

INTERVIEW WITH A RESEARCHER - 2014



RESEARCH FUNDED BY NATURE FOUNDATION SA

RESEARCHER: MISS CHRISTINE EVANS, FLINDERS UNIVERSITY PHD STUDENT

RESEARCH PROJECT: "THE ADAPTIVE CAPACITY OF THE SUPERB FAIRY-WREN IN A CHANGING ENVIRONMENT"

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An eclipsed male Superb Fairy-wren
Photo: Paul Vagnarelli

What was the aim and purpose of your project?

Fire is part of the Australian landscape but imposes rapid change to environmental conditions, so it is important to understand how our native wildlife responds to fire. In our study, we tested if the Superb Fairy-wren (*Malurus cyaneus*), an iconic, insectivorous bird, shows an adaptive response to fire using the severe 2007 Kangaroo Island Fire as a case study. We compared our long-term data from 2006 to 2012 on insect abundance, wren foraging, group size and morphology.

Summarise the results of your project.

We found shifts in behaviour and morphology of wrens and changes in insect community in relation to the 2007 fire. Insect species diversity was lower with more small insects, following the fire. We also found changes in foraging behaviour. Wrens shifted their foraging from picking from grass and leaf litter before the fire, to gleaning insects from bark/leaves on shrubs/trees after the fire. Group size was much smaller after the fire, with few nuptial males- but recovered to pre-fire group size four years after the fire. Body size was larger for two years after the fire, and then returned to pre-fire size four years after the fire. There was no change in bill shape before for and after fire. These findings show Superb Fair-wrens have an adaptive capacity to fire.



A pitfall trap containing ethanol and a drop of detergent was used to catch ground-dwelling insects
Photo: Paul Vagnarelli

What is the most exciting thing about this work?

- The study shows Superb Fairy-wrens have an adaptive capacity to fire.
- Superb Fairy-wrens can rapidly adapt their foraging behaviour when local conditions change after fire.
- Superb Fairy-wrens were larger two years after the fire, perhaps because large wrens were able to colonise the burnt habitat.
- Group size was much smaller after the fire, with few nuptial males, but group size recovered to pre-fire group size four years after the fire.
- After the fire, insect species diversity was lower with more small insects, however insect abundance remained constant across the years.

“ The most rewarding thing about this work was having the opportunity to study the iconic and charismatic Superb Fairy-wren in the serenely beautiful Flinders Chase National Park, and being able to observe how the population bounced back after the devastation 2007 bushfires on Kangaroo Island.”



Superb Fairy-wren habitat at
Flinders Chase National Park on
Kangaroo Island.
Photo: Paul Vagnarelli