

Monitoring the South-eastern Red-tailed Black Cockatoo

Updated December 2025

BACKGROUND

The South-eastern Red-tailed Black-Cockatoo (SERTBC) is a nationally endangered species restricted to the Southeast of South Australia and Southwest Victoria. Its critically small population of around 1500 individuals is believed to be in decline as a result of the ongoing loss and deterioration of the cockatoo's key stringybark and buloke woodland habitats.

Since 1997, the SERTBC Recovery Team and BirdLife Australia have been working collaboratively with partner organisations and stakeholders to implement a recovery program which works to protect and restore critical habitat, identify and reduce key threats, monitor the population, raise awareness and build community capacity.



Figure 1: The SERTBC Recovery team April 2025. Photo: R. Farran

ANNUAL MONITORING PROGRAM

Each year, members of the Recovery Team and our dedicated volunteers collect important information to help us understand how the South-eastern Red-tailed Black-Cockatoo population is tracking. We monitor breeding success, habitat use, and the productivity of stringybark trees — the birds' main food source.

Our annual monitoring includes:

- Range-wide count: A one-day event where volunteers search across the species' range to estimate minimum population size, locate large flocks, and identify key feeding areas.

- Flock-ratio counts: Yearly targeted flock counts that give an indication of breeding success for that season.
- Food availability monitoring: Stringybark seed crop surveys to gain an understanding of the relative productivity of stringybarks to monitor food availability across the range.
- Nest monitoring: Sound recordings (bioacoustics) to monitor nest usage and outcome (survival rates) among known and potential nest hollows (natural and artificial).
- Sighting database: Recording community, SERTBC sightings via our freecall number, website, email, or the Birdata app helping us monitor the birds patterns of habitat use and how they respond to change.

ANNUAL RED-TAIL COUNT

Each year, the Recovery Team and BirdLife Australia coordinate a range-wide count of the South-eastern Red-tailed Black-Cockatoo across south-western Victoria and south-eastern South Australia. Volunteers and landholders search more than 60 sites in stringybark habitat—from Keith to Mount Gambier in SA, and from the Little Desert National Park to Nelson in Victoria.

The count helps identify large flocks, track habitat use and provide an estimate of the minimum population size. These results also guide follow-up flock counts to assess breeding success. Beyond providing vital monitoring data, the annual count raises community awareness of the SERTBC's conservation needs and gives volunteers a valuable opportunity to support recovery efforts.

Because SERTBCs are highly nomadic and the survey covers an 18,000 km² area, results can vary greatly between years. Factors such as weather, observer experience, and bird accessibility influence detection, meaning changes in total numbers counted do not necessarily reflect real changes in population size.





Figure 2: A flock of South-eastern Red-tailed Black Cockatoos. Photo Chris Dunn

FLOCK COUNTS

The annual count is our only way to estimate the minimum population size of the South-eastern Red-tailed Black-Cockatoo (SERTBC). It also helps us locate large flocks for follow-up counts, where observers record the mix of adult males and 'barred birds'.

Adult males are easy to recognise by their black plumage and bright red tail. Young birds, however, look like adult females until they reach about four years of age. This means all females and young birds appear similar in the field, showing spotted plumage and barred tail feathers.

The ratio of adult males to barred birds changes each year and reflects how successful breeding has been over the previous four seasons. Good breeding years produce more young birds, which increases the proportion of barred birds and decreases the proportion of adult males in flocks.

The best breeding seasons on record were in 1998–99 and 2004–05, when barred birds made up around 63% of flocks. Since then, the proportion has generally ranged between 51% (the lowest recorded in 2015–16) and 60%, with six consecutive poor breeding years from 2015–16 to 2019–20.

Recruitment improved between 2020–21 and 2023–24, matching years of higher stringybark food availability. However, in 2025 the proportion of barred birds dropped back to 2019 levels, suggesting another poor breeding season. Canopy capsule counts in January 2025 also showed the lowest food availability recorded since 2019.

Research consistently shows that breeding success in SERTBC is strongly linked to the amount of stringybark food available.

