

## Progress Report for 2023 FAR Grant

### Is helping helpful under adverse conditions?

**Lyanne Brouwer & Manuel Andrés Sanchez Martínez**

College of Science & Engineering, James Cook University,  
1 James Cook Drive Townsville, Queensland 4811 Australia  
Email: [lyanne.brouwer@jcu.edu.au](mailto:lyanne.brouwer@jcu.edu.au)

Social behaviour, and in particular cooperative breeding, whereby individuals other than the breeding pair help to raise offspring, may help improving reproductive success and survival under adverse conditions. Social behaviour itself can also be impacted by these conditions, however, meaning that the effect of adverse conditions on social behaviour and its fitness consequences should be studied simultaneously. Here, we studied this complex interplay between ecological conditions and social behaviour in the cooperatively breeding Red-winged Fairy-wren *Malurus elegans* (Fig. 1). In this species, breeding pairs are assisted by helpers of both sexes that assist with provisioning the young.

Red-winged Fairy-wrens inhabit the undergrowth of the tall Karri and Jarrah forests of south-west Western Australia. Data was collected between October-December 2023. Two volunteers were recruited to assist with data collection (Fig. 2). Most of our time was devoted to nest searching, which is done through following females around their territory until they carry nesting material or return to the nest to incubate the eggs. Nests were checked for the presence of eggs, hatchlings and fledglings twice a week. When nestlings were 8 and 10 days old, video cameras were placed near the nest to determine provisioning rates of each group member. After setting up the camera, the observer made sure birds continued to feed the nestlings. Cameras had to be placed near the nest early morning and collected again before dusk, allowing recording throughout the day with varying weather conditions. We experienced a severe heatwave late November, which resulted in reduced breeding activity; however, we did manage to collect some data on provisioning behaviour of the nests that were still around, meaning we will be able to determine how such extreme conditions affect helping

(provisioning) behaviour, as well as offspring fitness. We are currently analysing the many hours of recordings to derive the provisioning rates and preparing the data for further analyses.

To find out whether other behaviours are affected by weather conditions, we developed focal observations, whereby individuals were continuously followed for a period of 20min. when nestlings were 8 and 10 days old. We were able to classify four behaviours: foraging (efforts related to searching for and handling prey), attending the nest (all visits to the nest, including provisioning and brooding), resting (activities such as preening, standing, and perching) and engaging in other activities (e.g., walking, flying, on sentinel duty, interacting with neighbouring groups).

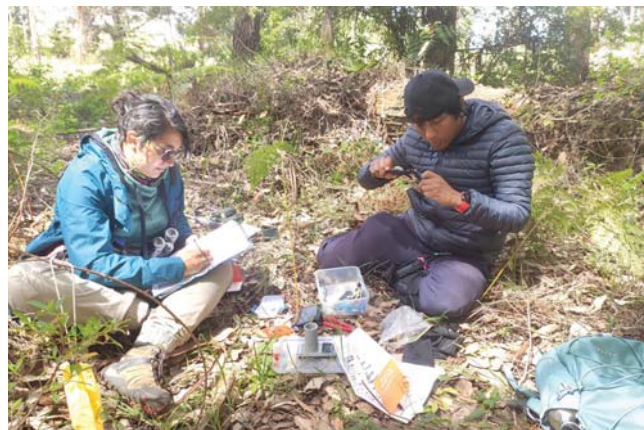
The focal observations proved quite challenging, and we had to invest a lot of time to gather accurate data. The main issue was that it is quite difficult to continuously observe a bird in the dense vegetation. We managed to collect observations for birds from 11 groups. Our preliminary results show quite a lot of variation, with birds dedicating between 28% and 97% of their time to foraging and males tending to spend more time foraging compared to females (Fig. 3B). Females devoted more time to nest care than males (Fig. 3B), whereas helpers' nest attendance was lower compared to dominants. Dominants dedicated more time to foraging and resting (Fig. 3C). We are hoping to expand this dataset and will then be able to determine how these behaviours vary with weather conditions.

We extend our gratitude to the Australian Bird Study Association for their contribution, and will acknowledge them in any future publications arising from the project.



