Koala Monitoring Program

Yarrabilba Priority Development Area

Koala Capture / Monitoring Event June 2018

Summary Report

Picture of new female “Zara”

Prepared by:
Koala Ecology Group
University of Queensland
St Lucia QLD 4072

Introduction

This report presents the latest findings from the Koala Monitoring Program that has been implemented for the Yarrabilba Priority Development Area by the Koala Ecology Group (University of Queensland) in partnership with Austecology. The Koala Monitoring Program has been developed to monitor koala health and use of koala habitat offsets under the Commonwealth's EPBC 2013/6791 Approval.

The *Koala Monitoring Program* comprises three key elements:

1. ***Koala Capture / Monitoring Events*** - This component of the program will involve fieldwork to catch, examine and tag selected koalas for monitoring purposes.
2. ***Koala Monitoring Events*** - This component is designed to track and establish the location of collared koalas in order to visually assess their well-being (using binoculars) as well as their tree use preferences.
3. ***Koala Population Survey Events*** – This component will provide a series of systematic transect searches throughout the full extent of the designated "Fauna Corridor", and the seven EPBCA Offset Areas.

During June 2018 the third *Koala Capture / Monitoring Event* was conducted at the Yarrabilba site. The aims of the fieldtrip were to: 1. Radio-track collared koalas to visually check their well-being, 2. Recover collars that had fallen off koalas, 3. Visually check the condition of the tree-mounted LX base stations, 4. Attempt to catch koalas that need health checks/treatment, and 5. Search for new koalas at the site.

This report summarises the main findings from the recent koala capture/monitoring event.

Methodology

The third koala monitoring event occurred from the 4th – 6th June 2018. The study team comprised five personnel, three from the Koala Ecology Group (Ben Barth, Bill Ellis, and Sean FitzGibbon) and two from Austecology (Lindsay Agnew and Heath Agnew).

At the time of the fieldtrip three koalas were collared (Jean, Sue-Bob and Kobe). These koalas were located by radio-tracking using the unique VHF radio signal emitted from each collar. None of these koalas needed to be recaptured because their health and collar fit was examined recently (March 2018).

Throughout the fieldtrip, habitat searches were conducted to try and locate new koalas ("cleanskins") at the site to fit with collars. The nominated target habitat area within EPBCA Offset Area 1 was prioritised for these searches and when a koala was detected, suitability for capture was assessed. Capture attempts were made using the previously described methods, involving a tree climber and a ground support team implementing the extendable pole "flagging" method.

Captured koalas were restrained in a cloth bag in a cool location and processed at the site. Processing took approximately 45mins per animal, during which time the koala was briefly anaesthetised (5mins) to facilitate a basic health examination and the collection of body measurements, as well as eye and urogenital swabs for disease testing. Measurements included body weight, head length and width, testes width (males), and an assessment of tooth wear (to age the koala) and body condition (from 1 to 10; 1 = very poor condition, 10 = excellent condition).

Cleanskin koalas were fitted with a coloured ear tag stamped with a unique number, following previous protocols (right ear for females and left for males). A small stainless steel numbered tag was inserted in the opposite ear as back-up identification. It is important to note that the coloured tags are often visible from the ground, permitting easy identification of study animals by anyone that observes a koala at the site. Binoculars would be required if the koala was located high in a tree.

Cleanskin koalas were then fitted with collars to enable them to be radio-tracked (during Koala Monitoring Events) as well as monitored using the online Koala Tracker system (see http://trackkoalas.com.au/ for further information on this koala-specific tracking system). For koalas that were already collared, the collar fit was checked to ensure it was neither too tight nor loose.

After processing, captured koalas were allowed time to fully recover from anaesthesia before being released in the same tree from which they were captured. All procedures were in accordance with our current DES Scientific Purposes Permit and University of Queensland Animal Ethics Certificate.

Results & Discussion

One koala (F) was captured during the June koala capture/monitoring event (Fig. 1). This female was new to the monitoring program (i.e. cleanskin) and was found on a northern branch of Quinzeh Creek in an area not known to be used by any of the other tagged koalas. Further details about this koala (named Zara) are provided below.

