Koala Monitoring Program

Yarrabilba Priority Development Area

Koala Capture / Monitoring Event October 2017

Summary Report

Female 13486 (Jean) with her back young

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Introduction and Summary

A Koala Monitoring Program has been developed 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 focus on monitoring koala 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.

This report provides information on the first *Koala Capture / Monitoring Event*, which was conducted in October 2017.

Methodology

A site inspection was undertaken on 12th October 2017, with the survey and capture work implemented throughout the period 13 - 15 October, inclusive. 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).

The nominated target habitat area within EPBCA Offset Area 1 was searched throughout the field work period and when a koala was detected, suitability for capture was assessed. Captures were implemented by one tree climber and a ground support team using the traditional "flagging" method. The "fence trap" capture method was employed on one survey night but was unsuccessful.

Captured koalas were restrained in a cloth bag in a cool location and processed at the site. Processing took approximately 45 mins per animal, during which time the koala was briefly anaesthetised (5 mins) 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 estimate age for the koala) and body condition (from 1 to 10, with 1 being very poor condition and 10 being excellent condition).

Each koala was 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 likely be required if the koala was located high in a tree.

Adult 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).

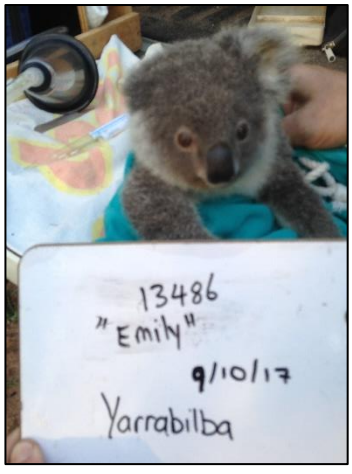
After processing, captured koalas were allowed time to fully recover from anaesthesia before being released in the same tree from which they were captured. All procedures were in accordance with our current DEHP Scientific Purposes Permit and University of Queensland Animal Ethics Approval Certificate.

Results

Four adult Koalas (three females and one male) were captured during the October survey fieldtrip. Two of the females were accompanied by young that were out of the pouch. Brief details of each koala are provided below, as are pictures that were taken during processing. The complete set of tag and collar details are provided in Attachment 1.

Jean (13486) and Emily (13487)

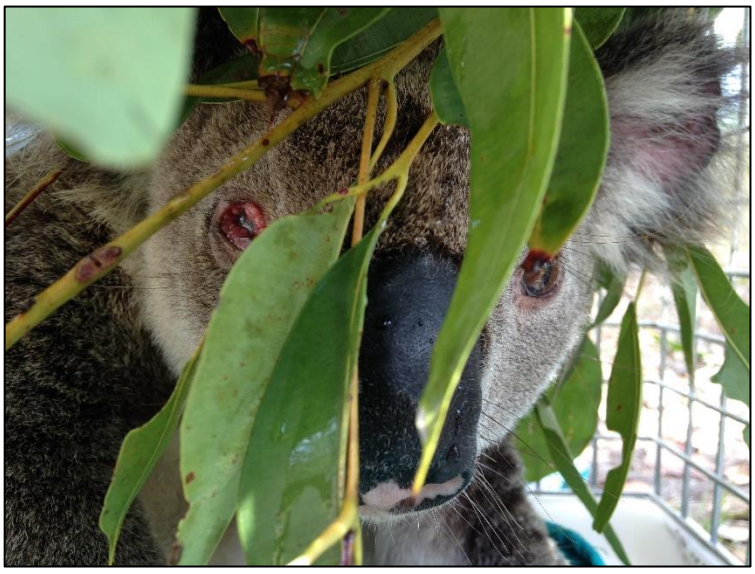
The first female (Jean) was captured with her large back young (Emily). Jean was average size (weight 5.5 kg) and in fair body condition (body score 6/10). Her tooth wear suggested she is 3-6 years of age. She was fitted with an orange ear tag (#F15) in her right ear, as shown in the figure below. Jean's young remained on her back during capture using the flagging technique. The young female (Emily) weighed 1kg suggesting that she will remain with her mother for at least a further 1-2 months, before dispersing. Emily's ears were not developed enough to carry a coloured ear tag, so she was fitted with a small metal tag in each ear, as shown in the image below.



Pictures of Jean (left) and her back young Emily (above). Jean's coloured tag (orange F15) is clearly visible in her right ear.