Evaluation of the long term dataset indicates an overall trend for a declining proportion of barred birds in flocks (adult females and juveniles up to 3 years of age). This is most likely the result of declining recruitment and/or increased adult female mortality.



Figure 3: Counts of males vs barred birds are often taken at watering points such as troughs when the birds come into drink. Photo R. Farran.

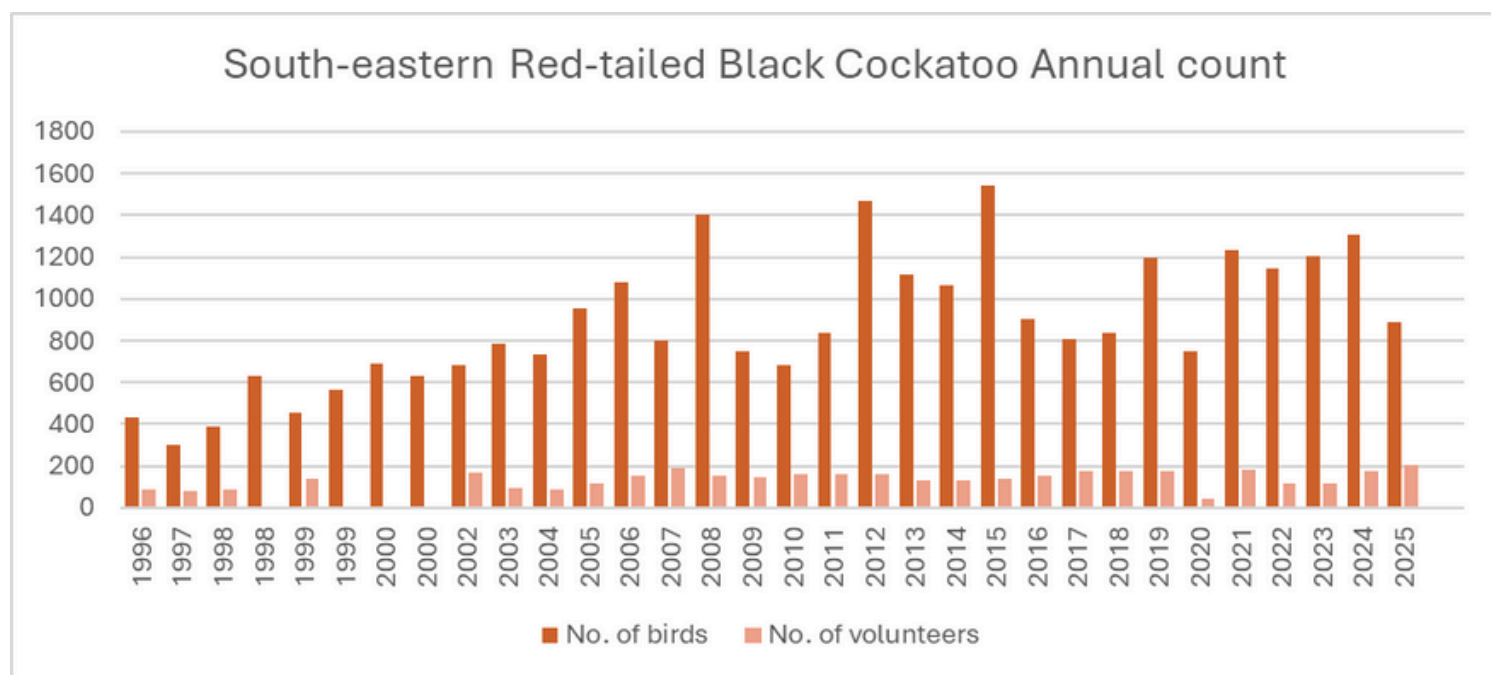


Figure 4: Number of SERTBCs counted and number of volunteers participating yearly in the annual counts since 1996

