n384)
Collar & RB	To be confirmed – refer recommendations					
Ring-barked (DBH 100-300mm)	NR	528	NR	528	NR	NR

Thirty-two species of tree were marked for collaring, with the most abundant species being broad-leaved paperbark (91 individuals), swamp oak (39 individuals), forest red gum (33 individuals), mango trees (18 individuals), camphor laurel and hoop pine (12 individuals each), and fig trees (11 individuals) (Table 2). Collared trees occurred throughout the site with exception of cleared open grassed paddocks (Figures 1 & 2). Fig trees pose a challenge for collaring due to their size and growth habit. It is unlikely that collaring large fig trees would be effective as buttresses and irregular trunks means there would be large gaps between the trunk and collars (Plate 6).



Plate 6: Cluster of large fig trees at Wardell Road. Effective collaring of these trees will be difficult to due to their growth habit.

4.1.3 Ring-barked trees

A total of 528 trees with a DBH between 100 and 300mm were marked for ring-barking. The 10m buffer around the LoC boundary and retained vegetation has limited the number of trees identified for ring-barking. The presence of roads, dwellings and powerlines will further reduce the number of trees that can safely be ring-barked.

4.1.4 Trees with continuous canopy

Sixty koala feed trees were recorded within the alignment, including 49 forest red gums, seven swamp mahoganies and four tallowwoods (Figures 1 and 2). Feed trees occur in four clusters:

1. Mostly planted forest red gums, tallowwoods, and swamp mahogany scattered around Hillside Lane.
2. Mature and regenerating forest red gums on the floodplain east of Wardell Road around chainage 152 700.
3. Immature forest red gums and swamp mahogany around former houses east of Wardell Road, around chainage 152 900.
4. Planted forest red gums at the northern end of the Wardell Hotspot, approximate chainage 153 450.

Six feed trees with continuous canopy with other trees were recorded. An additional four feed trees with continuous canopy were excluded as they occurred within 10m of the LoC, or the connecting trees were already identified for ring-barking. Eleven continuous canopy trees were recorded around the six feed trees, with all but one feed tree having only one continuous canopy tree. The feed tree with six continuous canopy trees is situated east of Wardell Road behind the houses that have been demolished. One tree cluster within 10m of the LoC boundary consists of nine feed trees.

Table 2: Type and number of tree species to be collared, Wardell Road. * = introduced species.

Scientific name	Common name	Collared (>300mm)	Habitat tree	Collared and ringbarked
<i>Acacia melanoxylon</i>	Black wattle	2		
<i>Allocasuarina torulosa</i>	Forest oak	1		
<i>Araucaria cunninghamii</i>	Hoop pine	15		
<i>Callistemon salignus</i>	White bottlebrush	2		
<i>Callitris columellaris</i>	Cypress pine	3	1	
<i>Casuarina glauca</i>	Swamp oak	44		
<i>Cinnamomum camphora</i>	Camphor laurel	12		
<i>Corymbia intermedia</i>	Pink bloodwood	5		
<i>Corymbia maculata</i>	Spotted gum	1		
<i>Corymbia citriodora</i>	Lemon-scented gum	1		
<i>Corymbia torelliana</i>	Cadaghi	1		
<i>Cupaniopsis anacardioides</i>	Tuckeroo	4		
<i>Cupaniopsis sp.</i>		1		
<i>Elaeocarpus reticulatus</i>	Blueberry ash	1		
<i>Eucalyptus acmenoides</i>	White mahogany	9	4	
<i>Eucalyptus tereticornis</i>	Forest red gum	34	2	
<i>Eucalyptus siderophloia</i>	Grey ironbark	5		
<i>Eucalyptus robusta</i>	Swamp mahogany	7		
<i>Eucalyptus grandis</i>	Flooded gum	2		
<i>Eucalyptus pilularis</i>	Blackbutt	2		
<i>Eucalyptus microcorys</i>	Tallowwood	4		
<i>Eucalyptus sp.</i>		1		
<i>Ficus sp.</i>	Fig	11		
<i>Ficus macrophylla</i>	Moreton bay fig	1		
<i>Glochidion ferdinandi</i>	Cheese tree	1		
<i>Grevillea robusta</i>	Silky oak	1		
<i>Liquidambar styraciflua</i>	American sweetgum	2		
<i>Livistona australis</i>	Cabbage palm	1		
<i>Lophostemon suaveolens</i>	Swamp box	4		
<i>Mangifera sp.</i>	Mango tree	18		
<i>Melaleuca quinquenervia</i>	Broad-leaved paperbark	91		
<i>Melaleuca sieberi</i>		1		
<i>Pittosporum undulatum</i>	Wavy pittosporum	1		
	Stag	1		
<i>Spathodea campanulata</i>	African tulip	1		
<i>Syzygium sp.</i>	Lilly pilly	1		
<i>Tipuana tipu</i>	Tipuana	1		
Unidentified sp.		1		

