Donningtons Gravel Quarry, Chittering

Targeted Black-Cockatoo Survey

Vegetation in the study area

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1. Introduction

B & J Catalano currently operate Donningtons Gravel Quarry on 4884 Great Northern Hwy, Chittering. As part of investigating potential new areas for gravel extraction, a targeted black-cockatoo survey was required across six key areas (Figure 1). On behalf of the B & J Catalano, Lundstrom Environmental Consultants commissioned Western Wildlife to conduct a targeted black-cockatoo survey. The aim of the survey was to search the survey area for habitat that may be used by black-cockatoos for roosting, foraging or breeding.

2. Methods

The proposed extraction area on 4884 Great Northern Hwy, Chittering (the 'survey area') was visited on the 12th, 14th, 18th, 21st and 22nd November 2019 by Ms Jenny Wilcox of Western Wildlife (Figure 1). The vegetated parts of the survey area were walked, and assessed for the potential to support one or both of the following species:

- Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii naso*)
- Carnaby's Black-Cockatoo (*Calyptorhynchus latirostris*)

Baudin's Black-Cockatoo (*Calyptorhynchus baudinii*) is unlikely to occur in the study area, as it is outside of the known distribution of this species according to DSEWPaC (2012). The study area was examined for the presence of vegetation types or plant species known to constitute black-cockatoo foraging habitat and any evidence of foraging such as chewed fruits or flowers.

The diameter at breast height (DBH) was recorded for all Wandoo (*Eucalyptus Wandoo*), Powderbark Wandoo (*Eucalyptus accedens*), Jarrah (*Eucayptus marginata*) and Marri (*Corymbia calophylla*) trees that had a DBH ≥ 50cm (Marri and Jarrah) or a DBH ≥ 30cm (Wandoo or Powderbark Wandoo). These trees are considered to have a high potential to have or develop hollows and support the breeding of black-cockatoos in the long term (DSEWPaC 2012). Trees were also examined from the ground for the presence of existing hollows. Hollows were classified as 'large' if they had some potential to support black-cockatoo breeding and 'small' if considered too small for black-cockatoos, but of potential use for other bird species such as parrots and pardalotes, or by bats or arboreal reptiles. All trees identified were recorded with a GPS location. Any evidence of hollow use (e.g. chewing around the entrance of the hollow) was also recorded, as were the presence of Feral Bees (*Apis mellifera*)

In addition, all other native vertebrate fauna encountered were recorded.

An extract of confirmed and potential cockatoo breeding records held by the Department of Biodiversity, Conservation and Attractions (DBCA) was obtained for the 15km surrounding the survey area, as were any records of black-cockatoo sightings.

2.1 Limitations

The brief site visit allowed for a survey of the potential habitat values of the study area. The purpose of the survey was not to observe cockatoos. Even in areas where cockatoos are present, they are not necessarily present all day or in every season. Although tree hollows were recorded, these were observed from the ground and the depth of the hollow was unknown. The survey was undertaken by personnel experienced in cockatoo habitat surveys and sufficient time was allowed to visit all trees and vegetated areas in the survey area.