Cain (13488)

Only one male koala (Cain) was captured during the survey. The small amount of wear on his pre-molar teeth suggested that he is quite young, probably between 2 – 4 years of age. He was fitted with a royal blue ear tag (#G8, left ear). Despite his young age, Cain was relatively large (weight 8 kg, head length 155 mm). Overall, he was considered to be in good body condition (body score 7/10). However, it was immediately apparent that Cain had an infection in his right eye (see images below). The tissue around the eye and conjunctiva was inflamed and was likely impairing Cain's vision. Cain also had a dark-coloured rump (see image below) but it was not clear if this was due to a urogenital tract infection or to some other cause (e.g. staining from bark).



Images of Cain showing his infected right eye and dark-coloured rump. Laboratory testing of the swab samples revealed the right eye has a chlamydial infection.

In light of Cain's good body condition and young age, he was taken into care so that treatment for his unilateral ocular infection could commence immediately. With appropriate treatment, the prognosis for Cain is favourable. He was placed in a transport cage with some eucalypt leaf and driven to the Australia Zoo Wildlife Hospital (AZWH) so that he could be properly assessed by a veterinarian and given appropriate treatment.

Test results from swabs collected from Cain have confirmed that his right eye has a chlamydial infection. This is being treated at AZWH with a course of antibiotics, which will take approximately 4-5 weeks. Presuming his treatment is successful, he will be collared and returned to the site. At the time of writing, Cain's treatment was progressing well and the treating veterinarian was confident he will make a full recovery.

Scarlet (13489)

Scarlet was captured from a well-branched gum-topped box (*Eucalyptus moluccana*). Her tooth wear suggested she was only less than 3 years of age. She weighed slightly less than 5 kg and was in fair body condition (6.5/10). Her eyes and rump appeared clear and free of overt signs of infection.

Scarlet was fitted with a royal blue ear tag (#G14) in her right ear, and a small metal tag in her left. She was not carrying a young but the examination of her pouch suggested that she had bred previously. Given that September to December is the main koala breeding season, it is hoped that Scarlet will conceive a young before her next health assessment (scheduled for March/April 2018).

Image of Scarlet (female 13489) resting in a catch bag during processing

Sue-Bob (13490)

The second female found with a back young, was named Sue-Bob. Her young was not captured with her as it was sitting in a separate area of the tree at the time of the capture. Earlier in the day, it had been seen on its mother's back but it must be nearing independence and is starting to explore the tree canopies on its own.

Sue-Bob was fitted with an orange ear tag (#F20) in her right ear. She weighed 5.6 kg and had a head length of 127.7 mm. She was in poor body condition (body score 3/10), probably partly as a result of having raised a late-stage young during a very dry winter period. The examination of Sue-Bob's teeth wear revealed considerable wear, which suggests she is an older koala aged between 5-10 years. Images of Sue-Bob are provided below.

Image of Sue-Bob during examination (left) and then recovering after anaesthesia in the catch bag (above); during recovery Sue-Bob ate several eucalypt leaves that were offered to her.

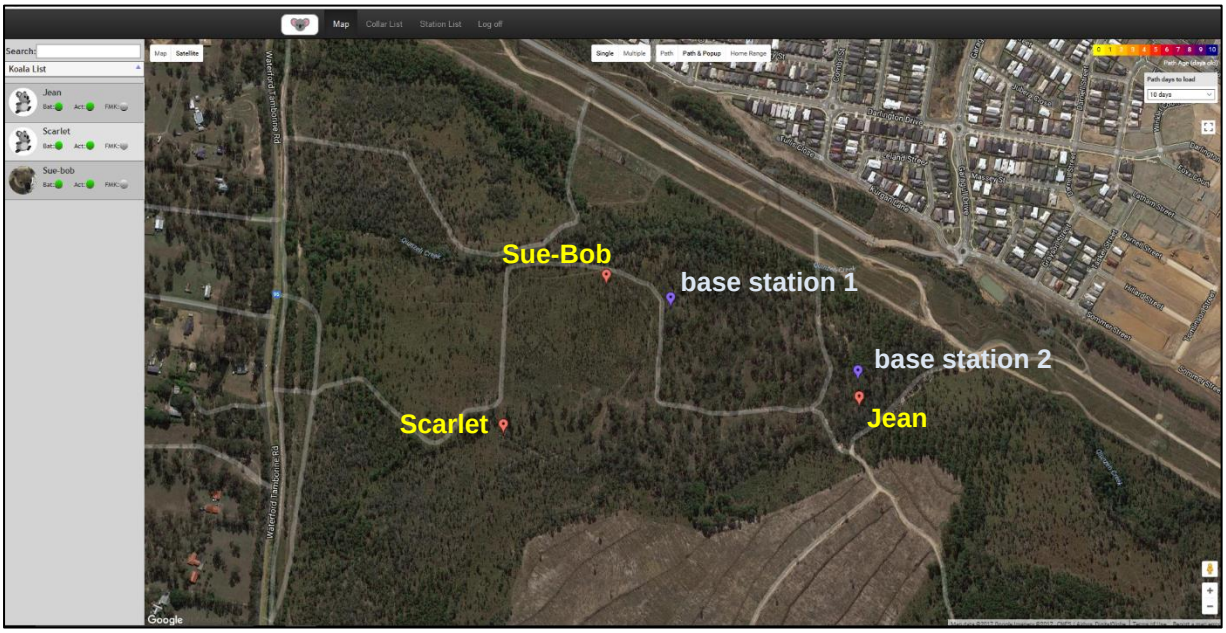
Koala locations, capture trees, and the LX Koala Tracker remote monitoring system

