Black Cockatoo Conservation Project: February - March 2019 update

The Black Cockatoo Conservation Project is pleased to provide the latest update on our black cockatoo releases and tracking, including updates from the 2018 releases of forest red-tailed black cockatoos at Boddington, the November 2018 fieldtrip to the Coomallo Creek breeding grounds for Carnaby's cockatoos, and information from the December 2018 fieldtrip to the Borden breeding grounds for Carnaby's cockatoos.

Below is a summary of the innovative double-tag system which we are using to follow the released birds, followed by a summary of our focal birds' movements for February-March 2019.

TRANSMITTERS attached to birds:
(1) Satellite transmitters – provide landscape-scale data on movement and location of the birds with accuracy to within 250m. These tags can remain operational for approximately a year, before being shed during the annual moult of the tail feathers to which the tags are attached.
(2) GPS transmitters – provide fine-scale data, including highly-accurate GPS locations, fine-scale movement and behavioural data. This research is the first trial of these GPS tags on free-ranging black cockatoos.

REPORT FOR FEBRUARY - MARCH 2019 – Karen Riley's PhD project

On 19th April 2018, the team released six forest red-tailed black cockatoos in the Boddington area. Four birds were double mounted with both satellite and GPS transmitters and one bird carried a satellite transmitter only. The sixth bird carried no transmitters. The birds with transmitters were as follows:
RT 23 –Male
RT 27 –Male
RT 29 –Male
RT 55 –Male (Satellite transmitter only)
RT 85 –Male

On 12th November 2018, a team from Murdoch University (Karen Riley, Kris Warren, Jill Shephard and Jo Burston) joined Rick Dawson and Denis Saunders (CSIRO), on the annual nestling survey of the Carnaby's cockatoo breeding grounds at Coomallo Creek. The team's aim was to attach GPS and satellite transmitters to four breeding adult birds in order to investigate their use of habitat in the breeding area and their dispersal in the post-breeding period.

The team successfully trapped four birds and deployed the double-mounted transmitter system on three of these. The fourth bird received a satellite transmitter only:

Adult Carnaby's cockatoos tagged at Coomallo Creek

ID	Date tagged	Sex	Age (in days) of nestlings of tagged birds on tagging day
CC 25	12/11/18	M	36
CC 30	13/11/18	F	46
CC 38	14/11/18	F	45
CC 40	15/11/18	M	38

On 10th December 2018, a team from Murdoch University including Karen Riley, Kris Warren, Jill Shephard, Jo Burston and Zoe Kissane joined Rick Dawson and Peter Mawson (Perth Zoo) on the annual nestling survey of Carnaby's cockatoo breeding grounds at Borden.

Adult Carnaby's cockatoos tagged at Borden (double-mounted transmitter system)

ID	Date tagged	Sex	Age (in days) of nestlings of tagged birds on tagging day
CC 37	10/12/18	M	34
CC 45	11/12/18	M	40
CC 47	12/12/18	M	48
CC 44	12/12/18	F	36

For these releases, information is provided below for birds for which transmitters remain operational.

FOREST RED-TAILED BLACK COCKATOOS RELEASED AT BODDINGTON– April 2018

RT 29 - Between January and February 2019, RT 29 (purple; Figure 1) remained in the vicinity of the release site at Hotham Farm in Marradong. Between February and March, the bird moved north west back to Dwellingup, an area it had occupied for 6 months prior to December 2018.

RT 27 –RT 27's transmitter has not shifted from its January position in Springs, on farmland north of the North Bannister-Wandering Road (blue; Figure 1). It has presumably moulted from the bird.

