Koala Population Survey Program 2023

Koala Monitoring Program, Yarrabilba PDA

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Cover Photograph – Cleanskin adult Koala - Heath Agnew, Austecology

1. Introduction

A *Koala Monitoring Program*[1] has been developed collaboratively between Austecology, University of Queensland's Koala Ecology Group, and Professor Frank Carrick to ensure a robust, scientific, research program to comply with Condition 1b of the EPBC 2013/6791 Approval. The aims of the *Koala Monitoring Program* cover detailed investigations into the ecology, health, and population characteristics of koalas on the site.

In summary, the *Koala Monitoring Program* (KMP) comprises a field program extending over a 5-year period – September 2017 to July 2023, and includes the implementation of three field investigation streams, being:

1. The capture of koalas for the purpose of health assessments and to tag and / or attach monitoring collars in order to assess home range, dispersal into and out of the site, and habitat use. This work includes laboratory analyses of swabs taken from captured koalas in order assess koala health, and genetic diversity of koalas on the site.
2. A monthly program of fieldwork to radio-track koalas in order to visually assess koala condition and collect information on tree species usage.
3. Bi-annual systematic surveys across the site to investigate koala abundance and distribution.

This report presents the results of the 2023 bi-annual systematic survey across the site.

2. Field Methodology

2.1. Approach

The primary aim of these field events was to provide a systematic survey across the site in order to collect data on koala presence and distribution.

Consistent with the KMP, the full extent of the Fauna Corridor and EPBCA Offset Areas were systematically surveyed, i.e., the priority survey footprint. Areas of green space adjoining these and the "inholding" of Wal's Block were also included as part of the priority survey footprint. Other separate areas of greenspace were surveyed to augment work within the priority survey footprint, as time permitted.

As the program closure was July 2023, only the survey undertaken was that which coincided with the late-summer 'survey window' and was consistent with previous KMP timing.

The following provides a summary of the work undertaken as part of the event. Survey protocols implemented are regarded as consistent with best practice guidelines and methods used within the region, e.g., DoE 2014, Dique *et al* 2004, QEPA 2006, and DERM 2012.

The on-ground survey protocol provided a systematic and comprehensive search using observers working in unison, to move through habitat, following line transects and methodically searching all trees either side of the nominal centre line of their own transect for koala presence. Visual searches for koalas were augmented by visual scans for koala faecal pellets and diagnostic tree scratching (see **Figure 2-1**).

[1] Austecology (2017). Koala Monitoring Program Yarrabilba UDA. Report prepared by Lindsay Agnew (Austecology) and Bill Ellis (University of Queensland's Koala Ecology Group).

Surveyors were spaced approximately 30m to 50m apart either side of the nominal centre line of their own transect in order to minimize the potential for double counting from adjacent transects. Spacing between transects is agreed upon depending on the complexity or otherwise of the understorey and tree canopy (ease of visibility and suitable sight-lines). One observer used a GPS device to maintain the designated transect direction, and to ensure suitable positioning / separation when undertaking a return transect in the opposite direction (parallel to the previous transect).

Observers regularly referenced their position (via visual and / or vocal cues) with other observers throughout the progression of each transect to maintain correct alignment of the survey transect. Observers cross-checked any koala observation with the relevant adjacent team member to confirm that the observation did not represent a double count.

For any koala observation, the following was undertaken as a minimum: an assessment of the koala's condition, age and gender; GPS location recorded; and identification of the tree species and DBH in which the koala was observed.

All personnel implementing the work were highly experienced in undertaking koala surveys. The average of the total survey team transect coverage for the each of the events was in excess of 170 kilometers of foot survey transects (as gauged by GPS tracks).

2.2. Timing and Personnel

The koala survey was implemented throughout the period 13 to 18 February inclusive. The survey event provided 12 survey person days. The study team comprised Heath Agnew, Ed Meyer and Lindsay Agnew.

2.3. General

There were no site access constraints which were considered to have any material impact to the success of either survey. Preceding rainfall necessitated some changes to the usual approach within the section of the 'Fauna Corridor' to the north of the power easement, though coverage reflected that of previous surveys.

Heavy rainfall which preceded both survey events was a likely to have reduced the potential to detect faecal pellets (accelerated breakdown and / or remobilising of scats). The potential impact of this in regard to actual Koala detections is unclear. During past surveys, detection of fresh scat has led to locating a Koala, though this would account for one, or at best, two Koalas. There were no other weather impacts to the actual full implementation of field work coverage during either survey period.

