Koala Monitoring Program

Yarrabilba Priority Development Area

Koala Capture / Monitoring Event August 2018

Summary Report

Picture of female “Zara”

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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 August 2018 the fourth *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. Visually check the condition of the tree-mounted LX base stations, 3. Attempt to catch koalas that need health checks/treatment, and 4. Search for new koalas at the site.

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

Methodology

The fourth koala monitoring event occurred from the 6th – 8th August 2018. The study team comprised four personnel, three from the Koala Ecology Group (Ben Barth, Bill Ellis, and Sean FitzGibbon) and one from Austecology (Heath Agnew).

At the time of the fieldtrip four koalas (all female) were collared (Jean, Sue-Bob, Kobe and Zara). These koalas were located by radio-tracking using the unique VHF radio signal emitted from each collar. Several of these collared koalas were scheduled for recapture to assess their health and check that their collars were still fitting well. In addition, the female named Kobe was scheduled for recapture so that she could be taken into care for treatment and further testing of her chlamydial infection.

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

Radio-tracking of the four collared female koalas revealed that they were widely spread across the focal area of the Yarrabilba Priority Development Area (Fig. 1). Zara was located near the northern branch of Quinzeh Creek, Sue-Bob was in her usual area slightly to the south of Zara, while Jean was found near the southern extent of her usual area of movement, near base station 3. All three koalas were still carrying young (Zara and Jean in pouch, Sue-Bob on back).

Kobe was located well to the south of her initial point of capture and the area she has occupied since that time (March 2018). Her large move to the south meant she was outside the detection zone for the most southerly base station (#3), which explains why her collar had not uploaded data to the LX website for an extended period.

A further three adult koalas were observed during the field trip, comprising a tagged female (Scarlet), a tagged male (Bomber) and an untagged female (Fig. 1).

An attempt was made to catch the untagged female but it was unsuccessful. The koala jumped to an adjacent, much larger tree, which she rapidly ascended to a great height, well beyond the reach of the climber (Fig. 2). In the process of attempting the catch the climber had good views of the animal and suggested it was a healthy young female, free of overt signs of disease. This small koala was potentially one of the young weaned by Sue-Bob and Jean in early 2018, and may have been the same animal that was seen in the area during the June 2018 fieldtrip. Further effort will be expended to locate and catch this female on the next fieldtrip.