All four koalas were found in gum-topped box (*Eucalyptus moluccana*) when first sighted. This tree is relatively common in the searched area of the riparian corridor and is a known koala food tree.

The capture locations for the four examined koalas are shown on the map over the page. The three collared females were radio-tracked the day after capture and all were found close to their capture locations (<300m).

Also shown over the page is a screenshot from the LX website showing the most recent locations for the three collared koalas, as recorded by the Koala Tracker remote monitoring system.

Aerial image showing the capture locations of the four koalas that were caught during the October survey.



Screenshot taken from the LX website showing the most recent locations of the three collared koalas (red teardrops), that were recorded by the Koala Tracker remote monitoring system. The locations were updated to the website at 10:00pm on 19/10/2017 through the two solar-powered base stations (purple teardrops) that have been mounted up large trees at the site (see image over page).

Images showing a base station being mounted up a tall ironbark near the collared koalas. The koala collars communicate with the solar-powered base stations, which then upload the data to the LX website so that the koalas can be remotely monitored. Base stations face north so that the solar panel (arrow) receives maximum sun exposure.

Conclusion

The *Koala Capture / Monitoring Event* conducted during October 2017 was the first under the adopted Koala Monitoring Program. It was an extremely successful trip in that three koalas were collared using the LX system and two base stations were deployed. 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 10 pm and 10 am).

One further koala (Cain) was captured and taken to Australia Zoo Wildlife Hospital for treatment of an infected eye. Treatment of this koala is progressing well and it is likely that he will be returned to the site by mid-November, after being fitted with an LX collar.

Interestingly, none of the three koalas that were tagged at the site in May 2017 (see Attachment 1) were sighted during the October fieldtrip. It is quite possible that these koalas were present at the site but went undetected during habitat searches, due to their cryptic nature. Further searches will be conducted in the near future to try and locate at least one additional koala to collar. The koalas that have already been collared will be routinely radio-tracked under the *Koala Monitoring Events* component of the program.

Attachment 1. Summary of tag, collar and other details for all koalas that have been captured at the site to date. Those koalas that were captured during the October survey are highlighted.

UQ #	Name	Sex	Mass	Age	Left ear tag	Right ear tag	Tree species	Capture Date	Latitude	Longitude	Frequency	Notes
13007	Heath	M	3.83	2+	Orange F10	Yellow H10	*E. moluccana*	17/05/2017	-27.8113490	153.1062150	not collared	Healthy
13009	Caitlin	F	5.92	4	Pink 866	Yellow H6	*E. crebra*	18/05/2017	-27.8219730	153.1313310	not collared	Healthy
13008	Bomber	M	9.28	6+	Light Blue 621	Pink 886	*E. moluccana*	18/05/2017	-27.8121970	153.1072190	not collared	Healthy
13486	Jean	F	5.56	3-6	metal UQ800	Orange F15	*E. moluccana*	9/10/2017	-27.8121559	153.1086764	150.871	Fair condition; carrying young (Emily)
13487	Emily	F	1.065	1	metal UQ724	metal UQ789	*E. moluccana*	9/10/2017	-27.8121559	153.1086764	not collared	Jean's back young
13488	Cain	M	8.073	2-4	Royal Blue G8	metal UQ796	*E. moluccana*	9/10/2017	-27.8132431	153.1039776	not collared	Taken to AZWH for treatment of right eye
13489	Scarlet	F	4.805	<3	metal UQ753	Royal Blue G14	*E. moluccana*	10/10/2017	-27.8110978	153.1049627	151.874	Fair condition
13490	Sue-Bob	F	5.655	5-10	metal UQ799	Orange F20	*E. moluccana*	10/10/2017	-27.8122096	153.1063710	150.691	Poor condition