Figure 2-1 Distinctive signs of koala presence

Above – Fresh Koala faecal pellets. **Below** - Fresh koala tree trunk scratching.

3. Survey Results

Figure 3-1 describes the location of koala records derived from the February 2023 survey event.

Attachment A provides a summary of the data for each koala observed during the 2023 survey program.

A total of 16 adult koalas were recorded during the February survey event (see **Attachment A**). This result included seven males and nine females.

The majority of those observed were “cleanskins”. Koalas recognisable by previous ear tagging were Lucky (a male), and the females Bilba, Emily, Nyunga, Kamala, and Marlee. The majority of the koalas observed appeared in good condition.

The site distribution of the 2023 koala survey records (see **Figure 3-1**) is similar to that recorded during the 2018 to 2023 survey events in regard to distribution across the site (see **Figure 3-2**).

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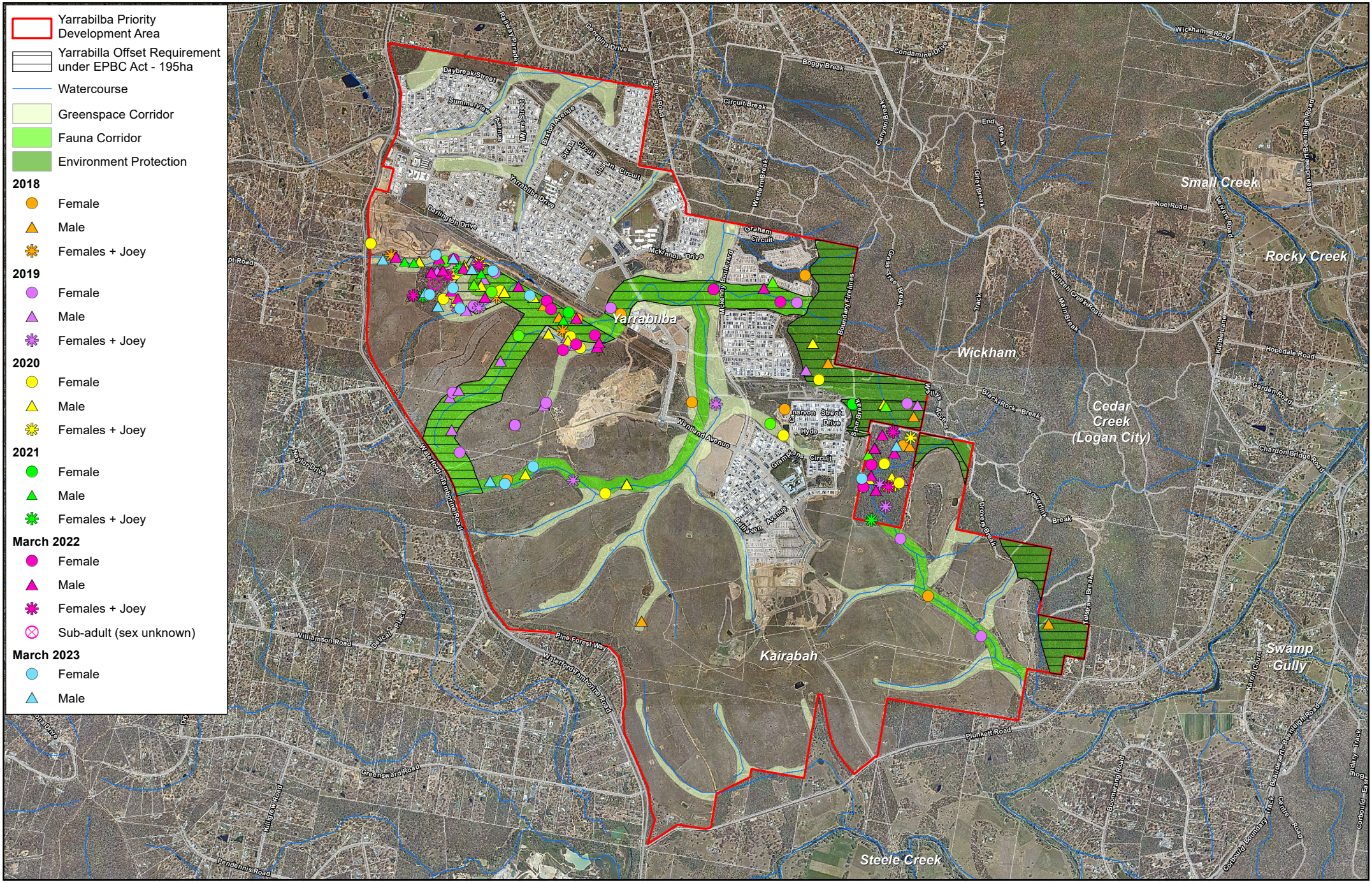
Source:	Watercourses: Department of Environment and Resource Management, VMA Queensland Regrowth Other Watercourses Version 2.1 Cadastral Boundaries / Department of Natural Resources and Mines 2023. Corridors and Assessable Koala Habitat vegetation layers supplied by: Austecology 2014 Offset requirement: Lend Lease 2014 Aerial photo: NearMap 13/11/2023
Disclaimer:	No warranty is given in relation to the data (including accuracy, reliability, completeness, currency or suitability) and no liability is accepted (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws.
File:	File: Yarrabilba-OffsetMP-Fig3-1-SurveyResults-March2023-231126 Date: 26/11/2023