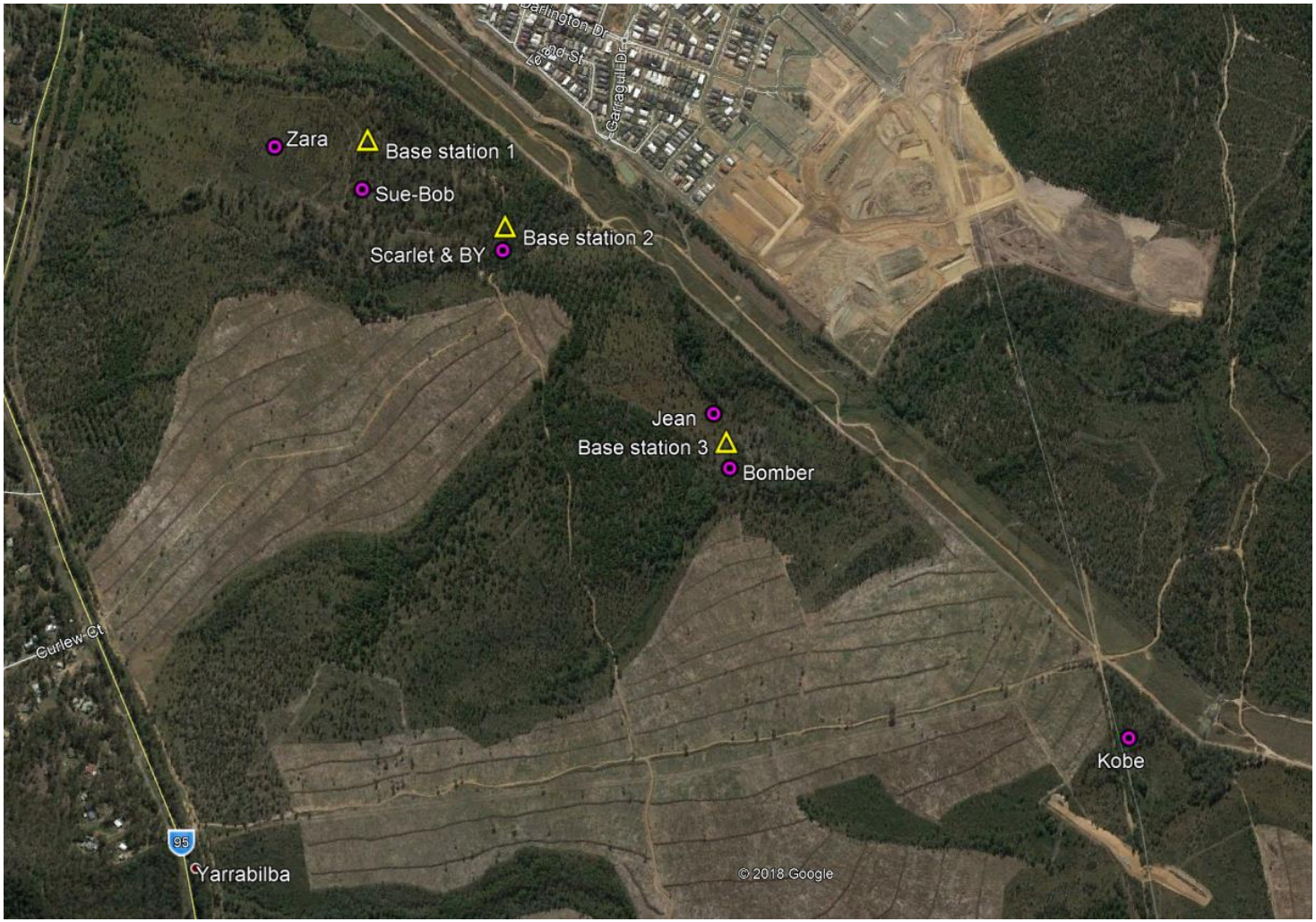

Figure 1. Plot of the initial location of koalas that were sighted during the August 2018 fieldtrip, and the base stations that have been deployed to monitor their movements.

Scarlett was observed on two occasions with her large young, which must be nearing independence given that it was sitting on its own several metres from its mother. No attempt was made to re-catch Scarlett or the young as they were located very high in gum-topped box (*Eucalyptus moluccana*) on both days.

In total, four koalas were captured during the August *Koala Capture / Monitoring Event*, including Zara, Sue-Bob, Bomber and Kobe. Further details concerning the health and examination of these four koalas are provided below, with pictures that were taken during the August fieldtrip. A complete set of tag and collar details are provided in Appendix 1.

Figure 2. Image showing the bloodwood tree (yellow arrow) that contained an untagged koala. During the catch attempt this koala jumped to the adjacent blue gum and rapidly ascended to the top of the canopy, evading capture (koala can be seen in yellow circle).

Zara (13304)

This female koala was first found and captured in June 2018 on a northern branch of Quinzeh Creek. At that time she was carrying a pouch young estimated to be 3.5-months old. Zara appeared to be healthy when examined in August, and was still carrying her young (Fig. 3). Since her initial capture Zara has gained weight (+ 350g to 6.45kg) and improved in condition from a body score of 7 to 8/10. The eye and urogenital swab samples that were collected from Zara in June tested negative for *Chlamydia*, providing further evidence that this middle-aged female koala is in good health.

Figure 3. Image of Zara taken during her recent health examination (August 2018).

Sue-Bob (13490)

This middle-aged (5-10yrs) female koala was first captured in October 2017 and has been monitored since that time. She was recaptured on the 6th August 2018 with her back young, which was estimated to be six months of age (Fig. 4). The health examination revealed that Sue-Bob was in very poor condition (body score 3/10) and her bare tail was exposed due to fur loss on the rump. Given her poor health, the future of Sue-Bob and her offspring is uncertain, especially in this current dry spell which has seen very little winter rain at the site.

