

**Southern Brush-tailed Rock Wallaby,
Little River Gorge
Offspring Detection and Survival, spring 2022**

EGCMN Report 4



**Environment Restoration Fund-Threatened Species Strategy
Action Plan-Priority Species Grant**



Summary

In the past four years, the southern brush-tail rock-wallaby (sBTRW) population in Little River Gorge (LRG), East Gippsland has experienced minimal juvenile recruitment. To assess this issue, the East Gippsland Conservation Management Network (EGCMN) deployed cameras in spring 2022 to compare the number of female sBTRW with pouch-emerging young to the number of young at foot (YAF) and sub-adult sBTRW recorded in autumn 2023 by annual monitoring cameras set up by DEECA.

Out of the 16 pouch-emerging offspring detected in spring, only two were found in autumn. Our project's findings, along with other camera work, have revealed the widespread presence of foxes and cats in and around the sBTRW colony. It is likely that the low recruitment is a result of a high predation rate on emerged sBTRW individuals, indicating a significant risk of extinction for the remaining Victorian population.

To address this critical situation, intensive, ongoing, and adaptable feral predator management is necessary until positive population growth is observed in the sBTRW population in LRG

Methods

Between the 19th September 2022 and the 21st January 2023 43 white-flash reconyx motion detection cameras were deployed across LRG to detect female southern brush-tail rock-wallaby offspring. Camera days for each location ranged from 57-123 days., with variations due to weather conditions affecting retrieval but not impacting joey detection. All cameras were deployed for most of the spring with some cameras being left for part of the summer.

Although female sBTRW can breed at any time of year, spring is considered the most likely season to see females with pouch emerging young. Camera deployment was done in partnership between EGCMN and DEECA as the latter were monitoring translocated rock wallabies at the same time, enabling data and fieldwork to be shared. The different aims of the two groups meant cameras were not necessarily distributed evenly. As home ranges of females were known this did not change the ratio of joeys detected at sites with more or less cameras, but increased the number of data points.

EGCMN aimed to compare numbers of females with pouch emerging joeys in spring to YAF and sub-adults in the annual March monitoring of the sBTRW population by DEECA (2023 report in press). Annual monitoring uses a more even spread of cameras however the females detected in the spring cameras were the same as core home ranges targeted.

Predator cameras that are continually deployed (without baits) also contained some information on sBTRW offspring that was used in this reporting in both spring and autumn. For reference to these camera locations and set up methods see EGCMN Report 3 (2023).

The spring camera set up used the same methods as used in the sBTRW annual monitoring and can be viewed in Gaborov (2022). Females that were translocated in September 2022 (3) were not counted as offspring as their breeding was out of season and therefore a comparison could not be made in autumn 2023 camera monitoring.

Results

Twenty sBTRW females were detected on cameras not including the three new translocated females (that were also detected). Of the 20, one female has never bred and one female was detected just once without a joey she was not however detected in the March DEECA monitoring. From the remaining 18 females only one did not have a joey. One other female had an older young at foot which will not be used in the comparison with autumn as her Joey may have dispersed by this stage and was only detected on a predator camera so had already partly moved from some of its natal range.

Sixteen females with joeys have therefore been considered in the comparison with annual monitoring cameras deployed in March 2023 (Table 1). Of the 16 joeys only 2 of joeys are detected in March 2023 both in the north of the gorge at the Wulgulmerang Creek site. Two joeys became absent by the end of the spring camera monitoring (Amy and Herra's offspring).

Table 1 Detection of joeys from females caught on camera in spring and autumn

No.	Female ID	Spring joey detection	March joey detection
1	Ruby	yes	yes
2	Smudge	yes	no
3	UAF1 WC19/12	yes	yes
4	Blindy	yes	no
5	Petra	yes	no
6	Lisa	no*	female not detected
7	TempF1	yes	no
8	UAF1 (BG5)	yes	no
9	Sarah	yes	no
10	Penny	no	Na (never breeds)
11	Amber	yes	no
12	Queenie	no	no
13	Evelyn	yes	no
14	Millie	yes	no
15	Kiki	yes	no
16	Olivia	yes	no
17	Pam	yes	no
18	Dot	yes	no
19	Herra	yes	no
20	Amy	yes	no

Discussion

Joeys can sometimes be difficult to detect as they may shy away from cameras that are dominated by the adults attracted to the bait. Alternatively, they may have dispersed into an area without

cameras. While this is a plausible reason for one or two joeys not being detected, it is considered highly unlikely as an explanation for the other absences as camera arrays cover most of the gorge and in past years one year old sBTRW have been quite detectable on autumn monitoring cameras. It is therefore considered that a majority of the missing 14 joeys may have been predated by either foxes or cats, that are several of within the sBTRW home range (EGCMN, 2023). These findings are consistent with monitoring data gathered over the last 3 years which shows a majority of joeys pouch emerging but not persisting to a sub-adult stage (Gaborov, 2022; Gaborov and Reside, 2021).

Mortality from illness is not well studied but in Eastern-grey kangaroos it usually occurs once offspring are weaned rather than while joeys are emerging (Dawson, 1995). Emerging sBTRW are extremely vulnerable to predation, as the mother stashes them in the rocks once emerged when she goes to forage. The weight of joeys at pouch emergence is around 700g making them available and attractive prey for both cats and foxes (Reed *et al.*, 2018; Woinarski *et al.*, 2012).

An increase in predator control in the last 12 months targeting both cats and foxes has unsurprisingly not changed the success of sBTRW joey recruitment. As predator control needs to be intensive and ongoing to achieve permanent reduction in the numbers feral predator living in the gorge. At Mt Buller, where there has been a cat -trapping control program for 15 years, a reduction in cats was not established for the first five years (Pers Comms L. Perrin Environment Officer Mount Buller). Landscape scale baiting has been reduced in frequency the last 12 months (pers comms Martin Healy Southern Ark) . Some foxes seen on predator cameras are also appearing 'bait shy'. For these reasons, intensive, multiple predator control options are needed to ensure survival of the sBTRW population at Little River Gorge and intensity should be ongoing until there is a steady increase in the sBTRW population.

References

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