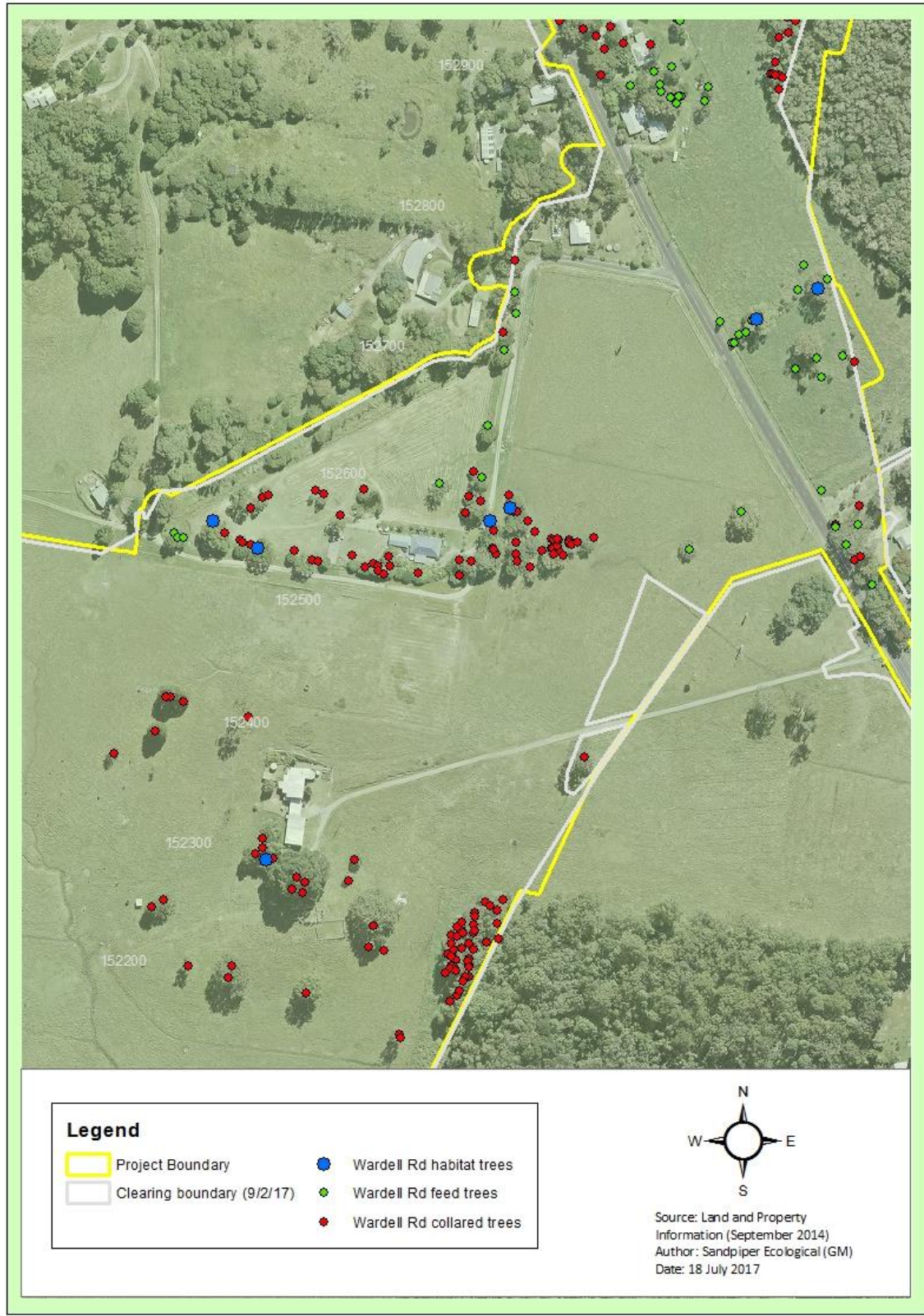


Figure 2: Distribution of collared trees (DBH >300mm), habitat trees, and feed trees within the Wardell Road site.

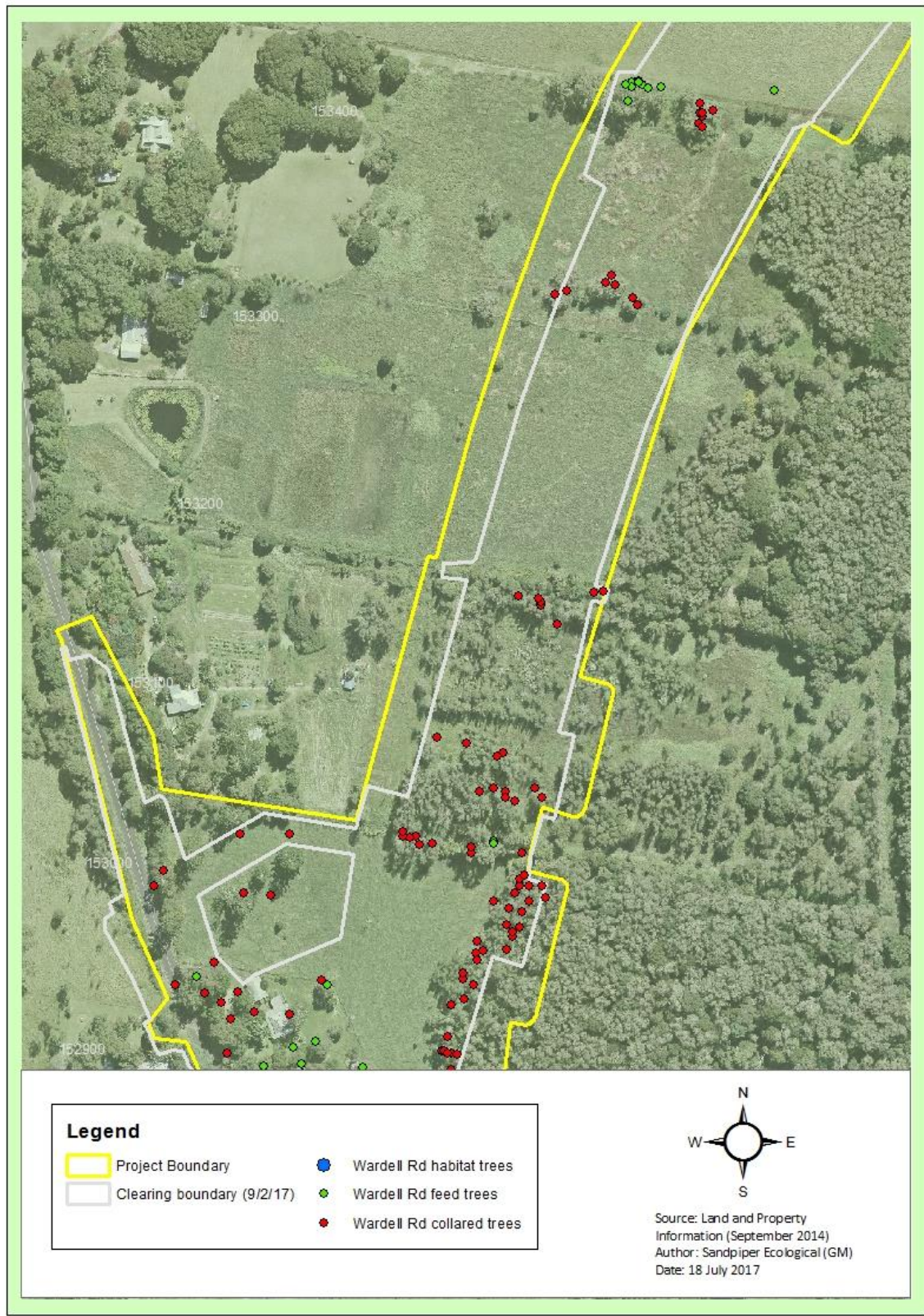


Figure 3: Distribution of collared trees (DBH >300mm), habitat trees, and feed trees within the Wardell Road site.

4.2 Koala population monitoring

4.2.1 Koala population surveys

Six koala records were obtained during the Phase 1 (baseline) population surveys, two during each survey (Table 3; Figure 3). Three records were obtained at night and three during the day. All records were clustered between transect one and two, within the boundary of one private property located on Wardell Road (Lot 2; DP 1199963). The first two records (WK1 & WK2) were recorded during night surveys on 30 May and 5 June respectively. WK1 was considered to be a probable male and WK2 a probable female. The day survey on 6 June recorded two individuals, WK 2.1 and WK 3. Both records are likely to be WK1 and WK2 detected during night surveys one and two. The night survey on 3 July recorded one individual, WK4 a probable male, also likely to be the same individual as WK1. The following day survey on the 4 July also located WK4. All individuals sighted have shown signs of disease with staining and wet fur around the rump. An adult male was recorded opportunistically on the east side of Wardell Road on 25 May 2017 (Figure 3) and re-sighted in the same cluster of trees on 26 May 2017. That male is thought to be the same individual as WK1 (& WK3, 4 & 4.1). No ear tags have been recorded. Weather conditions during koala population surveys are presented in Table A3, Appendix A.

Table 3: Koala records obtained during the Phase 1 (baseline) koala surveys at Wardell Road. pr = probable identification.

Date	Record No.	Time (D/N)	Transect	Tree sp.	Sex	Breeding	Health
30/5/2017	WK1	N	1	Forest red gum	M(pr)	Nil	Dry, stained rump
5/6/2017	WK2	N	1	Forest red gum	F(pr)	Nil	Stained rump
6/6/2017	WK2.1	D	1	Forest red gum	F(pr)	Nil	Wet, stained rump
6/6/2017	WK3	D	1	Forest red gum	M(pr)	Nil	Wet, stained rump
3/7/17	WK4	N	1	Narrow-leaved red gum	M(pr)	Nil	View obscured, rump stained
4/7/17	WK4.1	D	1	Forest red gum	M(pr)	Nil	View obscured, slightly stained rump

4.2.2 Scat Collection

Scats have been collected from eight koalas, four at the impact site and four at the control site. (Table A4, Appendix A). Between three and six scats have been collected for each sample and no rainfall was recorded 24hrs prior to scat collection.