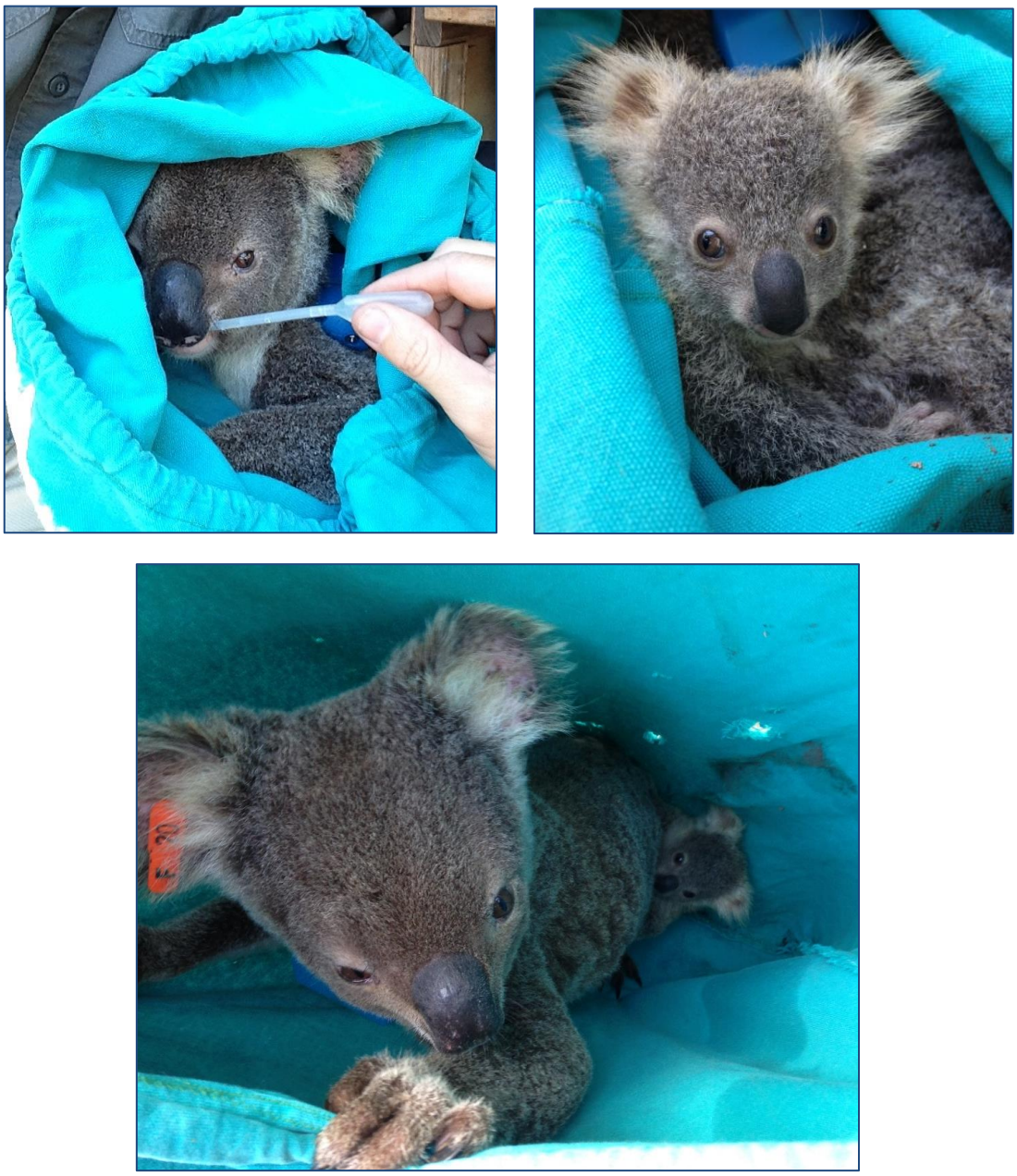

Figure 4. Images of Sue-Bob and her back young taken during the recent fieldtrip (August 2018). In the image at top left, Sue-Bob was being offered water through a soft plastic pipette because she was in very poor body condition and appeared dehydrated.

Kobe (13495)

This female koala was first captured in March 2018 and the collected urogenital swab sample later tested positive for *Chlamydia*. During the June 2018 fieldtrip, attempts to re-catch Kobe were unsuccessful, so she could not be taken into care for treatment and detailed veterinary examination. During the August 2018 fieldtrip, Kobe was re-captured from a swamp box (*Lophostemon suaveolens*) and taken to Australia Zoo Wildlife Hospital (AZWH). Ultrasonography has confirmed the presence of bursal cysts on both sides of her reproductive tract (Fig. 5). Bilateral cysts generally result in female koalas being incapable of breeding. Kobe has commenced antibiotic treatment for the chlamydial infection and the size of the cysts are being monitored. A decision will be made at the end of her treatment regarding the best course of action.