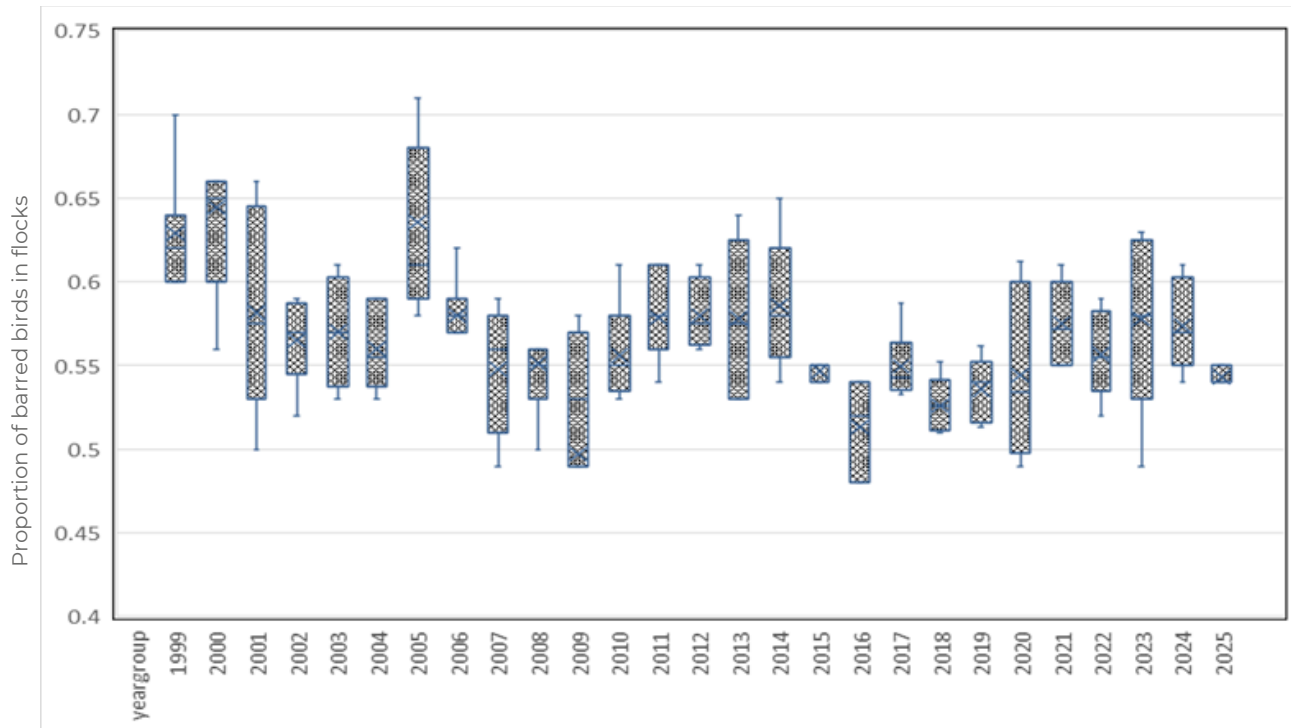


Figure 5: Flock-ratio survey results showing the average (X), median and quartile ranges of barred South-eastern Red-tailed Black-Cockatoos recorded in flock counts from 1999 to 2025.

FOOD AVAILABILITY MONITORING

To understand how long-unburnt stringybark habitat supports the South-eastern Red-tailed Black-Cockatoo (SERTBC), ten monitoring sites were established in 2007 — six in *Eucalyptus baxteri* and four in *E. arenacea* habitat. One site was later replaced after being burnt.

At each site, 20 mature trees were permanently tagged and assessed annually for seed capsule production. Three branches per tree were examined, and the density of the most recent seed capsule crop was rated as low, medium, or high using reference photos.



Figure 6: Healthy stringybark seed crop.

In 2017, the monitoring design was refined to improve data quality. The number of trees per site increased to 30, capsule density was assessed across the entire canopy, and a new measure of canopy volume (low, medium, high) was introduced. Standardised reference photos are used to ensure consistent assessment between years.

Every summer, Recovery Team staff monitor 300 stringybark trees at 10 sites to evaluate annual seed production. Volunteers participating in the annual count are encouraged to assess seed crops at their sites.

Monitoring stringybark phenology helps the Recovery Team assess food availability for the SERTBC. Food shortages are the main threat to the species' long-term survival, with low food availability being the strongest predictor of poor breeding success. This data also supports broader research into stringybark productivity and the factors influencing SERTBC feeding habitat quality.