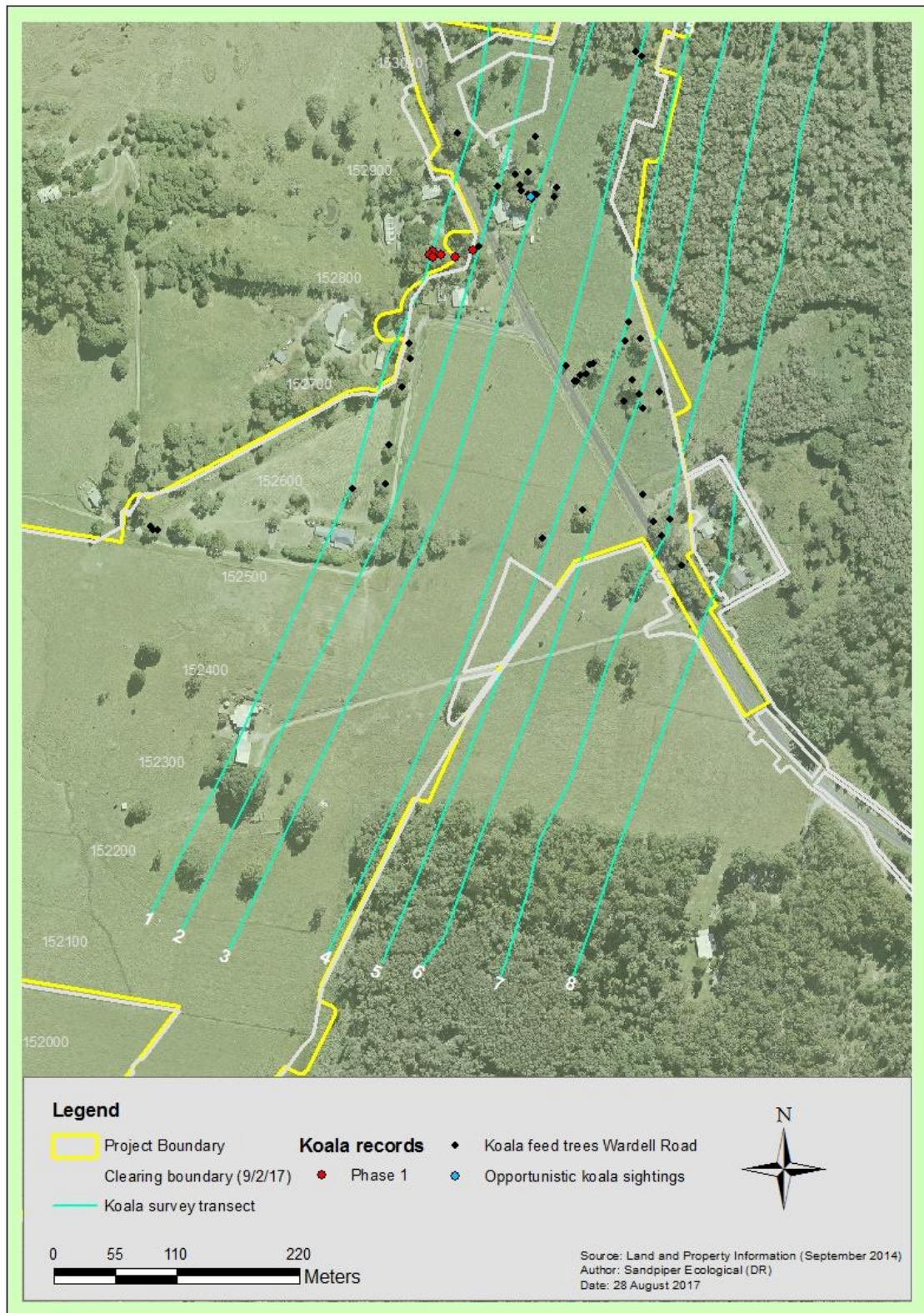


Figure 4: Distribution of koala records obtained during Phase 1 (baseline) surveys at the Wardell Road.

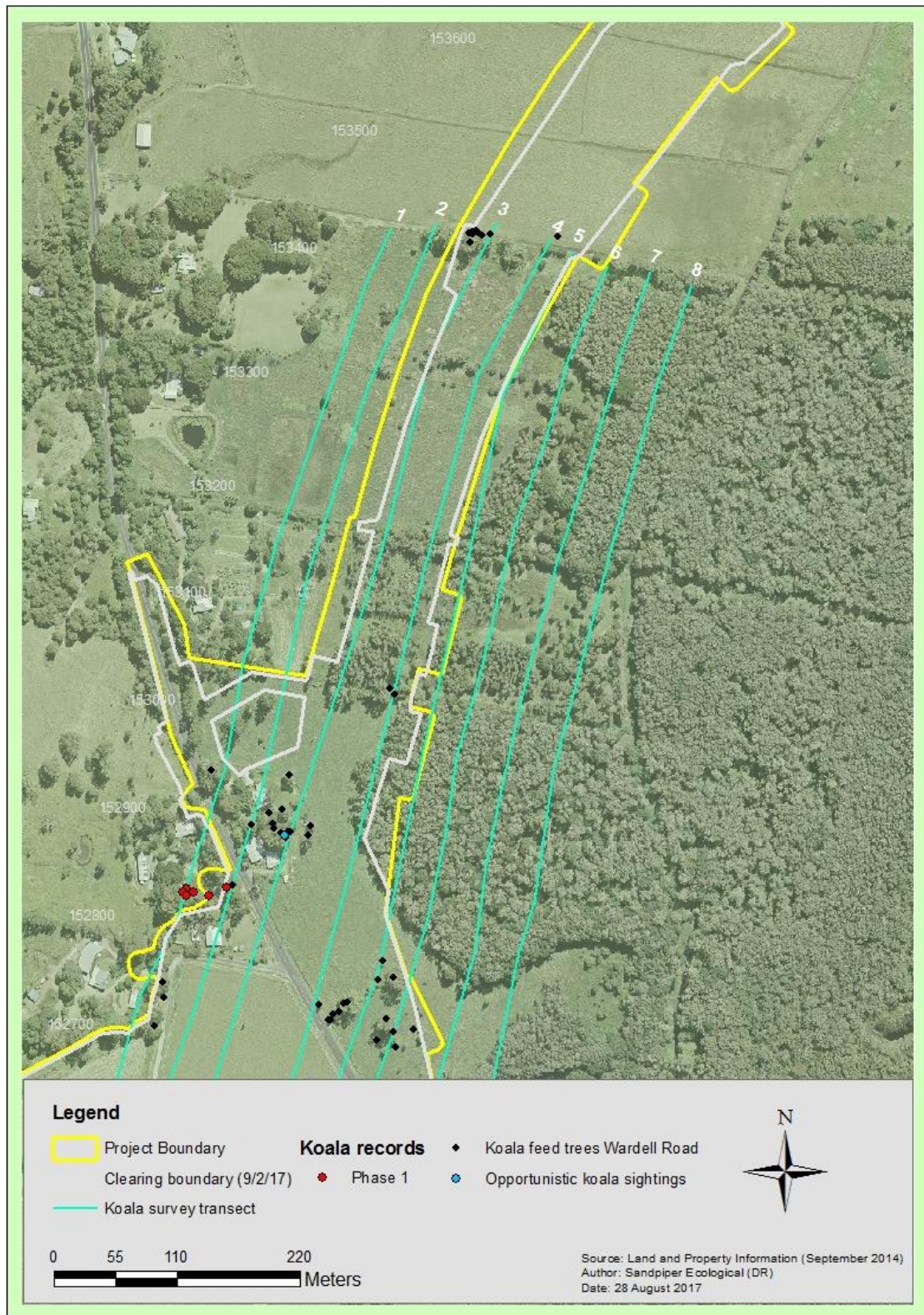


Figure 5: Distribution of koala records obtained during Phase 1 (baseline) surveys at the Wardell Road.