0 500 1,000 1,500 2,000
Meters
A4 Scale 1:40,000
Coordinate System: GDA 1994 MGA Zone 56 Projection: Transverse Mercator

Yarrabilba Priority Development Area

Figure 3-1:
Population Survey Results - March 2023



austecology

Source:	Watercourses: Department of Environment and Resource Management, VMA Queensland Regrowth Other Watercourses Version 2.1 Cadastral Boundaries / Department of Natural Resources and Mines 2023 Corridors and Assessable Koala Habitat vegetation layers supplied by: Austecology 2014 Offset requirement: Lend Lease 2014 Aerial photo: NearMap 13/11/2023
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File:	File: Yarrabilba-OffsetMP-Fig3-2-SurveyResults-2018-2023-231126 Date: 26/11/2023

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Meters
A4 Scale 1:40,000
Coordinate System: GDA 1994 MGA Zone 56 Projection: Transverse Mercator

Yarrabilba Priority Development Area

Figure 3-2:

Population Survey Results 2018 to 2023

4. Observations and Conclusions

Eleven similar survey events have been implemented in the application the KMP (**Figure 4-1**).

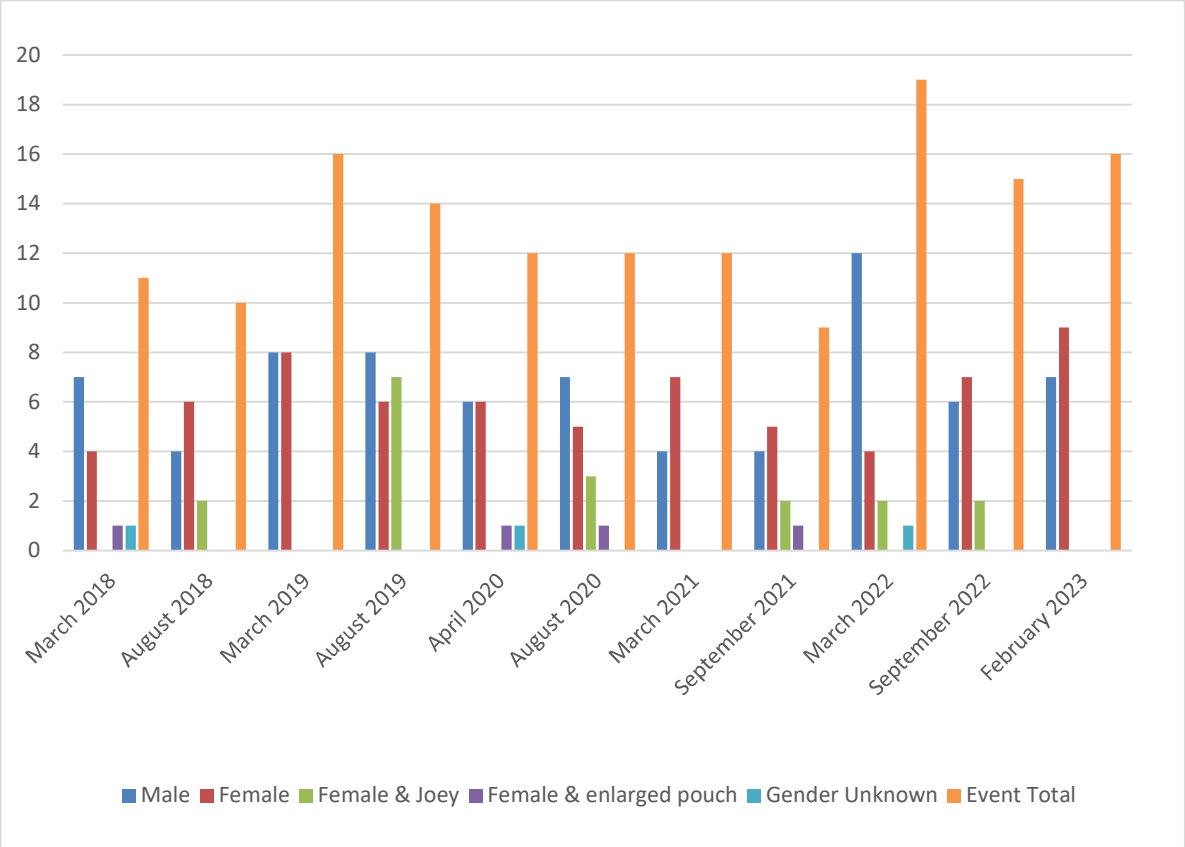
Each event has involved the same core personnel and has provided consistency throughout the program. During each event, the same priority survey footprint has been systematically surveyed and employing the same set of protocols throughout – again, providing consistency between events.