NEST MONITORING PROGRAM

The nest monitoring program aims to assess and evaluate nest use and outcomes (survival rates) across the species range. Long-term monitoring of nests is expected to improve our understanding of the factors influencing breeding success, causes of nest failure and identify any new or emerging threats. Nests are often high and difficult to access so bioacoustic monitoring is used to detect and assess nesting activity remotely.

In 2019, PhD student Dani Texeira (Queensland University of Technology) developed a non-invasive bioacoustic monitoring method, combining passive acoustic monitoring devices with detailed behavioural observations. This method uses sound recorders installed at nest trees to collect data throughout the main breeding season (September–April).

Once the recordings have been retrieved, they are sent to the Queensland University of Technology to be processed using a custom call recogniser. The recogniser is designed to detect SERTBC vocalisations across six known behavioural contexts (e.g. adult flight calls, nestling begging calls, and alarm calls). Positive detections of calls are manually confirmed by trained analysts to confirm activity and nest outcomes such as fledging success or the timing of failure.

Bioacoustic monitoring has been undertaken annually since 2019, confirming nest fidelity (repeated use of the same nest sites) and successful uptake of artificial hollows. Importantly, it has also detected nesting activity missed by traditional inspection methods—for example, cases where hollows appeared empty on inspection with a pole-camera but vocal recordings revealed evidence of failed nesting.

While bioacoustic monitoring is proving to be an effective means of monitoring nesting success, more targeted research and data collection is needed over longer periods to better evaluate and examine trends, uncover patterns in nest usage and survival, and better understand potential causes of nest failure.

As more data is collected, bioacoustic monitoring will reveal patterns in nest use, survival, and hollow uptake, helping the Recovery Team make informed decisions about nest site management, artificial uptake, helping the Recovery Team make informed decisions about nest site management, artificial hollow placement, and breeding habitat protection to support population recovery.



Figure 7: Installing sound recording device. Photo: K. Bennett

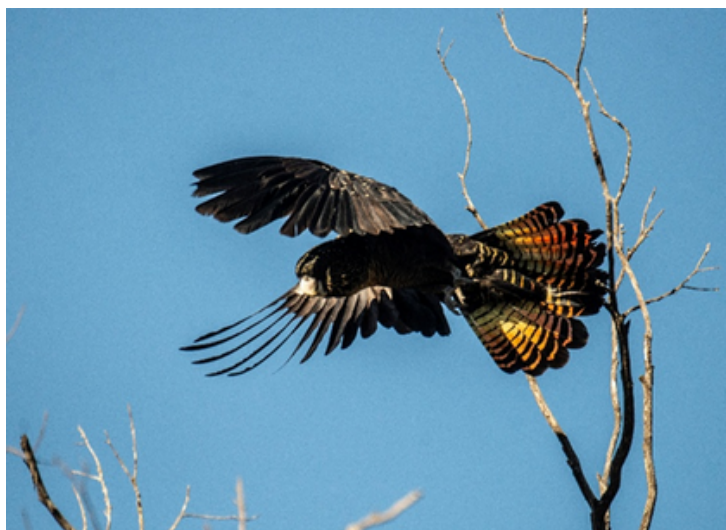


Figure 8: Female South-eastern Red-tailed Black Cockatoo . Photo: M. Svens

SIGHTINGS DATABASE

The Recovery Team maintains a dedicated database of South-eastern Red-tailed Black-Cockatoo sightings to help track the movements and behaviour of SERTBC flocks. These reports provide vital information to improve our understanding of the species' distribution, habitat use, and seasonal movements.

Sightings are collected via a dedicated website: www.redtail.com.au and free hotline 1800 262 062 as well as being directly reported to project staff. More recently the team has moved towards recommending BirdLife Australia's Birdata app, which allows quick and easy mobile reporting. To maintain fidelity of the database sightings must include the date, time, number of birds observed, behaviour and an accurate location. All sightings entered in the database are verified by project staff.

In addition to informing recovery actions all sightings are uploaded to Victorian Biodiversity Atlas and South Australian Biodiversity Database, helping inform conservation planning and government management actions across the Red-tail's range.

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