5. Discussion

Six koala records were obtained during the baseline population surveys, with one additional opportunistic record during tree mark-up. Records are most likely attributed to two individuals, one female and one male. Both individuals display obvious signs of cystitis (i.e. wet dripping bottom) and the female also displays evidence of conjunctivitis. All population survey koala records were from the same property located west of Wardell Road near chainage 152850. The opportunistic record was situated east of Wardell Road at approximate chainage 152900. On 7 July 2017, following completion of baseline surveys, a resident reported two koalas around their house on the east side of Wardell Road, at approximate chainage 152600. Two of the seven records confirmed by the project team were situated inside the LoC boundary. These were both attributed to the same individual. Five of the six population survey records and one opportunistic record were of koalas in forest red gum.

On 6 July 2017 an adult female koala was captured whilst exiting the driveway of 1311 Wardell Road. The individual was captured by Geolink ecologists and transferred to the Friends of the Koala (FOK) approved vet in Lismore. The veterinary assessment indicated that the koala had a number of health issues and it was euthanised on 6 July 2017.

Data collected in Phase 1 is insufficient to enable any assessment of koala home range, apart from suggesting that one adult male occupies a home ranges that encompasses habitat on both sides of Wardell Road. In addition to its present healthy status that male is at risk of road strike. Management of road strike risk should be considered when collaring feed trees on the east side of Wardell Road.

Based on findings at Laws Point, the number of feed trees ring-barked should be increased. Preliminary results from Laws Point indicate that ring-barking is an effective means of causing rapid die-back of *Eucalyptus* spp. Ring-barking may be more effective at altering koala behaviour as it simulates severe drought conditions and reduces the potential for koalas to smell fresh foliage on regularly used feed trees. Although koalas will still recognize trees based on scent and their spatial knowledge the absence of fresh foliage may assist in reducing the frequency of visits.

The ability to undertake comprehensive ring-barking at Wardell Road is constrained by the presence of power lines, roads, access tracks, dwellings, and tree height to girth ratio. The Wardell site contains numerous swamp oak (*Casuarina glauca*) that are tall and have a narrow trunk diameter. If ring-barked these trees will be susceptible to falling over and thereby represent a safety risk. Ring-barking of high-risk trees will be discussed with the arborist prior to commencement of Phase 2.

If the baseline data are considered an accurate indication of koala habitat use in early winter then the initial collaring of trees, through the centre of the alignment, would have only minor impact on koalas as most individuals are using resources outside, or near the western edge of the alignment. Movement of koalas into and through the subject site is expected over the course of the PRR program.

Mapping conducted during Phase 1 provides an accurate representation of feed tree distribution. Several errors were noted in the previous feed tree mapping. Mapping only includes feed trees with a DBH > 100mm, and a small number of forest red gum with a DBH < 100mm occur on the east side of Wardell Road.

5.1 Recommendations

1. Phase 2 should commence in the week of 17 July 2017.
2. Ring-barking should follow a similar technique to Laws Point, except tall thin swamp oaks should be assessed on a case-by-case basis. Due to their height and small DBH swamp oaks trees with a DBH<200mm should have the bark only removed. Bark and sapwood should be removed on trees with a DBH 200-300mm if considered safe.
3. Trees identified for ring-barking that have roads, power lines, dwellings, or pedestrian access areas will not be ring-barked.
4. Commencing collaring in the central section of the site in Phase 2 and progressively moving towards the edges in Phases 3 and 4 will improve effectiveness and reduce impacts on koalas. By progressively excluding trees outwards from the centre of the alignment over a period of 4 weeks koalas will have some opportunity to adjust their behaviour. This is preferable to exclusion of all or the majority of feed trees during a single phase.
5. Large fig trees should be collared when feasible, or have temporary exclusion fence installed around their base. Temporary exclusion fence should consist of star pickets, 1.2m high chicken wire and a strip of 600mm wide HDPE, as per tree collars, installed between 0.5 and 1m above ground.
6. Continuous canopy ring-barking at Wardell Road should be modified by focusing on feed trees. As many feed trees as possible should be ring-barked whilst still adhering to the restrictions imposed by distance to LoC boundary, presence of roads, tracks, power lines, and dwellings. This approach is based on the results obtained at Laws Point and aims to reduce the potential lure of retained/fresh foliage to koalas.

8. References

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Sandpiper Ecological (2017c). *Woolgoolga to Ballina Pacific Highway Upgrade Phased Resource Reduction for Koala – phase 3 Laws Point*. Report prepared for Pacific Complete.

Appendix A – Field data

Table A1: Collared trees identified in the Wardell Road study area.

Date	Observer	Tree number	Species	Easting	Northing	DBH (mm)	Circumference (m)	Notes
15.5.17	DR & SR	C1	Forest red gum	542725	6798702	1444	4.54	
15.5.17	DR & SR	C4	Camphor Laurel	542744	6798646	545	1.7	
15.5.17	DR & SR	C5	Forest red gum	542667	6798544	795	2.49	Codominant x 4
15.5.17	DR & SR	C6	Forest red gum	542631	6798518	499	1.57	Codominant x 4
15.5.17	DR & SR	C7	Grey Ironbark	542560	6798376	1100	3.45	
15.5.17	DR & SR	C8	Broad-leaved paperbark	542504	6798279	555	1.74	
15.5.17	DR & SR	C9	Broad-leaved paperbark	542492	6798277	963	3.02	
15.5.17	DR & SR	C10	Broad-leaves paperbark	542485	6798270	561	1.76	
15.5.17	DR & SR	C11	Tuckeroo	542485	6798268	350	0.95	
15.5.17	DR & SR	C12	Broad-leaved paperbark	542500	6798272	314	0.99	
15.5.17	DR & SR	C13	Broad-leaved paperbark	542495	6798275	356	1.12	
15.5.17	DR & SR	C14	Pink bloodwood	542500	6798263	428	1.35	
15.5.17	DR & SR	C15	Broad-leaved paperbark & strangler fig	542501	6798252	495	1.55	
15.5.17	DR & SR	C16	Broad-leaved paperbark	542484	6798262	300	0.94	Codominant x 6
15.5.17	DR & SR	C17	Strangler fig	542484	6798256	480	1.5	
15.5.17	DR & SR	C18	Strangler fig	542485	6798258	290	0.9	
15.5.17	DR & SR	C19	Strangler fig	542485	6798258	449	1.41	
15.5.17	DR & SR	C20	Swamp box	542493	6798250	360	1.12	
15.5.17	DR & SR	C21	Broad-leaves paperbark	542484	6798245	575	1.8	
15.5.17	DR & SR	C22	Broad-leaved paperbark & strangler fig	524480	6798254	480	1.5	Codominant x 2
15.5.17	DR & SR	C23	Broad-leaves paperbark	542469	6798255	560	1.76	
15.5.17	DR & SR	C24	Broad-leaved paperbark	542476	6798258	346	1.09	Codominant x 2
15.5.17	DR & SR	C25	Broad-leaved Paperbark	542473	6798260	310	0.97	
15.5.17	DR & SR	C26	Broad-leaved paperbark	542476	6798264	403	1.26	
15.5.17	DR & SR	C27	Broad-leaved paperbark	542473	6798254	368	1.16	Codominant x 2
15.5.17	DR & SR	C28	Broad-leaves paperbark	542477	6798256	395	1.24	
15.5.17	DR & SR	C29	Broad-leaved paperbark	542481	6798249	369	1.16	
15.5.17	DR & SR	C30	Broad-leaved paperbark	542476	6798246	550	1.73	
15.5.17	DR & SR	C31	Broad-leaves paperbark	542481	6798239	373	1.17	
15.5.17	DR & SR	C32	Broad-leaves paperbark	542481	6798235	374	1.18	
15.5.17	DR & SR	C33	Broad-leaved paperbark	542481	6798234	301	0.95	
15.5.17	DR & SR	C34	Broad-leaved paperbark	542469	6798242	432	1.36	
15.5.17	DR & SR	C35	Broad-leaved paperbark	542469	6798240	352	1.11	
15.5.17	DR & SR	C36	Broad-leaved paperbark	542470	6798245	301	0.94	
15.5.17	DR & SR	C37	Broad-leaved paperbark	542472	6798238	465	1.46	
15.5.17	DR & SR	C38	Broad-leaves paperbark	542466	6798242	501	1.56	
15.5.17	DR & SR	C39	Broad-leaved paperbark	542469	6798249	580	1.82	
15.5.17	DR & SR	C40	Broad-leaved paperbark	542469	6798240	438	1.38	
15.5.17	DR & SR	C41	Broad-leaved paperbark	542480	6798237	313	0.99	
15.5.17	DR & SR	C42	Broad-leaved paperbark	542481	6798233	339	1.07	
15.5.17	DR & SR	C43	Broad-leaves paperbark	542470	6798234	313	0.99	
15.5.17	DR & SR	C44	Broad-leaves paperbark	542469	6798234	325	1.02	