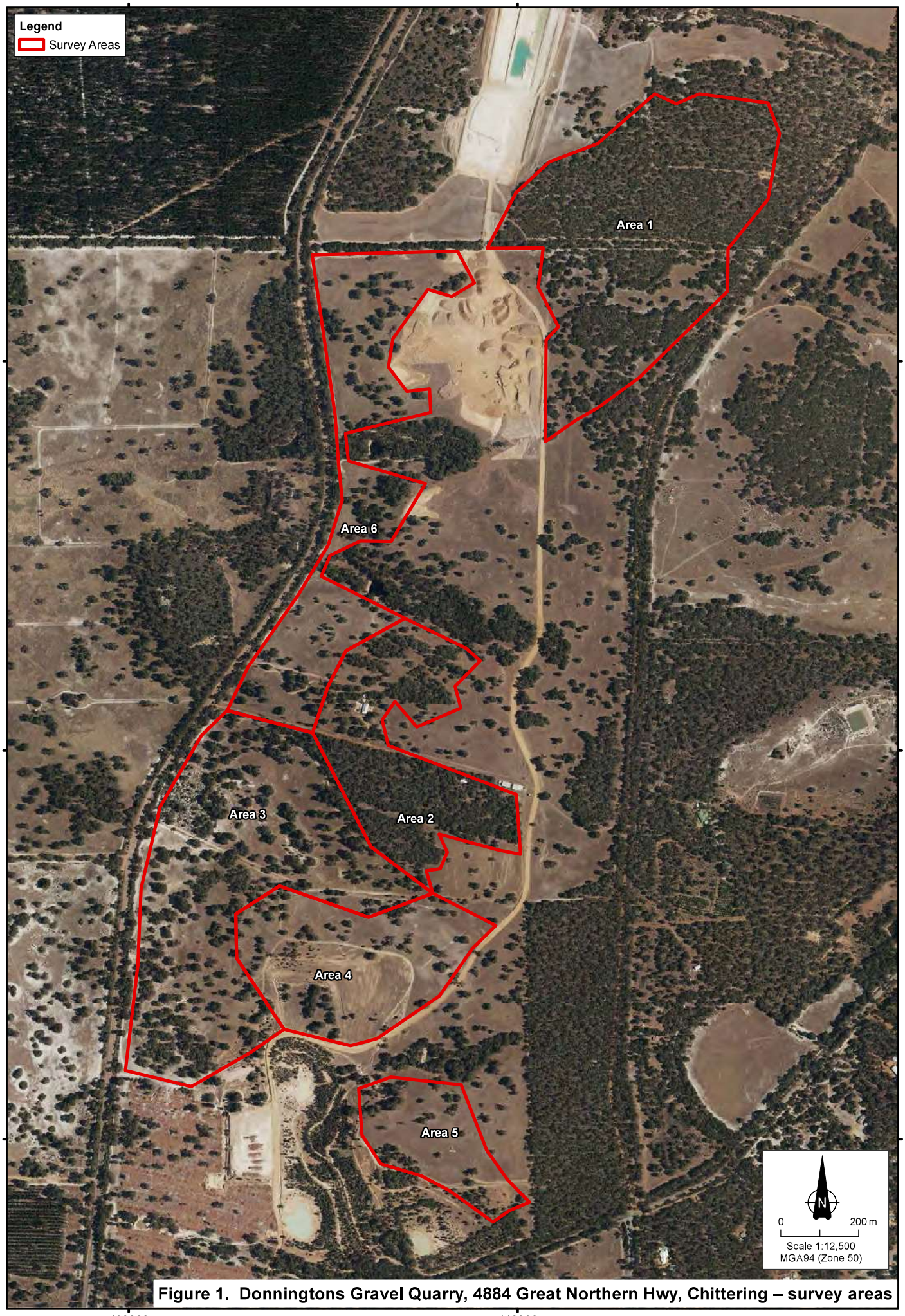

Figure 1. Donningtons Gravel Quarry, 4884 Great Northern Hwy, Chittering – survey areas

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3. Background on black-cockatoo species

3.1 Forest Red-tailed Black-Cockatoo

The Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii naso*) is listed as Vulnerable under the *Western Australian Biodiversity Conservation Act 2016* and as Vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999*.

The Forest Red-tailed Black-Cockatoo is endemic to the southwest of Western Australia. It occurs in Jarrah, Marri and Karri forests between about Gingin to the north, Albany to the south, and east to Mt Helena, North Bannister and Rocky Gully (Johnstone and Storr 1998). This species also ranges irregularly onto the Swan Coastal Plain to feed on the seeds of the introduced Cape Lilac (*Melia azerdarach*). It is patchily distributed through its range (Johnstone and Storr 1998). The population size is estimated to be 15,000 birds (Johnstone and Kirkby 1999, DoEE 2019).

The Forest Red-tailed Black-Cockatoo inhabits the Jarrah, Marri and Karri forests of the southwest, where the annual rainfall is on average 600mm or more. It may also occur in other woodlands, including Tuart, Wandoo and Flooded Gum (*Eucalyptus rudis*). Groups of up to 50 birds roost in trees overnight, dispersing into smaller flocks when ranging out to forage during the day. Roosts may be on roadsides, paddocks or forested areas (Johnstone and Kirkby 1999).

Forest Red-tailed Black Cockatoos feed primarily on the seeds of Marri and Jarrah, but also feed on the seeds of Blackbutt (*Eucalyptus patens*), Forest Sheoak (*Allocasuarina fraseriana*), Snottygobble (*Persoonia longifolia*) and Cape Lilac (Johnstone and Storr 1998).

Unlike Carnaby's Black-Cockatoo, the Forest Red-tailed Black-Cockatoo does not undertake regular seasonal movements. Instead, this species exhibits irregular population fluctuations, perhaps as a response to food availability.

The Forest Red-tailed Black Cockatoo nests in hollows in Karri (*Eucalyptus diversicolor*), Marri, Jarrah, Bullich (*Eucalyptus megacarpa*) and Wandoo (*Eucalyptus wandoo*) (Johnstone and Storr 1998, DSEWPaC 2012). However, they have generally been found to prefer nesting in large (mean DBH of 90cm) Marri trees (Johnstone *et al*. 2013). Eggs are laid in October and November (Johnstone and Storr 1998).

The main threats to the Forest Red-tailed Black-Cockatoo include habitat loss, nest hollow shortage, Feral Honeybees, illegal shooting and fire (DoEE 2019).

3.2 Carnaby's Black-Cockatoo

Carnaby's Black-Cockatoo (*Calyptorhynchus latirostris*) is listed as Endangered under the *Western Australian Biodiversity Conservation Act 2016* and as Endangered under the *Environment Protection and Biodiversity Conservation Act 1999*.

Carnaby's Black-Cockatoo is endemic to the southwest of Western Australia, occurring mostly in the wheatbelt but also on the Swan Coastal Plain and wetter southwest (Johnstone and Storr 1998). The population size is estimated to be 40,000 birds, though it may be >10,000 - 60,000 birds (Garnett *et al*. 2011).

Typically, Carnaby's Black-Cockatoo breeds in the wheatbelt region of Western Australia, nesting in large hollows in smooth-barked eucalypts such as the Salmon Gum (*Eucalyptus salmonophloia)* and Wandoo (*Eucalyptus wandoo*). However, it has started breeding in areas further west and south than its traditional breeding range, including areas in the Darling Range and on the Swan Coastal Plain (Johnstone *et. al*. 2005, Johnstone *et al*. 2011). Breeding has been recorded from areas such as Baldivis, Lake Clifton, Yanchep and near Bunbury, with these nests always in Tuart (*Eucalyptus gomphocephala*)(Johnstone *et al*. 2011). Eggs are laid from early July to mid-October (Johnstone and Storr 1998).