Another uncollared koala was found during a search of habitat near base station 1 (see Figure 1). This small koala was potentially one of the young weaned by Sue-Bob and Jean in early 2018, but it was not possible to confirm. The koala was located high in a gum-topped box (*Eucalyptus moluccana*) and our attempt to catch it using the flagging method was abandoned due to safety concerns when the koala began jumping between outer branches. We then attempted to catch the koala overnight by setting up a fence trap around the base of the tree (Figure 4). Unfortunately, this approach was also unsuccessful; the koala likely moved out of the tree using canopy connection to adjacent trees, thereby avoiding the need to descend to the ground. During the flagging attempt it could be seen that the koala was sub-adult size and appeared healthy i.e. eyes and rump clear/no signs of disease.

All three previously collared koalas (Jean, Sue-Bob and Kobe) were successfully radio tracked during the trip and their locations recorded (Figure 1). During the March 2018 fieldtrip, Sue-Bob and Jean were found to be carrying new, small pouch young. These koalas were visually inspected using binoculars during the June fieldtrip and both appeared to have bulging pouches, suggesting that they are still carrying their young.

Figure 1. Plot of the initial location of koalas that were tracked and/or captured during the June 2018 fieldtrip, and the base stations that have been deployed to monitor their movements.

On the final day of the fieldtrip we attempted to recapture Kobe so that she could be taken into care for treatment. Swabs collected in March 2018 revealed that she has a chlamydial infection. Unfortunately, Kobe was located in a very large tree and due to safety concerns for the koala, the catch attempt was abandoned when Kobe did not respond as hoped. She was situated approximately 15-18m above the ground and had she fallen from that height it would likely have resulted in serious injury or death. Attempts to recapture her will be made during the next *Koala Capture / Monitoring Event* in August.

Radio tracking conducted prior to the fieldtrip revealed that three other koalas, namely Cain, Bomber and Scarlet, had lost their collars. Two of these collars were recovered after being found on the ground during the monthly *Koala Monitoring Events*. These collars were off Scarlet (F) and Bomber (M). Cain's collar was sighted high in an ironbark, hung-up on a snag/branch. During the June 2018 fieldtrip this collar was recovered by climbing the tree. Subsequent efforts to locate Bomber and Cain during the capture/monitoring event were unfruitful. Scarlet was sighted within her usual area of occupation but she was unable to be recaptured (the catch was abandoned due to windy conditions and the nervous/jumpy behaviour of this koala). During the attempted catch it was obvious that Scarlet had a large bulge in her pouch, indicating she was still carrying her young.

The third base station that was deployed during the March fieldtrip has been successfully providing coverage for the koalas that utilise this area of the site (mostly Kobe, Bomber and Jean). Prior to its deployment, the collars on koalas in this vicinity would lose communication with the LX system because they were out of range of the nearest base station (#2, see Figure 1). Since deployment of base station 3 all collars have been uploading regularly, indicating excellent coverage of those areas frequently used by the koalas that are currently being monitored.

Details of the new koala (Zara) are provided below, as are some pictures that were taken during the June *Koala Capture / Monitoring Event*. A complete set of tag and collar details are provided in Appendix 1.

Zara (13304)

This female koala was found and captured on 6th June 2018 on a northern branch of Quinzeh Creek. She was carrying a young in her pouch that was estimated to be 3.5-months old. Zara had a ring of wear on her premolar suggesting she is between 5 and 10 years of age. She was reasonably large (weight 6.1kg) and in good condition (body score 7/10). Zara was fitted with two coloured ear tags to facilitate identification from the ground: maroon A16 in left ear and yellow C4 in her right ear. Her eyes and rump appeared clear and free of obvious disease e.g. conjunctivitis or cystitis/"dirty tail" (Figure 2). The eye and urogenital swab samples that were collected from Zara are yet to be examined in the laboratory.

Figure 2. Picture of the new female koala named Zara showing her two coloured ear tags.