Date	Observer	Tree number	Species	Easting	Northing	DBH (mm)	Circumference (m)	Notes
15.5.17	DR & SR	C45	Broad-leaved paperbark	542468	6798232	350	1.1	
15.5.17	DR & SR	C46	Broad-leaved paperbark	542465	6798229	632	1.98	Codominant x 2
15.5.17	DR & SR	C47	Broad-leaved paperbark	542472	6798231	462	1.45	
15.5.17	DR & SR	C48	Broad-leaves paperbark	542481	6798227	466	1.46	
15.5.17	DR & SR	C49	Broad-leaved paperbark	542478	6798227	445	1.4	Codominant x 2
15.5.17	DR & SR	C50	Ficus spp.	542477	6798223	575	1.8	
15.5.17	DR & SR	C51	Swamp box	542473	6798214	385	1.21	
15.5.17	DR & SR	C52	Swamp box	542474	6798217	322	1.01	
15.5.17	DR & SR	C53	Swamp box	542468	6798210	427	1.35	
15.5.17	DR & SR	C54	Broad-leaved paperbark	542433	6798187	797	2.5	
15.5.17	DR & SR	C55	Broad-leaves paperbark	542434	6798185	627	1.97	
15.5.17	DR & SR	C56	White mahogany	542370	6798215	1411	4.43	
15.5.17	DR & SR	C57	Strangler fig	542360	6798286	1022	3.21	
15.5.17	DR & SR	C58	Strangler fig	542367	6798284	2500	7.85	
15.5.17	DR & SR	C59	Strangler fig	542369	6798291	3700	11.62	
15.5.17	DR & SR	C60	Strangler fig	542363	6798294	3400	10.68	
15.5.17	DR & SR	C61	Sweet pittosporum	542399	6798292	386	1.21	
15.5.17	DR & SR	C62	Stag	542403	6798306	474	1.49	
15.5.17	DR & SR	C63	Strangler fig	542416	6798261	3100	9.74	
15.5.17	DR & SR	C64	Camphor laurel	542423	6798244	540	1.7	
15.5.17	DR & SR	C65	Cheese tree	542412	6798247	443	1.39	
15.5.17	DR & SR	C66	Strangler fig	542317	6798226	1646	5.17	
15.5.17	DR & SR	C67	Tuckeroo	542319	6798234	307	0.97	
15.5.17	DR & SR	C68	Unidentified sp.	542289	6798234	501	1.57	
15.5.17	DR & SR	C69	Camphor Laurel	542264	6798274	384	1.2	
15.5.17	DR & SR	C70	Camphor Laurel	542272	6798279	1012	3.18	
16.5.17	DR & SR	C71	Cypress pine	542347	6798307	818	2.57	
16.5.17	DR & SR	C72	Cypress pine	542340	6798314	435	1.37	
16.5.17	DR & SR	C73	Cypress pine	542335	6798310	550	1.73	Codominant x 2
16.5.17	DR & SR	C74	Mango	542340	6798321	370	1.17	
16.5.17	DR & SR	C75	Grey Ironbark	542330	6798404	714	2.24	
16.5.17	DR & SR	C76	Camphor Laurel	542286	6798414	550	1.73	
16.5.17	DR & SR	C77	Camphor Laurel	542275	6798417	389	1.22	Codominant x 2
16.5.17	DR & SR	C78	Camphor Laurel	542277	6798417	500	1.57	Codominant x 2
16.5.17	DR & SR	C79	Camphor Laurel	542274	6798417	499	1.57	
16.5.17	DR & SR	C80	Camphor Laurel	542267	6798394	515	1.62	Codominant x 4
16.5.17	DR & SR	C81	Tuckeroo	542239	6798379	418	1.31	
25.5.17	DR & ZE	C82	Swamp mahogany	542280	6798529	600	1.88	
25.5.17	DR & ZE	C83	Swamp mahogany	542280	6798529	310	0.86	
25.5.17	DR & ZE	C84	Swamp mahogany	542282	6798526	250	0.77	
25.5.17	DR & ZE	C85	Swamp mahogany	542286	6798526	433	1.34	
25.5.17	DR & ZE	C86	White mahogany	542314	6798529	735	2.31	
25.5.17	DR & ZE	C87	Tuckeroo	542325	6798524	485	1.52	
25.5.17	DR & ZE	C88	Mango	542326	6798523	310	0.97	Codominant x 2
25.5.17	DR & ZE	C89	Mango	542332	6798521	335	1.06	
25.5.17	DR & ZE	C90	Pink bloodwood	542332	6798546	108	3.4	
25.5.17	DR & ZE	C91	Hoop pine	542340	6798553	475	1.5	
25.5.17	DR & ZE	C92	Mango	542344	6798555	430	1.35	