Some of the Carnaby's Black-Cockatoo population is resident (particularly in wetter areas) and some of the population moves west and south towards the coast after breeding (Johnstone and Storr 1998). Between February and September, large flocks of birds aggregate in feeding flocks on the northern Swan Coastal Plain (Johnstone *et al*. 2011). These birds are foraging mainly in heaths, *Banksia* woodlands and pine plantations, and can be in large numbers of up to 7,000 birds (Johnstone e*t al*. 2011). On the southern Swan Coastal Plain flocks are smaller (200 – 1,200 birds) and these birds forage on vegetation over a wide area (Johnstone *et al*. 2011).

Vegetation on the Swan Coastal Plain and adjacent escarpment is an important resource, with 8,000 – 10,000 birds estimated to use the area during the non-breeding season (Burnham *et al*. 2010). Carnaby's Black-Cockatoo forage on the seeds of a range of plant species, but are particularly attracted to proteaceous heaths, *Banksia* and *Eucalyptus* woodlands and pine plantations (Johnstone and Storr 1998). On the Swan Coastal Plain, important food plants include *Banksia attenuata*, *B. menziesii*, *B. grandis*, *B. ilicifolia*, *B. sessilis*, *B. prionotes*, Marri (*Corymbia calophylla*) and Jarrah (*Eucalyptus marginata*) (Shah 2006). In breeding areas it is important to have sufficient foraging resources in close proximity to nest hollows.

Carnaby's Black-Cockatoo generally roosts in tall native or introduced eucalypts or pines in riparian habitats or near permanent water (DSEWPaC 2012, DoEE 2019). Shah (2006) found that of 16 Carnaby's Black-Cockatoo roost sites she identified on the Swan Coastal Plain, all but one were in *Pinus* or *Eucalyptus* species. In 2010, it was similarly found that at 29 roosts for which the tree species were recorded were in *Pinus* or *Eucalyptus* species (Burnham *et al*. 2010).

The main threats to Carnaby's Black-Cockatoos are habitat loss, competition for nesting hollows, habitat degradation and illegal trade in eggs and nestlings (DSEWPaC 2012). Habitat loss is the primary cause of the decline of this species, with much of its wheatbelt habitat cleared or fragmented, and the clearing of heathland around breeding sites has reduced the foraging opportunities for birds raising young (Cale 2003). Within remnant wheatbelt woodlands there is little regeneration of eucalypts and the remaining hollows are deteriorating (Cale 2003). Carnaby's Black-Cockatoo may face competition for remaining hollows from other bird species and feral bees (*Apis mellifera*) (DSEWPaC 2012, Cale 2003).

4. Results and discussion

The study area is within the range of both the Forest Red-tailed Black-Cockatoo and Carnaby's Black-Cockatoo, according to distribution maps published by DSEWPaC (2012). The Forest Red-tailed Black-Cockatoo is at the northern limit of its range in the vicinity of the study area. Several native fauna species were recorded during the site visit, including Carnaby's Black-Cockatoo (Appendix 1).

4.1 Black-cockatoo foraging habitat

The vegetation varies across the site, and includes:

- scattered trees in paddocks
- small stands of trees with little or no native understorey
- small or large patches of remnant forest or woodlands with native understorey.

The canopy consists mainly of Jarrah, Marri, Wandoo and Powderbark Wandoo (Plates 1 – 5). All vegetation has been accessible to livestock, but in the larger areas of vegetation (in Area 1 and Area 2) the impacts are generally restricted to the edges and the native understorey is retained in the centre.

Evidence of cockatoo foraging (chewed Marri and Banksia nuts) was observed during the site visit (Figure 2, Plate 6). In the survey area, important food plants for Carnaby's Black-Cockatoo are the Marri and Banksia, and to a lesser extent, scattered low *Hakea spp.* in the understorey. Important food plants for the Forest Red-tailed Black-Cockatoo are the Jarrah and Marri. Pasture has negligible value as black-cockatoo foraging habitat, however, even single trees within the pasture have value as foraging habitat.

The relative value of each survey area for foraging black-cockatoos is given in Table 1. The higher value areas are generally those with a greater proportion of Marri, as this is the most common food plant present.

Table 1. Foraging habitat in each survey area.

Survey Area (see Figure 1)	Area (ha)	Value as foraging habitat
1	35.8	**High** – the southern part of th s area s park and c eared, but s of h gh va ue as t conta ns a arge proport on of Marr .
2	17.9	**High** – th s area s part y park and c eared, but nc udes a arge proport on of Marr trees.
3	36.6	**High** – th s area s park and c eared but nc udes a arge proport on of Marr trees and a sma stand of *Banksia attenuata*.
4	17.7	**Low** – th s area conta ns few trees overa , and more of the trees are Wandoo rather than Marr .
5	8.5	**Low** - th s area s most y pasture w th few trees present. Most of the trees are Wandoo rather than Marr .
6	23.4	**Moderate** – th s area s most y pasture and more of the trees are Wandoo rather than Marr .


Plate 1. Pasture with scattered trees.


Plate 2. Small stands of trees with little or no native understorey.


Plate 3. Wandoo woodland with a sparse native understorey.