Figure 5. Image of Kobe (left) and the ultrasound of her reproductive tract (right), showing the bilateral bursal cysts (black cavities containing text).

Bomber (13008)

This male koala was first captured and tagged in May 2017 (preliminary survey) and was fitted with an LX collar in March 2018. By the fieldtrip in June 2018 he had dropped his collar but he evaded detection at that time. During habitat searches on the recent fieldtrip Bomber was sighted in a narrow-leaved ironbark (*E. crebra*), approximately 100m south of base station 3. He was identified by the coloured tags (Fig. 6) that were fitted to each ear in 2017.

Bomber was successfully captured using the flagging technique and was again fitted with an LX collar. He weighed 9.16kg and was in fair condition (body score 6/10). Both eyes and the rump appeared clear of overt infection

Figure 6. Image of Bomber taken during his recent health examination (August 2018).

Conclusion

The *Koala Capture / Monitoring Event* conducted during August 2018 was the fourth under the adopted Koala Monitoring Program. The fieldtrip was very successful on several fronts:

- A total of seven adult koalas were sighted within the priority area, including four females with young.
- Although some of the koalas within this population are currently in poor body condition, they have survived through a very dry winter while lactating; their condition may improve with the arrival of decent rainfall.
- The male named Bomber dropped his collar earlier in the year. He was recaptured during the recent fieldtrip and re-fitted with a tracking collar.
- Although the untagged female koala sighted on the northern branch of Quinzeh Ck was not able to be captured, it was encouraging to find an additional koala in the focal area. This koala may be one of the young weaned by Sue-Bob and Jean in early 2018.

The female koala named Kobe has been admitted to Australia Zoo Wildlife Hospital after testing positive for *Chlamydia*. This sexually transmitted bacterial pathogen can have devastating consequences for infected koalas, often causing disease that leads to a premature death. In females, chlamydial infection can cause bursal cysts in the reproductive tract which usually results in the koala being unable to reproduce. In addition, such cysts are thought to cause considerable discomfort to the koala, especially as they can grow larger than a golf ball and females can have more than one cyst. Unfortunately, ultrasound examination at AZWH has confirmed the presence of bursal cysts on both sides of Kobe's reproductive tract; the cysts are approximately 2cm diameter. The veterinarian has commenced antibiotic treatment for the chlamydial infection and the size of the cysts are being monitored. The growth of the cysts may not be halted by the treatment. A decision will be made at the end of her treatment regarding the best course of action.

At the end of the August 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 three weeks since the fieldtrip, and all koalas are showing good activity levels (moderate to high). This latest-technology system permits the collared koalas to be remotely monitored in near-to real-time; the system uploads two locations each day for each of the collared koalas (approximately 10pm and 10am).

The next (fifth) *Koala Capture / Monitoring Event* is scheduled to occur during October 2018. The focus during that fieldtrip will be to conduct required recaptures (incl. Jean) 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 (August 2018). Koalas that are currently collared are highlighted blue.

UQ #	Name	Sex	Mass	Age	Left ear tag	Right ear tag	1st Capture	Latitude	Longitude	Frequency	Notes from latest fieldtrip (August 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	149.5115	Fair condition; collar on 12hr cycle from 7:00am
13486	Jean	F	5.56	3-6	metal UQ800	Orange F15	9/10/2017	-27.8121559	153.1086764	150.8698	Sighted 6,7,8th August 2018; carrying 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	not collared	Last sighted March 2018
13489	Scarlet	F	4.805	1-3	metal UQ753	Royal Blue G14	10/10/2017	-27.8110978	153.1049627	not collared	Sighted 6th and 7th August 2018, with back young
13490	Sue-Bob	F	5.655	5-10	metal UQ799	Orange F20	10/10/2017	-27.8122096	153.1063710	150.6902	Very poor condition; carrying pouch young
13495	Kobe	F	5.055	3-6	metal UQ175	Yellow C20	20/03/2018	-27.8137242	153.1169157	not collared	Taken to AZWH for treatment (August 2018)
13304	Zara	F	6.17	5-10	Maroon A16	Yellow C4	6/06/2018	-27.8097031	153.1034546	151.8114	Good condition; carrying pouch young