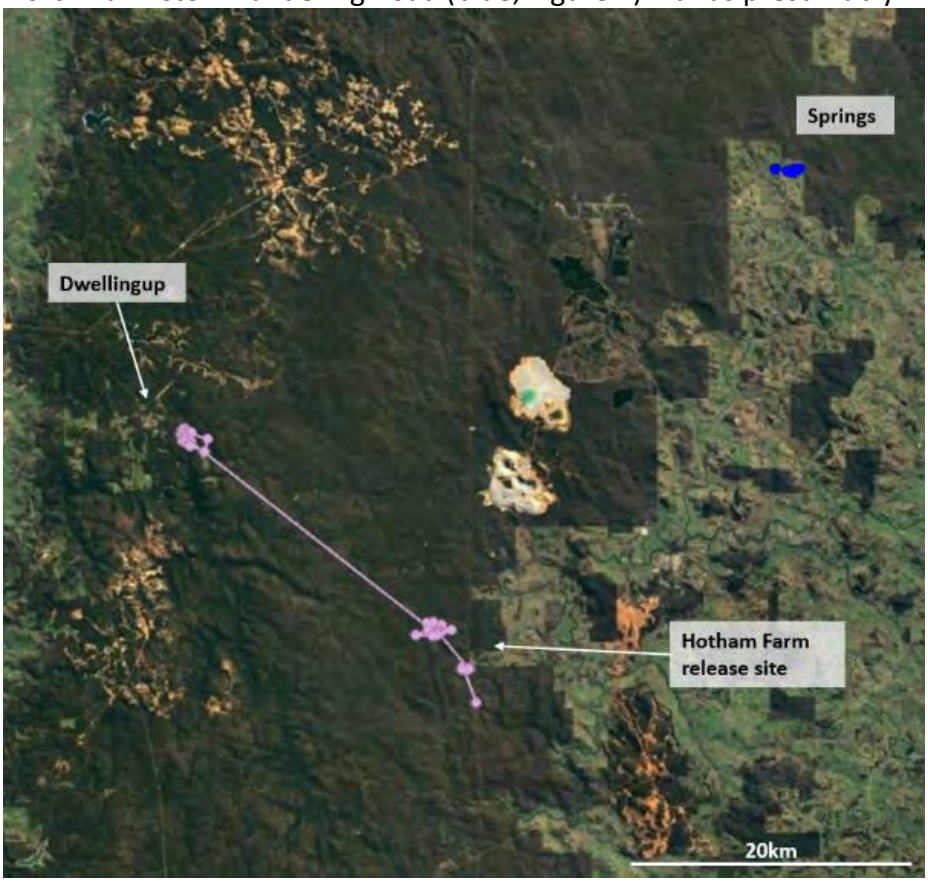

Figure 1. Projection of satellite data for FR29 (purple) and FR27 (blue) for the months of February and March 2019.

COOMALLO CREEK BREEDING GROUND – 12th November 2018 Fieldtrip

CC 30 – This bird's transmitter became stationary (Figure 2) at a roost on the north side of Eneabba town on February 2nd, having moulted with its tail feathers. A flock follow was conducted here and a flock of 100 black cockatoos was seen to forage on canola in the farmland north of town, as well as on native vegetation in the reserves and unallocated crown land south of the town.

CC 38 - The transmitter for CC 38 became stationary (Figure 2) in a Nambung pine plantation, just south of the Emu Downs wind farm at the start of February.

CC 40 – CC 40 spent the start of February at the Badgingarra wind farm roost he utilised the previous month. By mid-February he moved north to a roost on Cowalla Road, Badgingarra, from where he continued to forage in the northern end of the Badgingarra wind farm (Figure 2). By early March he had moved further north to Hill River. For the remainder of March, he moved back and forward several times between these three areas. During a flock follow at the Hill River site on March 28th, the flock of around 200 birds spent several hours foraging exclusively on the prolifically flowering Acorn banksia in the Coomallo Nature Reserve.

Figure 2. Projection of satellite data for Coomallo Creek breeding birds CC 30 (yellow), CC 38 (blue) and CC 40 (orange) for the months of February and March 2019.

Figure 3. Birds from the Eneabba flock feed on *Eucalyptus erythrocorys,* 14 February 2019. Credit: K Riley.