Plate 4. Jarrah / Marri forest with a native understorey.

Plate 5. Regrowth forest with windrows of historically cleared trees.

Plate 6. Cockatoo foraging signs on *Banksia* (left) and Marri (right).

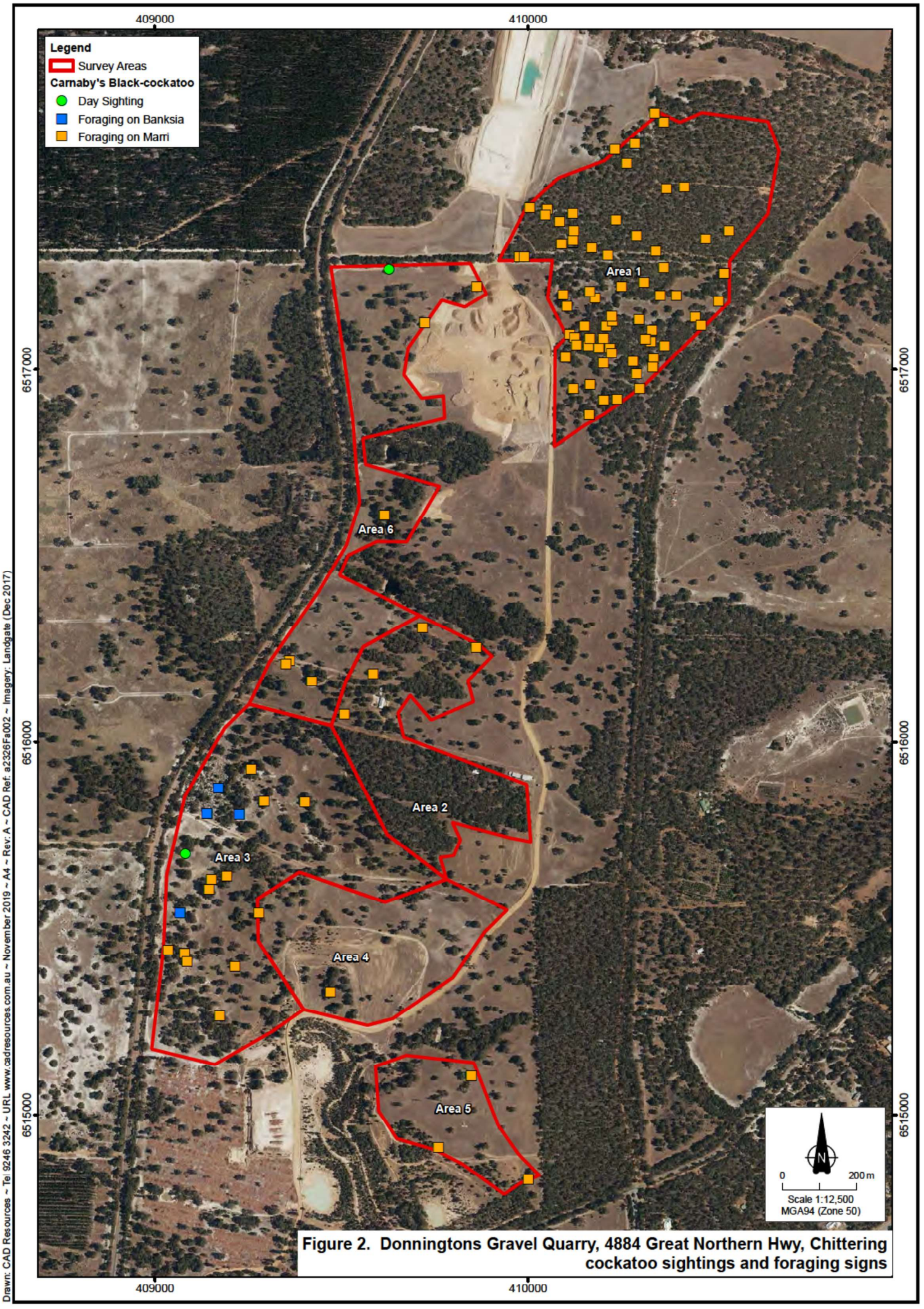


Figure 2. Donningtons Gravel Quarry, 4884 Great Northern Hwy, Chittering cockatoo sightings and foraging signs

4.2 Black-cockatoo roosting habitat

Black-cockatoos are known to roost in pines and tall eucalypts, often near riparian environments (DSEWPaC 2014, Shah 2006, Burnham *et al*. 2010). The survey area includes tall eucalypts, and is adjacent to several farm dams.

Although no evidence of roosting by black-cockatoos (e.g. feathers, scats) was recorded during the site visit, Carnaby's Black-Cockatoo is a seasonal migrant and is not present in an area year-round. Birds may roost nearby when foraging in the area, then move on. If Carnaby's Black-Cockatoos roost in the study area, the most likely locations are in taller trees near the farm dams, which are outside but adjacent to the survey area. The Forest Red-tailed Black-Cockatoo may roost in eucalypts on the edges of the pasture, for which there are many potentially suitable locations, but this species is unlikely to be common in the area.

It is unlikely that the survey area is of particular significance for roosting black-cockatoos, through birds may roost there on occasion.