Date	Observer	Tree number	Species	Easting	Northing	DBH (mm)	Circumference (m)	Notes
25.5.17	DR & ZE	C93	Eucalyptus sp.	542362	6798517	355	1.12	
25.5.17	DR & ZE	C94	White Mahogany	542374	6798511	945	2.97	
25.5.17	DR & ZE	C95	White mahogany	542378	6798510	443	1.39	
25.5.17	DR & ZE	C96	Broad-leaved paperbark	542376	6798558	320	1.02	
25.5.17	DR & ZE	C97	Broad-leaved paperbark	542382	6798556	380	1.2	
25.5.17	DR & ZE	C98	African tulip	542409	6798559	380	1.19	
25.5.17	DR & ZE	C99	Blackbutt	542393	6798541	517	1.65	
25.5.17	DR & ZE	C100	Mango	542401	6798514	728	2.29	
25.5.17	DR & ZE	C101	Mango	542410	6798506	400	1.26	Codominant x 2
25.5.17	DR & ZE	C102	Mango	542416	6798508	516	1.62	
25.5.17	DR & ZE	C103	Mango	542419	6798507	477	1.5	
25.5.17	DR & ZE	C104	Mango	542419	6798503	510	1.6	
25.5.17	DR & ZE	C105	Mango	542423	6798501	291	0.92	Codominant x 3
25.5.17	DR & ZE	C106	Mango	542427	6798507	224	0.69	Codominant x 3
25.5.17	DR & ZE	C107	Mango	542426	6798513	222	0.7	Codominant x 5
25.5.17	DR & ZE	C108	Mango	542446	6798502	255	0.8	Codominant x 4
25.5.17	DR & ZE	C109	Mango	542474	6798500	275	0.87	Codominant x 7
25.5.17	DR & ZE	C110	Mango	542474	6798511	387	1.22	Codominant x 2
25.5.17	DR & ZE	C111	Grey Ironbark	542482	6798510	1015	3.18	
25.5.17	DR & ZE	C112	Mango	542478	6798543	440	1.38	
25.5.17	DR & ZE	C113	Mango	542481	6798554	380	1.2	
25.5.17	DR & ZE	C114	Swamp mahogany	542461	6798563	525	1.64	
25.5.17	DR & ZE	C115	Mango	542484	6798571	288	0.9	Codominant x 4
25.5.17	DR & ZE	C116	Tallowwood	542494	6798602	550	1.73	
25.5.17	DR & ZE	C117	Tallowwood	542505	6798654	560	1.76	
25.5.17	DR & ZE	C118	Moreton bay fig	542504	6798666	1258	3.96	
25.5.17	DR & ZE	C119	Tallowwood	542512	6798693	460	1.44	
25.5.17	DR & ZE	C120	Cadagi	542512	6798715	445	1.4	
25.5.17	DR & ZE	C121	Forest red gum	542490	6798567	754	2.36	
25.5.17	DR & ZE	C122	Grey Ironbark	542489	6798551	1010	318	
26.5.17	DR & SR	C123	Grey Ironbark	542497	6798519	788	2.47	
26.5.17	DR & SR	C124	Forest oak	542499	6798515	420	1.32	
26.5.17	DR & SR	C125	White mahogany	542498	6798518	425	1.34	Codominant x 2
26.5.17	DR & SR	C126	White mahogany	542498	6798531	679	2.13	
26.5.17	DR & SR	C127	Camphor Laurel	542508	6798555	305	0.96	Codominant x 3
26.5.17	DR & SR	C128	Cupaniopsis spp.	542511	6798544	399	1.25	
26.5.17	DR & SR	C129	Camphor Laurel	542514	6798544	335	1.06	Codominant x 3
26.5.17	DR & SR	C130	White mahogany	542521	6798537	381	1.2	
26.5.17	DR & SR	C131	Pink bloodwood	542513	6798523	620	1.94	Codominant x 3
26.5.17	DR & SR	C132	White mahogany	542513	6798515	685	2.15	
26.5.17	DR & SR	C133	White mahogany	542514	6798510	634	2	
26.5.17	DR & SR	C134	White bottlebrush	542523	6798506	576	1.81	
26.5.17	DR & SR	C135	Broad-leaved paperbark	542531	6798517	700	2.16	
26.5.17	DR & SR	C136	Broad-leaved paperbark	542537	6798519	420	1.32	
26.5.17	DR & SR	C137	Pink bloodwood	542526	6798530	489	1.54	
26.5.17	DR & SR	C138	broad-leaves paperbark	542537	6798525	392	1.23	
26.5.17	DR & SR	C139	broad-leaved paperbark	542539	6798524	490	1.54	codominant x 2
26.5.17	DR & SR	C140	broad-leaved paperbark	542542	6798524	387	1.22	

Date	Observer	Tree number	Species	Easting	Northing	DBH (mm)	Circumference (m)	Notes
26.5.17	DR & SR	C141	Broad-leaved paperbark	542542	6798517	353	1.11	
26.5.17	DR & SR	C142	Broad-leaved paperbark	542538	6798519	233	0.74	
26.5.17	DR & SR	C143	Broad-leaved paperbark	542538	6798519	243	0.77	
26.5.17	DR & SR	C144	Broad-leaved paperbark	542545	6798514	330	1.04	
26.5.17	DR & SR	C145	Broad-leaved paperbark	542539	6798515	430	1.35	
26.5.17	DR & SR	C146	Broad-leaved paperbark	542541	6798520	310	0.98	
26.5.17	DR & SR	C147	Broad-leaved paperbark	542542	6798524	290	0.92	
26.5.17	DR & SR	C148	Broad-leaved paperbark	542542	679853	238	0.75	
26.5.17	DR & SR	C149	Broad-leaved paperbark	542541	6798525	302	0.95	
26.5.17	DR & SR	C150	Broad-leaved paperbark	542549	6798524	320	1.01	
26.5.17	DR & SR	C151	Broad-leaved paperbark	542549	6798522	435	1.37	
26.5.17	DR & SR	C152	Broad-leaved paperbark	542549	6798523	330	1.04	
26.5.17	DR & SR	C153	Broad-leaved paperbark	542551	6798521	257	0.81	
26.5.17	DR & SR	C154	Broad-leaved paperbark	542555	6798523	484	1.52	
26.5.17	DR & SR	C155	Pink bloodwood	542566	6798526	423	1.33	
27.5.17	DR & ZE	C156	Forest red gum	542756	6798494	285	0.9	Codominant x 3
27.5.17	DR & ZE	C157	Liquid amber	542744	6798511	166	0.54	Codominant x 2
27.5.17	DR & ZE	C158	Liquid amber	542748	6798513	728	2.28	
27.5.17	DR & ZE	C159	Forest red gum	542738	6798521	242	0.76	Codominant x 2
27.5.17	DR & ZE	C160	Forest red gum	542746	6798535	1043	4.5	
27.5.17	DR & ZE	C161	Forest red gum	542731	6798533	245	0.76	
27.5.17	DR & ZE	C162	Blueberry ash	542731	6798535	231	0.73	
27.5.17	DR & ZE	C163	Silky oak	542747	6798548	308	0.97	
27.5.17	DR & ZE	C164	Forest red gum	542652	6798673	208	0.66	Codominant x 2
27.5.17	DR & ZE	C165	Forest red gum	542660	6798659	160	0.51	
27.5.17	DR & ZE	C166	Forest red gum	542662	6798659	136	0.43	
27.5.17	DR & ZE	C167	Forest red gum	542642	6798824	430	1.36	
27.5.17	DR & ZE	C168	Forest red gum	542644	6798833	367	1.16	
27.5.17	DR & ZE	C169	Swamp mahogany	542622	6798822	287	0.91	
27.5.17	DR & ZE	C170	Swamp mahogany	542626	6798827	340	1.07	
27.5.17	DR & ZE	C171	Forest red gum	542612	6798830	795	250	
27.5.17	DR & ZE	C172	Lilly pilly	542619	6798826	485	1.53	
27.5.17	DR & ZE	C173	Forest red gum	542618	6798826	720	2.26	
27.5.17	DR & ZE	C174	Forest red gum	542624	6798827	723	2.27	
27.5.17	DR & ZE	C175	Forest red gum	542611	6798835	408	1.28	
27.5.17	DR & ZE	C176	Forest red gum	542607	6798844	530	1.67	
27.5.17	DR & ZE	C177	Hoop pine	542605	6798862	900	2.82	
27.5.17	DR & ZE	C178	Forest red gum	542619	6798847	560	1.76	
27.5.17	DR & ZE	C179	Forest red gum	542625	6798878	465	1.46	
27.5.17	DR & ZE	C180	Cabbage palm	542622	6798880	315	0.99	
27.5.17	DR & ZE	C181	Broad-leaved paperbark	542692	6798832	290	0.91	Codominant x 2
27.5.17	DR & ZE	C182	Broad-leaved paperbark	542687	6798842	497	1.55	
27.5.17	DR & ZE	C183	Broad-leaved paperbark	542688	6798842	185	0.59	Codominant x 3
27.5.17	DR & ZE	C184	Broad-leaved paperbark	542692	6798841	233	0.7	Codominant x 3
27.5.17	DR & ZE	C185	Swamp oak	542695	6798840	230	0.72	Codominant x 3
27.5.17	DR & ZE	C186	Swamp oak	542690	6798841	394	1.24	
27.5.17	DR & ZE	C187	Swamp oak	542690	6798850	335	1.04	
27.5.17	DR & ZE	C188	Swamp oak	542692	6798867	352	1.1	