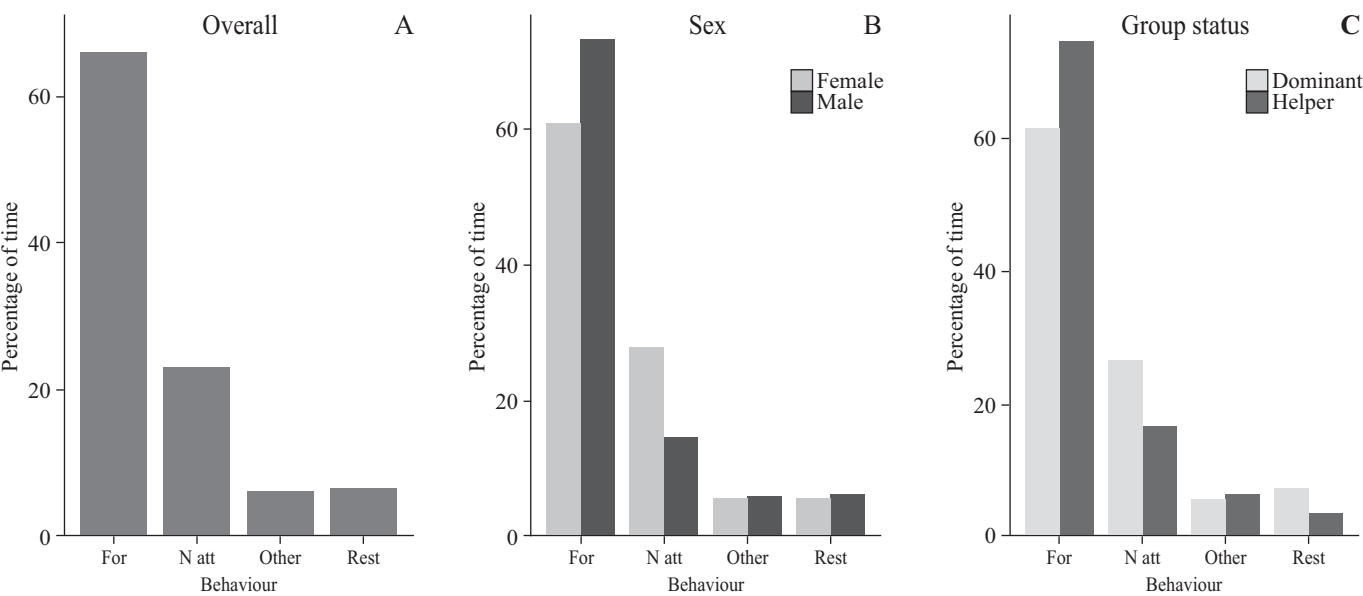
**Figure 1.** A male Red-winged Fairy-wren on its way to the nest with a prey item.

Photo: Lina Peña



**Figure 2.** JCU MPhil student Manuel Andrés Sanchez Martínez measuring a nestling fairy-wren, while volunteer Lina Peña takes notes.

Photo: Lyanne Brouwer



**Figure 3.** Average percentage of time spent resting (Rest), foraging (For), attending the nest (N att) and engaging in other activities (Other).

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# RECOVERY ROUND-UP

This section is prepared with the co-operation of the Secretary, Australian Bird and Bat Banding Schemes, Australian Nature Conservation Agency. The recoveries are only a selection of the thousands received each year; they are not a complete list and should not be analysed in full or part without prior consent of the banders concerned. Longevity and distance records refer to the ABBBS unless otherwise stated. The distance is the shortest distance in kilometres along the direct line joining the place of banding and recovery; the compass direction refers to the same direct line. (There is no implication regarding the distance flown or the route followed by the bird). Where available ABBBS age codes have been included in the banding data.

Recovery or longevity items may be submitted directly to me whereupon their merits for inclusion will be considered.

Hon. Editor

The following abbreviations appear in this issue:

- AAD – Australian Antarctic Division
- AWSG – Australasian Wader Study Group
- GBR – Great Barrier Reef
- NSW NPWS –NSW NPWS Seabird Project
- SOOCA – Southern Oceans Seabird Study Association
- VWSG – Victorian Wader Study Group

## Wompoo Fruit-Dove *Megaloprepia magnifica*

101-30090. Adult (2+) banded by J. T. Coleman at Finch Hatton, Qld. on 24 May 2020. Recaptured, released alive with band at banding place on 5 Nov. 2023, over 3 years, 5 months after banding

(This is the oldest recorded for the species.)

## Black-browed Albatross *Thalassarche melanophris*

120-65582. Adult (1+) banded by SOSSA at sea east of Wollongong, NSW on 11 Jun. 1994. Recovered dead, at Birubin Beach, Anna Bay, NSW on 8 Jul. 2024, 30 years after banding. 207 km N.

## Southern Giant-Petrel *Macronectes giganteus*

131-52061. Nestling banded by AAD on Frazier Island 17 km WNW of Casey, Antarctica (66° 22'S, 110° 22'E) on 14 Feb. 1986. Band number/colour marking sighted, on nest at Dumont D'urville Land, Antica, France (66° 40'S, 140° 01'E) on 16 Nov. 2023, over 37 years, 9 months after banding. 1,300 km E.

## Kermadec Petrel *Pterodroma neglecta*

(a) 082-61853. Banded by NSW NPWS on Philip Island near Norfolk Island Group, ACT on 27 Dec. 1989. Recaptured, released alive with band at banding place, on 4 Dec. 2018, over 28 years 11 months after banding.

(This is the oldest recorded for the species.)

(b) 083-14463. Banded by NSW NPWS at Blinky's Beach, Lord Howe Island, NSW, on 29 August 2017. Recaptured, released alive with band on Phillip Island, Norfolk Island Group, ACT on 9 Oct. 2018. 892 km ENE.

(This is the longest movement recorded for the species.)