4.3 Black-cockatoo breeding habitat

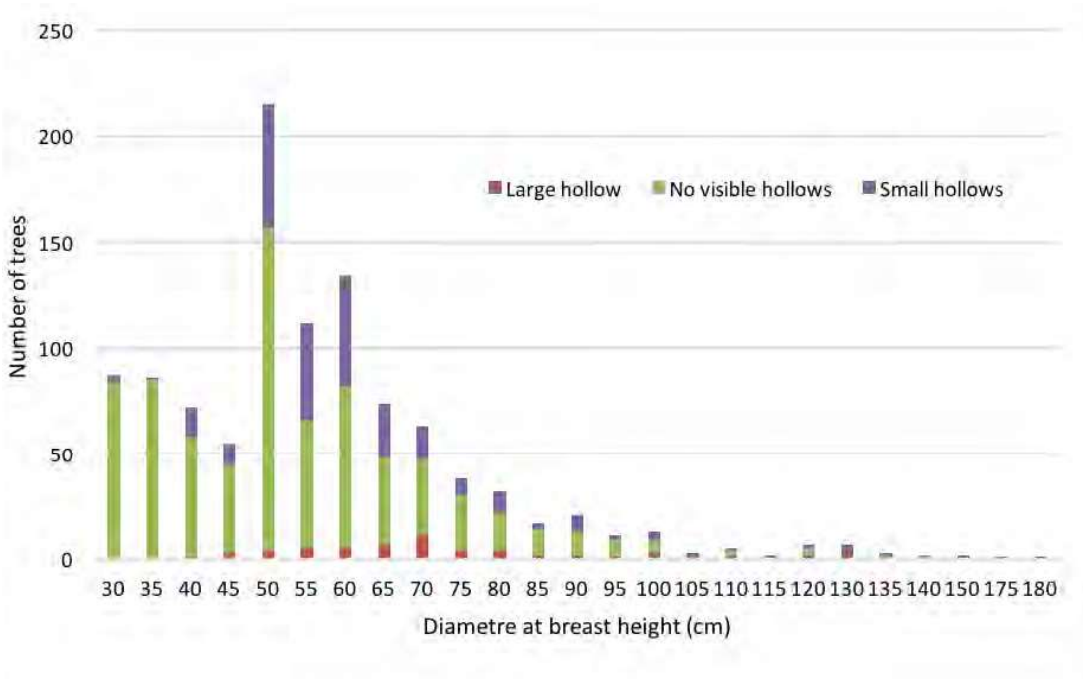
The survey area is within the known or predicted breeding range of Carnaby's Black-Cockatoo (DSEWPaC 2012). In the study area, Carnaby's Black-cockatoo may potentially use Wandoo, Powderbark Wandoo, Jarrah or Marri trees for breeding. Though they favour smooth-barked eucalypts such as Wandoo, they may potentially use any suitably-sized hollow (Johnstone and Storr 1998, DSEWPaC 2012). The Forest Red-tailed Black-Cockatoo favours hollows in large, old Marri trees, but may also use Jarrah on occasion (Johnstone and Storr 1998). However, as the Forest Red-tailed Black-Cockatoo is on the northern edge of its range in the area, it is unlikely to breed in the survey area.

A total of 1,063 trees were identified that demonstrated a DBH ≥ 50cm (in Jarrah or Marri) or DBH ≥ 30cm (Wandoo) (Table 2, Figure 3, Plate 7). Of these, 40 were outside (but adjacent to) the survey area, leaving 1,023 identified within the survey areas. The majority of trees recorded were Wandoo (496 trees), followed by Marri (295 trees) and Jarrah (272 trees).

Sixty-three of these trees, (25 Jarrah, 20 Wandoo and 18 Marri), appeared to have at least one large existing hollow potentially suitable for black-cockatoos, although four of these were rendered unsuitable by feral bees (Table 2, Figure 3). There were potential small hollows present in 274 of the trees and the remaining 726 trees had no visible hollows. The majority of the trees measured had a DBH of less than 60cm (Graph 1), but 46 trees were measured with a DBH ≥ 100cm (Figures 3). Some of the stands of trees contained no large trees (Figure 3), instead dominated by younger trees. Many of the trees also branch low on the trunk, so while the DBH may be sufficiently large, the width of the upper branches is much smaller, requiring a long time for large hollows to form.

It should be noted that 'potential' hollows may not be very deep, or actually suitable for use by black-cockatoos, though this is not possible to ascertain from the ground. Conversely, some hollows are not visible from the ground, hence the approach of recording tree DBH.

The survey area is potential breeding habitat for Carnaby's Black-Cockatoo, and three hollows with possible evidence of breeding (chewing around the hollow) was noted on three hollows, one each in Areas 1, 2 and 6. Carnaby's Black-Cockatoo is known to breed within 15km of the survey area (Figure 4). The Forest Red-tailed Black-Cockatoo is less likely to nest in the area as its core range is further south.



Graph 1. Habitat trees in the survey area.

Plate 7. Examples of hollow-bearing trees in the survey area.

Table 2. Habitat trees recorded in each survey area.