Date	Observer	Tree number	Species	Easting	Northing	DBH (mm)	Circumference (m)	Notes
27.5.17	DR & ZE	C189	Swamp oak	542699	6798870	565	1.78	
27.5.17	DR & ZE	C190	Swamp oak	542698	6798881	413	1.3	
27.5.17	DR & ZE	C191	Swamp oak	542704	6798878	510	1.6	
27.5.17	DR & ZE	C192	Broad-leaved paperbark	542698	6798884	390	1.23	
27.5.17	DR & ZE	C193	Broad-leaved paperbark	542705	6798895	340	1.23	Codominant x 3
27.5.17	DR & ZE	C194	Broad-leaved paperbark	542706	6798891	330	1.04	
27.5.17	DR & ZE	C195	Broad-leaved paperbark	542709	6798896	518	1.63	codominant x 2
27.5.17	DR & ZE	C196	Broad-leaved paperbark	542706	6798901	510	1.6	
27.5.17	DR & ZE	C197	Swamp oak	542722	6798897	317	1	
27.5.17	DR & ZE	C198	Broad-leaves paperbark	542725	6798904	330	1.04	
27.5.17	DR & ZE	C199	Swamp oak	542726	6798911	355	1.12	
27.5.17	DR & ZE	C200	Swamp oak	542725	6798906	295	0.93	
27.5.17	DR & ZE	C201	Broad- leaved paperbark	542722	6798910	380	1.2	
27.5.17	DR & ZE	C202	Swamp oak	542723	6798919	372	1.16	
27.5.17	DR & ZE	C203	Swamp oak	542715	6798923	397	1.25	
27.5.17	DR & ZE	C204	Broad-leaved paperbark	542729	6798909	295	0.95	
27.5.17	DR & ZE	C205	Swamp oak	542730	6798917	456	1.44	
27.5.17	DR & ZE	C206	Broad-leaved paperbark	542734	6798923	345	1.08	
27.5.17	DR & ZE	C207	Swamp oak	542726	6798927	340	1.07	
27.5.17	DR & ZE	C208	Swamp oak	542729	6798931	343	1.08	codominant x 3
27.5.17	DR & ZE	C209	Broad-leaved paperbark	542734	6798931	300	0.95	Codominant x 2
27.5.17	DR & ZE	C210	Broad-leaves paperbark	542741	6798931	280	0.87	
27.5.17	DR & ZE	C211	Swamp oak	542743	6798925	323	1.02	
27.5.17	DR & ZE	C212	Broad-leaved Paperbark	542729	6798935	390	1.22	Codominant x 3
27.5.17	DR & ZE	C213	Broad-leaved paperbark	542731	6798937	380	1.2	Codominant x 2
27.5.17	DR & ZE	C214	Broad-leaved paperbark	542730	6798949	250	0.78	Codominant x 5
27.5.17	DR & ZE	C215	Swamp oak	542703	6798949	170	0.54	Codominant x 4
27.5.17	DR & ZE	C216	Hoop pine	542703	6798952	320	1	
27.5.17	DR & ZE	C217	Swamp oak	542682	6798954	299	0.95	
27.5.17	DR & ZE	C218	Swamp oak	542675	6798953	344	1.09	
27.5.17	DR & ZE	C219	Swamp oak	542673	6798958	274	0.86	
27.5.17	DR & ZE	C220	Swamp oak	542673	6798958	375	1.18	
27.5.17	DR & ZE	C221	Swamp oak	542670	6798957	338	1.07	
27.5.17	DR & ZE	C222	Swamp oak	542666	6798958	334	1.05	
27.5.17	DR & ZE	C223	Swamp oak	542666	6798960	300	0.94	
27.5.17	DR & ZE	C224	Swamp oak	542707	6798982	321	0.98	
27.5.17	DR & ZE	C225	Swamp oak	542715	6798984	350	1.1	
27.5.17	DR & ZE	C226	Swamp oak	542721	6798982	300	0.95	
27.5.17	DR & ZE	C227	Swamp oak	542721	6798979	350	1.1	Codominant x 3
27.5.17	DR & ZE	C228	Swamp oak	542726	6798977	350	1.09	
27.5.17	DR & ZE	C229	Forest red gum	542715	6798955	388	1.25	
27.5.17	DR & ZE	C230	Forest red gum	542715	6798954	572	1.8	
27.5.17	DR & ZE	C231	Swamp oak	542741	6798979	414	1.3	
27.5.17	DR & ZE	C232	Swamp oak	542737	6798984	317	1	
27.5.17	DR & ZE	C233	Swamp oak	542720	6799003	297	0.93	Codominant x 2
27.5.17	DR & ZE	C234	Swamp oak	542717	6799001	307	0.96	Codominant x 2
27.5.17	DR & ZE	C235	Swamp oak	542700	6799008	290	0.91	
27.5.17	DR & ZE	C236	Swamp oak	542684	6799011	345	1.1	Codominant x 2