Figure 4. Female Carnaby's cockatoo from the Eneabba flock rests in a Banksia, 14 February 2019. Credit: K Riley.

Figure 5. Part of the Eneabba flock feeds on canola at a cattle farm, adjacent to the roost where CC 30 shed his transmitter, 14 Feb 2019. Credit: K Riley.

Figure 6. A female Carnaby's from CC 40's flock feeds on *B. prionotes* (Acorn Banksia) in the Coomallo Nature Reserve, 18 March 2019. Credit: K Riley.

Figure 7. A sea of flowering Acorn Banksia, Coomallo Nature Reserve, 28 March 2019. Credit: K Riley.

BORDEN BREEDING GROUND – December 2018 Fieldtrip

As described earlier, during the most recent breeding season at the Carnaby's cockatoo breeding grounds at Borden, the team was able to successfully deploy the double-mounted transmitter system on four adult birds. Two of these birds, CC 45 and CC 47, retained working satellite transmitters during February-March 2019, enabling ongoing monitoring of both these birds.

CC 45 – As mentioned in the previous circular, this bird's fledgling left its hollow around January 13th, and satellite data for CC 45 show that he left the breeding area for a few days towards the end of January and roosted around 30km south of the breeding site, before returning to the breeding grounds at the end of January. CC 45 left the breeding area again on February 4th, flying 32km to Boxwood Hill in a single day (Figure 8). Boxwood Hill has been used by the tracked Borden breeding birds in the post-breeding period for the previous two years of tracking. Here, CC 45 utilised the pine as well as native vegetation within around 7km of the swamp roost. His transmitter became stationary at the roost by March 6th, presumably having moulted out with his tail feathers.

CC 47 – This bird's nestling fledged on January 7th, and as described in the previous circular, CC 48 spent the next 9 days within 5km of the nesting hollow before leaving the breeding area in mid-January and travelling 48km in a single day to reach Wellstead. He spent the following couple of days visiting several stands of pine in the Wellstead area, before making his way roughly 15km north-east to the Boxwood Hill post-breeding area. Here, CC 47 foraged in pine plantations and canola stubble in adjacent farmland, as well as native vegetation on the roadside and in patches of reserve and unallocated crown land; exhibiting a similar foraging pattern as has been observed for birds at this post-breeding site in previous years.

Satellite data for February showed that CC 47 remained close to the Boxwood Hill pine plantation for much of the month (Figure 8). The data indicated that he foraged in the same flock as CC 45: daytime foraging locations for both birds were to the north-west of the plantation on February 19th, and south-east of the plantation on March 5th. During February field visits, the flock included over 300 birds.

Later in March, CC 47 shifted south-west to the Wellstead swamp roost which was identified during last year's tracking as an important post-breeding site. Data shows he visited several pine plantations in the area before his transmitter became stationary in a stand of pine on March 23rd, 7km north east of the Wellstead roost. His transmitter presumably moulted.

Figure 8. Projection of satellite data for Borden breeding birds CC45 (blue-green) and CC47 (green) for the months of February and March 2019.

Figure 9. The Boxwood Hill flock forages on canola, 5 February 2019. Credit: K Riley.

Figure 10. Birds from the Boxwood Hill flock preen in the early morning sunlight after leaving the swamp roost, 19 February 2019. Credit: K Riley.

Figure 11. Carnaby's cockatoos preening and feeding at the Boxwood Hill pine plantation, 19 February 2019. Credit: K Riley.

Figure 12. Carnaby's cockatoos from the Boxwood Hill flock feeding on *Isopogon trilobus* in unallocated crown land, 19 February 2019. Credit: K Riley.

Figure 13. A male Carnaby's cockatoo preens out a loose tail feather while foraging with the Boxwood Hill flock, 19 February 2019. Credit: K Riley.

The research team will continue to monitor the birds whose transmitters remain online, and we look forward to bringing you the next update on our tagged black cockatoos and their flocks in a few weeks.