Survey Area	Tree Species	Large Hollow	No Visible Hollows	Small Hollows	Total
1	Jarrah	12	31	49	92
	Marr	7	48	11	66
	Wandoo	4	28	6	38
	Total:	**23**	**107**	**66**	**196**
2	Jarrah	8	42	37	87
	Marr	7	31	17	55
	Wandoo	4	41	4	49
	Total:	**19**	**114**	**58**	**191**
3	Jarrah	4	41	16	61
	Marr	2	104	9	115
	Wandoo	4	93	46	143
	Total:	**10**	**238**	**71**	**319**
4	Jarrah		3	1	**4**
	Marr	2	22	2	**24**
	Wandoo		66	17	**85**
	Total:	**2**	**91**	**20**	**113**
5	Jarrah		4		4
	Marr		4	1	5
	Wandoo		23	8	31
	Total:	**0**	**31**	**9**	**40**
6	Jarrah	1	10	2	13
	Marr	2	13	3	18
	Wandoo	6	97	30	133
	Total:	**9**	**120**	**35**	**164**
Outside	Jarrah		5	6	11
	Marr		10	2	12
	Wandoo		10	7	17
	Total:	**0**	**25**	**15**	**40**
	Tota :	**63**	**726**	**274**	**1063**

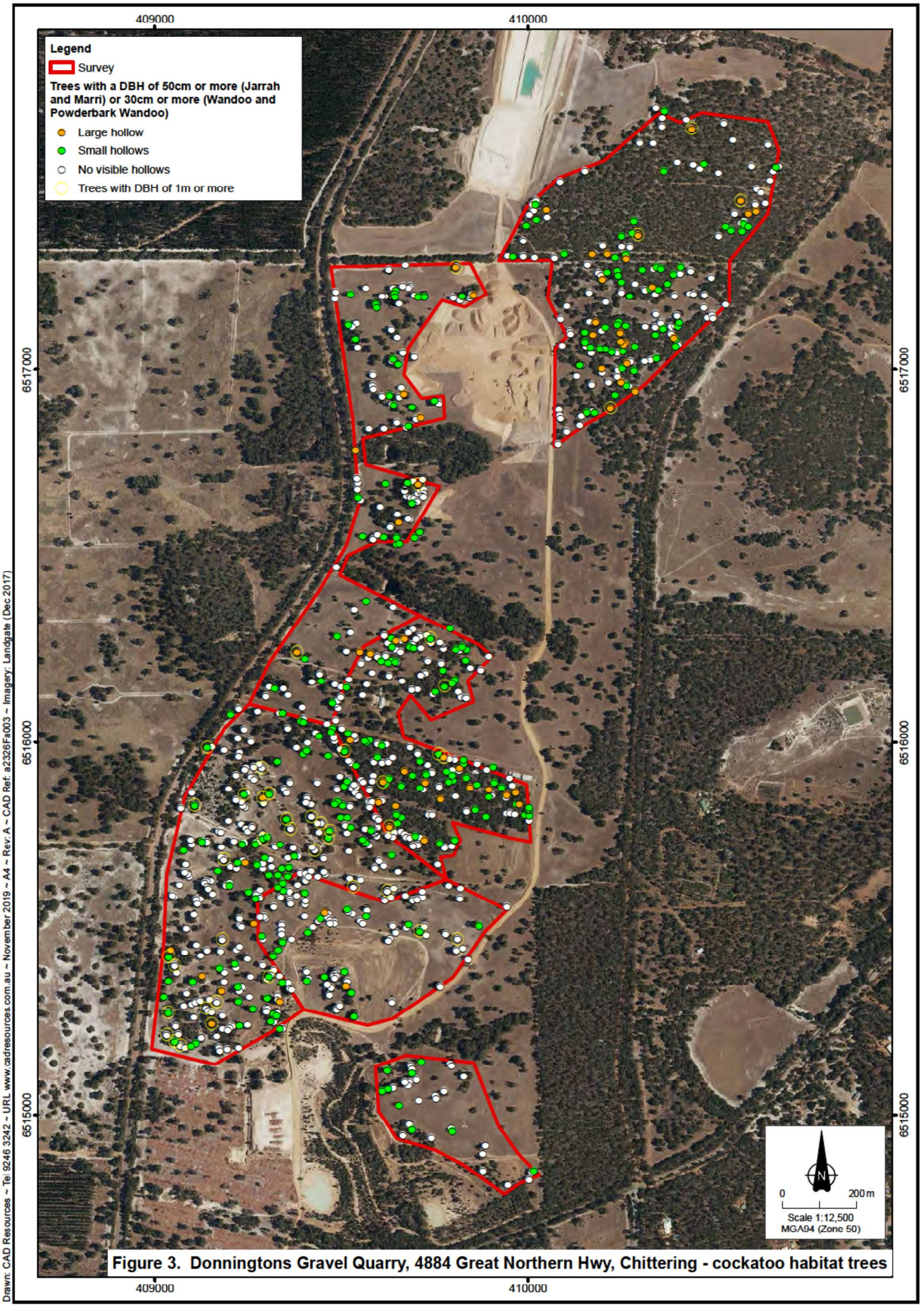


Figure 3. Donningtons Gravel Quarry, 4884 Great Northern Hwy, Chittering - cockatoo habitat trees