Date	Observer	Tree number	Species	Easting	Northing	DBH (mm)	Circumference (m)	Notes
27.5.17	DR & ZE	C237	Black wattle	542749	6799072	542	1.7	
27.5.17	DR & ZE	C238	Swamp oak	542740	6799083	354	1.11	
27.5.17	DR & ZE	C239	Swamp oak	542740	6799082	355	1.11	
27.5.17	DR & ZE	C240	Swamp oak	542740	6799084	345	1.09	
27.5.17	DR & ZE	C241	Swamp oak	542739	6799086	284	0.89	
27.5.17	DR & ZE	C242	Black wattle	542728	6799087	294	0.92	
27.5.17	DR & ZE	C243	Melaleuca sieberi	542774	6799090	437	1.37	
27.5.17	DR & ZE	C244	Callistemon salignus	542769	6799089	350	1.1	
27.5.17	DR & ZE	C245	Camphor Laurel	542792	6799244	480	1.51	
27.5.17	DR & ZE	C246	Broad-leaved paperbark	542790	6799248	312	0.98	
27.5.17	DR & ZE	C247	Broad-leaved paperbark	542748	6799250	295	0.92	Codominant x 2
27.5.17	DR & ZE	C248	Broad-leaved paperbark	542780	6799255	645	2.03	Codominant x 2
27.5.17	DR & ZE	C249	Broad-leaved paperbark	542778	6799260	978	3.06	
27.5.17	DR & ZE	C250	Broad-leaved paperbark	542775	6799256	770	2.42	
27.5.17	DR & ZE	C251	Broad-leaved paperbark	542754	6799252	1097	3.45	
27.5.17	DR & ZE	C252	Forest red gum	542787	6799354	468	1.47	
27.5.17	DR & ZE	C253	Broad-leaved paperbark	542827	6799346	430	1.35	Codominant x 3
27.5.17	DR & ZE	C254	Broad-leaved paperbark	542826	6799348	400	1.25	Codominant x 2
27.5.17	DR & ZE	C255	Broad-leaved paperbark	542825	6799342	310	0.98	Codominant x 3
27.5.17	DR & ZE	C256	Broad-leaved paperbark	542827	6799348	302	0.95	
27.5.17	DR & ZE	C257	Black wattle	542827	6799340	270	0.85	
27.5.17	DR & ZE	C258	Broad-leaved paperbark	542826	6799353	680	2.14	
27.5.17	DR & ZE	C259	Broad-leaved paperbark	542833	6799349	780	2.46	
27.5.17	DR & ZE	C260	Forest red gum	542866	6799360	454	1.43	
27.5.17	DR & ZE	C261	Forest red gum	542793	6799365	571	1.79	
27.5.17	DR & ZE	C262	Forest red gum	542805	6799362	549	1.73	
27.5.17	DR & ZE	C263	Forest red gum	542795	6799363	333	1.05	
27.5.17	DR & ZE	C264	Forest red gum	542798	6799361	394	1.24	
27.5.17	DR & ZE	C265	Forest red gum	542791	6799364	313	0.98	
27.5.17	DR & ZE	C266	Forest red gum	542789	6799364	327	1.03	
27.5.17	DR & ZE	C267	Forest red gum	542789	6799362	284	0.89	
27.5.17	DR & ZE	C268	Forest red gum	542793	6799364	417	1.31	
27.5.17	DR & ZE	C269	Forest red gum	542786	6799363	193	0.61	
12.7.17	GM & SR	C270	Hoop pine	542537	6798939	725	2.28	
12.7.17	GM & SR	C271	Hoop pine	542532	6798931	982	3.08	
12.7.17	GM & SR	C272	Hoop pine	542578	6798959	922	2.9	
12.7.17	GM & SR	C273	Hoop pine	542580	6798927	1045	3.28	
12.7.17	GM & SR	C274	Hoop pine	542595	6798926	530	1.66	Codominant x2
12.7.17	GM & SR	C275	Hoop pine	542605	6798959	907	2.85	
12.7.17	GM & SR	C276	Blackbutt	542564	6798890	694	2.18	
12.7.17	GM & SR	C277	Broad-leaved paperbark	542543	6798878	382	1.2	Codominant x 3
12.7.17	GM & SR	C278	Tallowwood	542555	6798882	595	1.87	
12.7.17	GM & SR	C279	Hoop pine	542559	6798873	703	2.21	
12.7.17	GM & SR	C280	Hoop pine	542568	6798868	490	1.94	Codominant x 3
12.7.17	GM & SR	C281	Corymbia citriodora	542573	6798859	630	1.98	
12.7.17	GM & SR	C282	Broad-leaved paperbark	542571	6798841	485	1.52	Codominant x 2
12.7.17	GM & SR	C283	Hoop pine	542577	6798874	896	2.81	
12.7.17	GM & SR	C284	Ficus sp.	542586	6798863	327	1.03	Codominant x 4

Date	Observer	Tree number	Species	Easting	Northing	DBH (mm)	Circumference (m)	Notes
19.7.17	BT & ZE	C285	Hoop pine	542588	6798775	530.00	1.65	Codominant x 2
19.7.17	BT & ZE	C286	Hoop pine	542584	6798787	700.00	2.20	
19.7.17	BT & ZE	C287	Hoop Pine	542584	6798787	465.00	1.46	
19.7.17	BT & ZE	C288	Forest red gum	542574	6798780	350.00	1.10	
19.7.17	BT & ZE	C289	Flooded gum	542574	6798780	350.00	1.10	
19.7.17	BT & ZE	C290	Spotted gum	542579	6798785	345.00	1.10	
19.7.17	BT & ZE	C291	Swamp oak	542579	6798785	291.00	0.90	
19.7.17	BT & ZE	C292	Swamp oak	542567	6798789	295.00	0.94	
19.7.17	BT & ZE	C293	Swamp oak	542569	6798819	338.00	1.05	
19.7.17	BT & ZE	C294	Swamp oak	542561	6798817	415.00	1.31	
19.7.17	BT & ZE	C295	Swamp oak	542556	6798819	373.00	1.17	
19.7.17	BT & ZE	C296	Flooded gum	542556	6798819	450.00	1.41	
19.7.17	BT & ZE	C297	Tipuana tipu	542541	6798819	582.00	1.83	

Table A2: Habitat trees identified in the Wardell Road study area. s = small (10-50mm); m = medium (51-150mm); l = large (151-300mm); vl = very large (>300mm).

Tree no.	Tree Species	Easting	Northing	DBH (m)	Circumference (m)	Branch	Trunk	Spout
H1	Cypress pine	542342	6798306	0.66	2.09		1m	
H2	White mahogany	542306	6798537	1.26	3.95	1m, 1s	1l	
H3	White mahogany	542337	6798519	0.79	2.48		1m	
H4	White mahogany	542495	6798537	1.07	3.37	1s, 4m	2s, 2m	
H5	White mahogany	542509	6798546	0.42	1.31	1s	2s	
H6	Forest red gum	542677	6798675	1.00	3.14	1s	1term	
H7	Forest Red Gum	542714	6798662	1.30	4.08	2s, 2m		

Table A3: Weather conditions during Phase 1 koala population surveys at the Wardell Road hotspot. Mlb = moves large branch; Msb = moves small branch.

Date	Survey No.	Observers	Start	End	Temp Range	Cloud %	Wind	Rain	Moon	Comments
30/5/2017	1-N	BT, NP, SR	1730	2056	14-17	10	Nil	Fine	1/4	
31/5/2017	1-D	NP, SR, MJ	1202	1530	16-19	nil	Mlb	Fine	1/4	
5/6/2017	2-N	BT, GM, SR	1722	2059	12-16	15	Msb	Fine	2/4	
6/6/2017	2-D	BT, GM, DR	0927	1308	17-20	10	Msb	Fine	2/4	
3/07/2017	3N	NP, GM, SR	1725	2115	17-19	10-80	MLB	Fine	2/4	Fine, then light shower.
4/07/2017	3D	GM, SR, ZE	945	1330	21-22	0	Nil	Fine	N/A	

Table A4: Koala scat collection location data. HZMT = Hazlemount Lane.

Collection Date	Record No.	Impact/Control	Time	T'sect/Location	Easting	Northing	Tree sp.	Collection Type
31/5/2017	WK1	I		1	542533	6798776	Forest red gum	Off ground
2/6/2017	WC1	C	915	HZMT	531901	6798489	Tallow wood	Off ground
6/6/2017	WK2	I	1325	1	542533	6798776	Forest red gum	Off ground
6/6/2017	WK3	I	1325	1	542569	6798777	Forest red gum	Off ground
6/6/2017	WC2	C	830	HZMT	532008	6799069	Flooded gum	Off ground
6/6/2017	WC3	C	900	HZMT	531891	6798479	Flooded gum	Off ground
4/07/2017	WK4	I	1345	1	542549	6798784	Narrow-leaved red gum	Off ground
5/07/2017	WC4	C	735	HZMT	531904	6798512	Forest red gum	Off ground

Table A5: Koala scat collection weather and health data. HZMT = Hazlemount Lane.

T'sect/Location	DBH	Temp at collection	Weather at collection	Rainfall (collection period)	Sex	Breeding	Health	Comments (activity; ear tag?)
1	600		Fine	Nil	M?	No	Healthy	
HZMT	450	12	Fine	Nil	M	No	Healthy	Large male, healthy
1	600	20.5	Fine	Nil	F?	No	Wet, stained	
1	300	20.5	Fine	Nil	M?	No	Wet, stained	
HZMT	300	12	Fine	Nil	M?	?	Dry	
HZMT	380	14	Fine	Nil	M?	?	Dry	
1	600	24	Fine	Nil	M?	?	Stained	
HZMT	650	9	Fine	Nil	F?	?	Healthy	