A plot of Zara's movements over the past thirty days is shown in Figure 3. The figure shows two locations per day, collected at approximately 10am and 10pm. It can be seen that Zara has predominately moved along the northern arm of Quinzeh Creek in the vicinity of her capture location. On the 29th June she made a relatively large exploratory move to the south, crossing to the southerly branch of Quinzeh Creek, before moving back to the northern creek branch one day later. These preliminary data suggest that Zara's home range is centered along the northern arm of the creek.

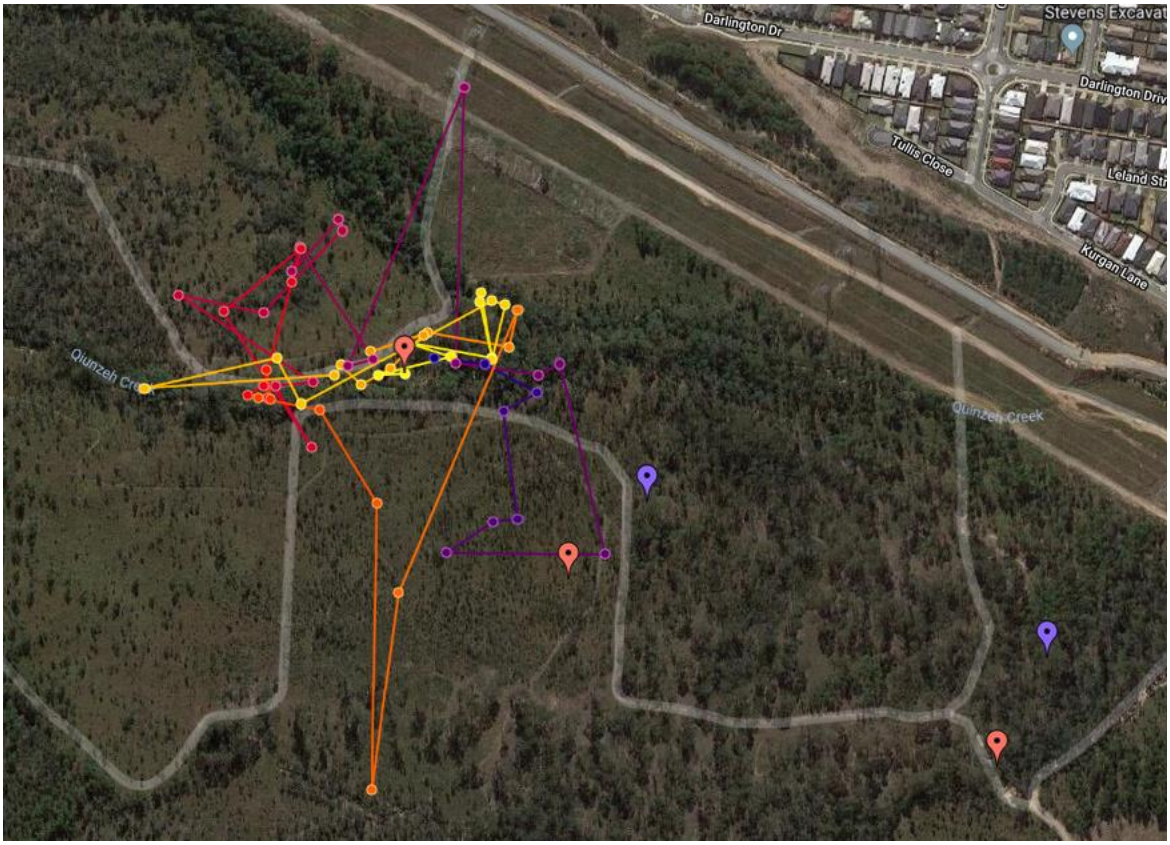

Figure 3. Plot of Zara's movements over the first 30 days post-capture, using a colour-coded time scale: yellow points are the most recent (1-5 days ago) while dark purple points are the oldest (25-30 days ago).

Figure 4. Images of the fence trap that was used to try and capture an uncollared koala during the June fieldtrip. The aim is to contain the koala within the fenced area once it descends, and then wait for it to enter the cage trap. Once the koala is trapped an SMS message is sent to our phones so that the koala can be restrained as soon as possible.