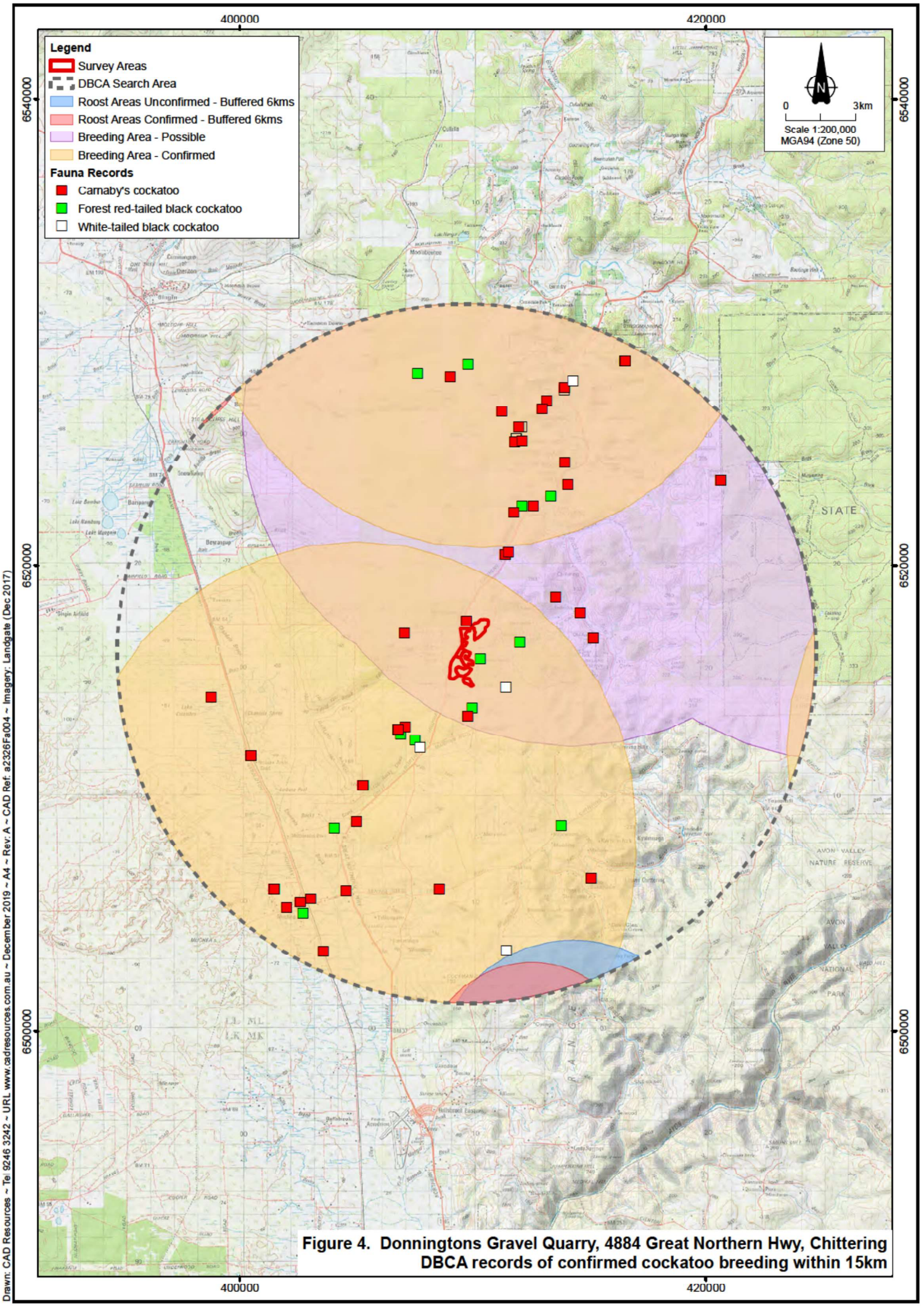


Figure 4. Donningtons Gravel Quarry, 4884 Great Northern Hwy, Chittering
DBCA records of confirmed cockatoo breeding within 15km

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5. Summary and Conclusions

Carnaby's Black-Cockatoo was recorded in the survey area. The Forest Red-tailed Black-Cockatoo potentially occurs in the survey area, and although it is on the edge of its range in the area, there are nearby records of the species (Figure 4).

Evidence of foraging by Carnaby's Black-Cockatoo was recorded in the survey area. Areas of Jarrah, Marri and Banksia are foraging habitat for black-cockatoos. Areas 1, 2 and 3 are high value foraging habitat, mainly due to the presence of Marri, an important food plant. As the survey area is within 12km of known breeding sites of Carnaby's Black-Cockatoo, the foraging habitat is likely to be important for supporting breeding birds.

Although no definitive evidence of roosting was recorded, when present in the area, Carnaby's Black-Cockatoos may roost adjacent to the survey area, in the taller trees around dams. The Forest Red-tailed Black-Cockatoo may roost in larger trees along the edge of the pasture.

The survey area is potential breeding habitat for Carnaby's Black-Cockatoo, as it contains tree species of suitable species and size within the known breeding range of this species. Possible evidence of nesting (chewed hollows) was noted during the site visit and 63 potential nesting hollows appeared to be present. The Forest Red-tailed Black-Cockatoo is unlikely to breed in the area, as the study area is on the edge of its range.

6. References

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Appendix 1. Opportunistic records of fauna and cockatoo foraging in the study area.

