# Purple-crowned fairy wrens exhibiting unusual breeding behaviour

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Females caught during dry season research had brood patches ¬- bare patches on the belly indicating that the females were actively breeding out of season. Credit: Wayne Lawler/AWC

What gets birds in the mood to knock feathers? It's the unexpected question ecologists and researchers in central Kimberley have been faced with after witnessing an increase in purple-crowned fairy wrens breeding outside of their traditional season.

Researchers who have studied and monitored purple-crowned fairy wrens for 16 years at Australian Wildlife Conservancy's (AWC) Mornington Wildlife Sanctuary on Bunuba and Kija Country, caught the wrens romancing throughout the dry season (May to November) for a second consecutive year. They described the activity as 'highly unusual' given that breeding commonly takes place during the wet season (December to April).

Dr. Niki Teunissen, a research associate running the on-the-ground research for a long-term purple-crowned fairy wren project led by Professor Anne Peters of Monash University, said most of the adult females caught during a survey in November last year, had brood patches—bare patches on the belly—which indicate that the females were actively breeding out of season.

"Successful breeding amongst an endangered species such as the purple-crowned fairy wren is always welcome, however, we are surprised by the extent of dry season engagement," said Dr. Niki Teunissen, research fellow at Monash University. "We suspect that dry season breeding is a result of the above average rainfall we had last wet season which means water levels remained relatively high along Anie Creek and the Adcock River on AWC's Mornington Wildlife Sanctuary. This may have provided good conditions for breeding. However, it does not explain why there was so much dry season breeding last year too."

Researchers and ecologists suspect recent wet weather may have contributed to increased breeding during dry season but they say it still doesn’t explain the extent of breeding. Credit: Annie Leitch/AWC

"To be honest, it goes against what we thought we knew about the birds' breeding behavior and we don't quite understand the recent breeding activity by the wrens. It raises more exciting research questions for us to answer."

While dry season breeding has heightened curiosity amongst the conservation and research team, it has also contributed to a much-needed increase in Mornington Wildlife Sanctuary's purple-crowned fairy wren population.

In 2004, when AWC first acquired Mornington Wildlife Sanctuary, the species was in a dire state due to significant habitat damage caused by large feral herbivores and wildfires. Extensive destocking and effective fire management by AWC however saw a significant recovery in the wren population. Between 2018 and early 2020 however the population once again declined due to a severe, prolonged drought and fire.

While still unexplainable, ecologists at Mornington Wildlife Sanctuary have welcomed increased breeding among the threatened species which experienced a significant population decreased during 2018 and 2020 fires. Credit: Wayne Lawler/AWC

As of November 2021, and thanks to extended periods of breeding, Mornington Wildlife Sanctuary's wren population climbed back up to 204 individuals—an increase from 172 in July 2021 and 143 in November 2020.

During the recent survey, Dr. Teunissen, with help from AWC's operations and field scientists captured 56 new birds, most of which were fledglings (birds that hatched since the previous survey in July 2021), and a few were adult immigrants that had newly joined the population.

"It's all really good news for the purple-crowned fairy wrens at Mornington Wildlife Sanctuary," Dr. Niki Teunissen added. "We are really excited about this big boost in numbers and look forward to learning what our new findings may mean for the population moving forward."

As of November 2019, Mornington Wildlife Sanctuary's wren population is estimated to be around 204 individuals – an increase from 172 in July 2021 and 143 in November 2020. Credit: Wayne Lawler/AWC

The purple-crowned fairy wren is a small social bird found in dense riparian vegetation in northern Australia. Both male and female wrens have brown backs, wings and a paler buff belly. During the mating season, males distinguish themselves by sporting a vibrant purple crown, while the females have gray heads and chestnut-colored cheek patches.

The purple-crowned fairy wren is considered at risk due to ongoing threats to riparian vegetation, on which they heavily depend. AWC protects the vegetation at Mornington-Marion Downs and Pungalina-

Seven Emu Wildlife Sanctuaries by removing major threats such as large feral herbivores and implementing effective, large-scale fire management programs.

Provided by Australian Wildlife Conservancy