Figure 5. Image of the attempted capture of the female koala named Kobe, on the final day of the June fieldtrip. The climber can be seen on the upper trunk; Kobe is inside the yellow circle. The catch attempt was abandoned due to safety concerns for the koala, given the height and its nervous behaviour when flagged.

Conclusion

The *Koala Capture / Monitoring Event* conducted during June 2018 was the third under the adopted Koala Monitoring Program. The trip was successful in that two new koalas were detected within the priority area, and one of these was able to be captured and collared. This new female appeared healthy and was carrying a pouch young.

The detection of this new reproductive female at the site is extremely encouraging. Three other tagged females (Jean, Sue-Bob and Scarlet) were observed during the fieldtrip and their bulging pouches indicate that they are still carrying their pouch young; this equates to 80% (4/5) of tagged, mature females carrying pouch young.

The only tagged female that is not carrying a young is Kobe. This female returned urogenital swabs that were positive for chlamydia. Unfortunately, we were unable to re-catch Kobe on the final day of the fieldtrip to take her into care. We still strongly recommend that this koala is taken in for veterinary assessment and treatment at the next available opportunity (August 2018 fieldtrip). It is possible that her chlamydial infection has already caused reproductive cysts and rendered her infertile, but this can only be confirmed using ultrasound examination.

At the end of the June 2018 fieldtrip, four koalas were fitted with LX tracking collars (see Appendix 1). All collars have been successfully communicating with the three deployed base stations in the one month since the fieldtrip. This latest-technology system will permit the collared koalas to be remotely monitored in near-to real-time; the system will upload two locations each day for each of the collared koalas (approximately 10pm and 10am).

The next (fourth) *Koala Capture / Monitoring Event* is scheduled to occur during August 2018. The focus during that fieldtrip will be to conduct required recaptures (incl. Kobe, Jean, and Sue-Bob) and to check the state of the base stations. Opportunistic searches will also be conducted to try and locate additional koalas. The koalas that have already been collared will be routinely radio-tracked under the *Koala Monitoring Events* component of the program.

Appendix 1. Summary of tag, collar and other details for all koalas that have been captured at the site to date (June 2018). Those koalas that are currently collared are highlighted.

UQ #	Name	Sex	Mass	Age	Left ear tag	Right ear tag	1st Capture	Latitude	Longitude	Frequency	Notes from March 2018
13007	Heath	M	3.83	2+	Orange F10	Yellow H10	17/05/2017	-27.8113490	153.1062150	not collared	Unsighted since first capture
13009	Caitlin	F	5.92	4	Pink 866	Yellow H6	18/05/2017	-27.8219730	153.1313310	not collared	Unsighted since first capture
13008	Bomber	M	9.28	5-10	Light Blue 621	Pink 886	18/05/2017	-27.8121970	153.1072190	149.693	Fair condition; collar on duty cycle (1:40pm on)
13486	Jean	F	5.56	3-6	metal UQ800	Orange F15	9/10/2017	-27.8121559	153.1086764	150.871	Fair condition; carrying new pouch young
13487	Emily	F	1.065	1	metal UQ724	metal UQ789	9/10/2017	-27.8121559	153.1086764	not collared	Unsighted since first capture
13488	Cain	M	8.073	2-4	Royal Blue G8	metal UQ796	9/10/2017	-27.8132431	153.1039776	150.754	Good condition; right eye still uninfected
13489	Scarlet	F	4.805	1-3	metal UQ753	Royal Blue G14	10/10/2017	-27.8110978	153.1049627	151.874	Fair condition; carrying new pouch young
13490	Sue-Bob	F	5.655	5-10	metal UQ799	Orange F20	10/10/2017	-27.8122096	153.1063710	150.691	Poor condition; carrying new pouch young
13495	Kobe	F	5.055	3-6	metal UQ175	Yellow C20	20/03/2018	-27.8137242	153.1169157	151.712	Good body score; urogenital chlamydial infection
13304	Zara	F	6.17	5-10	Maroon A16	Yellow C4	6/06/2018	-27.8097031	153.1034546	151.874	Good condition; carrying pouch young (est. 3.5 mths)