Zone	Easting	Northing	Taxon Name	Common Name	Status	ObsType
50	409580	6516200	*Tiliqua rugosa*	Bobta		Day s ght ng
50	409580	6516200	*Cryptoblepharus buchannanii*	Fence Sk nk		Day s ght ng
50	409580	6516200	*Smicrornis brevirostris*	Weeb		Day s ght ng
50	409580	6516200	*Rhipidura albiscapa*	Grey Fanta		Day s ght ng
50	409580	6516200	*Cracticus tibicen*	Austra an Magp e		Day s ght ng
50	409580	6516200	*Platycercus zonarius*	Austra an R ngneck		Day s ght ng
50	409580	6516200	*Platycercus spurius*	Red-capped Parrot		Day s ght ng
50	409081	6515699	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Day s ght ng
50	409580	6516200	*Corvus coronoides*	Austra an Raven		Day s ght ng
50	409580	6516200	*Petroica boodang*	Scar et Rob n		Day s ght ng
50	409580	6516200	*Daphoenositta chrysoptera*	Var ed S tte a		Day s ght ng
50	409580	6516200	*Gerygone fusca*	Western Gerygone		Day s ght ng
50	409580	6516200	*Acanthiza chrysorrhoea*	Ye ow-rumped Thornb		Day s ght ng
50	409580	6516200	*Petrochelidon nigricans*	Tree Mart n		Day s ght ng
50	409580	6516200	*Pachycephala rufiventris*	Rufous Wh st er		Day s ght ng
50	409580	6516200	*Lichmera indistincta*	Brown Honeyeater		Day s ght ng
50	409580	6516200	*Phylidonyris novaehollandiae*	New Ho and Honeyeater		Day s ght ng
50	409580	6516200	*Tachyglossus aculeata*	Ech dna		D gg ng
50	409580	6516200	*Macropus fuliginosus*	Western Grey Kangaroo		Day s ght ng
50	409580	6516200	*Dicaeum hirundinaceum*	M st etoeb rd		Day s ght ng
50	409580	6516200	*Turnix varius*	Pa nted Button-qua		Day s ght ng
50	409580	6516200	*Phaps chalcoptera*	Common Bronzew ng		Day s ght ng
50	409580	6516200	*Menetia greyii*	Dwarf Sk nk		Day s ght ng
50	409580	6516200	*Coracina novaehollandiae*	B ack-faced Cuckoo-shr ke		Day s ght ng
50	409580	6516200	*Acanthiza inornata*	Western Thornb		Day s ght ng
50	409580	6516200	*Zosterops lateralis*	S vereye		Day s ght ng
50	409580	6516200	*Cacatua roseicapilla*	Ga ah		Day s ght ng
50	409580	6516200	*Cracticus torquatus*	Grey Butcherb rd		Day s ght ng
50	409580	6516200	*Dacelo novaeguineae*	Laugh ng Kookaburra		Day s ght ng
50	409580	6516200	*Malurus splendens*	Sp end d Fa ry-wren		Day s ght ng
50	409580	6516200	*Pardalotus striatus*	Str ated Parda ote		Day s ght ng
50	409580	6516200	*Colluricinca harmonica*	Grey Shr ke-thrush		Day s ght ng
50	409580	6516200	*Pogona minor*	Bearded Dragon		Day s ght ng
50	409067	6515543	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	409226	6515805	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	409170	6515877	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	409139	6515809	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410291	6517359	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410371	6517484	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410264	6517552	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410202	6517018	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn

Zone	Easting	Northing	Taxon Name	Common Name	Status	ObsType
50	410234	6517590	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410102	6517182	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410221	6517057	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410120	6517418	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410189	6517057	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410123	6517372	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410162	6517063	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410121	6517339	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410165	6517082	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410091	6517338	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410152	6517116	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410085	6517396	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410210	6517117	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410052	6517431	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410226	6517129	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410046	6517413	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410224	6517142	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410004	6517435	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410180	6517192	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410419	6517490	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	409977	6517302	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410165	6517209	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	409990	6517301	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410105	6517169	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410251	6517223	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410214	6517306	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410364	6517273	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410365	6517662	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410355	6517199	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410312	6517232	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410398	6517199	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410298	6517135	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410333	6517105	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410449	6517142	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410464	6517118	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410477	6517351	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410337	6517027	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410335	6517005	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410113	6517095	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410367	6517064	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410330	6517074	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410314	6517082	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410202	6517084	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn

Zone	Easting	Northing	Taxon Name	Common Name	Status	ObsType
50	410225	6517043	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410282	6517021	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410291	6516988	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410300	6516949	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410540	6517373	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410239	6516920	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410204	6516917	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410526	6517256	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410512	6517182	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410094	6517200	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410125	6517087	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410344	6517317	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410130	6517066	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410340	6517687	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410101	6517032	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410287	6517605	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410122	6516950	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410237	6517400	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410164	6516878	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410170	6517327	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410166	6516960	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410121	6517344	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	409173	6515266	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	409079	6515434	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	409085	6515412	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	409034	6515442	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	409151	6515632	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	409614	6516610	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	409144	6515606	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	409192	6515640	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	409862	6517222	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	409847	6515104	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	409722	6517126	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	409278	6515541	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	410002	6514827	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	409717	6516307	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	409214	6515397	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	409862	6516253	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	409258	6515926	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	409361	6516217	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	409402	6515840	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	409585	6516183	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	409292	6515841	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn

Zone	Easting	Northing	Taxon Name	Common Name	Status	ObsType
50	409507	6516075	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	409760	6514914	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	409420	6516164	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	409351	6516211	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	409470	6515329	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Forag ng s gn
50	409628	6517268	*Calyptorhynchus latirostris*	Carnaby s B ack-cockatoo	Vu	Day s ght ng