



# Listening out for Sulphur crested cockatoos on the Swan Coastal Plain

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## 1 CONTEXT

Sulphur-crested Cockatoos are highly intelligent birds native to northern Western Australia (1, 2). Since 1935, Sulphur-crested Cockatoos released from captivity have been attempting to establish throughout the Swan Coastal Plain in the state's coastal south-west (3). Their presence throughout the Plain raises concerns, as they have the potential to become noisy pests (4) and may compete with native black cockatoos for feeding and roosting sites. Sulphur-crested Cockatoos can also damage cereal, oilseed and legume crops, fruit and vegetable crops and timber plantations (5).

## 2 AIMS

In response, a collaborative team has launched a monitoring program to map Sulphur-crested Cockatoo distribution and estimate population numbers across the region. The team aims to determine:

- a. the number,
- b. location,
- c. population size, and
- d. movement pathways of Sulphur-crested Cockatoos on the Swan Coastal Plain.

## 3 METHODS

Surveillance has been underway since mid-2023, using acoustic recorders to detect the birds and monitor their activity at known locations. Based on public reports and sightings, the program has been progressively expanding to include all known individual populations. To streamline data processing, a recogniser developed by the Queensland University of Technology (QUT) has been implemented to analyse recordings from 20 Bar-LT acoustic recorders deployed across the Swan Coastal Plain.

Complementing the acoustic data, the program also employs 4G-enabled cameras. These cameras record the birds' use of individual properties' water points, canopy trees and other resources at differing times of the day. Camera use also included alerts for when the Sulphur-crested Cockatoos were present the capture location for tracker attachment.

GPS Solar powered GPS tags were worn in 2025 by six individual cockatoos to determine individual populations and movement pathways to value add to the project and help understand the population dynamics of the birds' on the Swan Coastal Plain.

## 2 KEY RESULTS

Many hours of data from the Bar-LTs have been recorded and analysed since their deployment in November 2023. The QUT recogniser's performance on training was 84.85% precision (True Positive detection rate) and 90.29% True Negative detection rate. The recognisers performance on field data has achieved a high detection accuracy of over 90% for Sulphur-crested Cockatoos.

The movement tracking over three months to date has demonstrated that the Sulphur-crested Cockatoos have localised home ranges which cover an average of 8.2 km<sup>2</sup> (6.6-9.9 CI). At present the four of the six tracker are still collecting data.

Populations at Pinjarra, Muchea, Lake Meelup, and the Mandurah estuary appear to be independent, with little movement between them based on the current tracking data. Additionally, single birds have been recorded in suburban Perth and reserves along the Plain.

## 3 CONCLUSIONS

The project is ongoing and continues to test and refine the recogniser under varying environmental conditions and background noise levels, with the goal of accurately mapping the presence of Sulphur-crested Cockatoos in the region. In addition to the acoustic recorders the use of cameras and tracking technology enabling a management lead control program for the birds to be adaptive and effective.

## 4 IMPLICATIONS

The Western Australian State Government strives to maintain this state's enviable biosecurity status in regard to pest birds. By understanding the number and movement patterns of Sulphur-crested Cockatoos and population size in the varying locations the cockatoos can be controlled outside their natural range extent on the Swan Coastal Plain.



Source (Tracey Kreplins, 2025)

Figure 1: Two Sulphur-crested Cockatoos drinking from a water point in Pinjarra. The image was recorded by the 4G cameras.

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