Whilst field conditions (principally weather) have differed, between events, the extent of difference has not been considered to have any material impact to the success of any of the survey events, or of such significance as to confidently contrast or explain differences in survey event records.

Koalas can be cryptic and difficult to detect. Whilst it is accepted that despite a systematic field protocol being implemented by experienced observers, the survey event results are highly likely to be an underestimate of the abundance of koalas at the time of implementing the surveys, though this cannot explain variation between results of similarly timed surveys.

Site-wide koalas surveys are being proposed to extend beyond the end of the current KMP in 2023 to continue in providing an important baseline for identifying key koala habitat and occurrence, and monitor breeding success.

Figure 4-1 Comparison of Koala Survey Results – 2018 to 2023



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Attachment A 2023 Koala Survey Records Summary

Date	Koala	Gender	Tree species	Health Appearance	Comments	Easting	Northing
14/20/2023	cleanskin	M	*E. signata*	Eyes clean but dirty rump		510650.00 m E	6922027.00 m S
14/20/2023	cleanskin	F	*M. quinquenervia*	Eyes & rump appear clean		510774.00 m E	6922000.00 m S
14/20/2023	cleanskin	F	*E. signata*	Eyes & rump appear clean		511008.00 m E	6922146.00 m S
16/02/2023	cleanskin	M	*E. fibrosa*	Eyes & rump appear clean		514026.00 m E	6922316.00 m S
16/02/2023	cleanskin	F	*E. drepanophylla*	Eyes & rump appear clean		513738.00 m E	6922044.00 m S
17/02/2023	cleanskin	M	*E.tereticornis*	Eyes & rump appear clean		509759.00 m E	6923861.00 m S
17/02/2023	Kamala	F	*E.tereticornis*	Eyes & rump appear clean		510199.00 m E	6923900.00 m S
17/02/2023	cleanskin	M	*E. molucanna*	Eyes clean but dirty rump		510345.00 m E	6923874.00 m S
17/02/2023	cleanskin	M	*E. molucanna*	Eyes & rump appear clean		510498.00 m E	6923783.00 m S
17/02/2023	Marlee	F	*E. molucanna*	Eyes & rump appear clean	may have bulging belly	510343.00 m E	6923627.00 m S
17/02/2023	Emily	F	*E. molucanna*	Eyes & rump appear clean		510148.00 m E	6923570.00 m S
17/02/2023	cleanskin	M	*E. molucanna*	Eyes & rump appear clean	young animal	510217.01 m E	6923473.75 m S
17/02/2023	Lucky	M	*E. molucanna*	Eyes & rump appear clean		510112.00 m E	6923591.00 m S
17/02/2023	Bilba	F	*E. molucanna*	Eyes & rump appear clean		510400.00 m E	6923459.00 m S
17/02/2023	cleanskin	F	*Pinus radiata*	difficult to assess		510673.00 m E	6923771.00 m S
18/02/2023	Nyunga	F	*Pinus radiata*	Eyes & rump appear clean		510981.00 m E	6923563.00 m S