INTERVIEW WITH A RESEARCHER - 2014

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RESEARCHER: MS AMY LEE SLENDER AND MS MARINA LOUTER, FLINDERS UNIVERSITY
RESEARCH PROJECT: BIODIVERSITY OFFSET STRATEGY FOR IMPACTS TO THE THICK-BILLED GRASSWREN (EASTERN SUBSPECIES (*AMYTORNIS TEXTILIS MODESTUS*)

Catching Thick-billed Graswrens at Stuart Creek Station in July 2014: Marina Louter holding an adult male Thick-billed Grasswren, after it has been removed from the mist-net. In the background Lynn Pedler is folding up the mistnet in which this male was captured.
Photo: Reece Pedler

What was the aim and purpose of your project?

" The Thick-billed what...?" is a question that is often asked when we talk to people about out research. Not many people have ever heard of the bird that we are studying – the Thick-billed Grasswren (TBGW) – and for good reasons: This endemic and threatened bird species mostly occurs in isolated and remote arid regions of Australia. This fact, together with their very shy nature and cryptic plumage, makes them very difficult to locate and identify, even for more experienced birders. As a result, much of the Thick-billed Gresswrens basic life history information is unknown. What we do know is that this wren species has been in decline, yet we do not know which factors underpin this pattern. The air of our research is to improve our knowledge of Thick-billed Grasswren life history traits, by identifying specific habitat feature of areas that support TBGWs, by studying their breeding biology and dispersal abilities and by identifying relatedness and gene flow across local populations. Understanding these key factors will provide us with the opportunity to scientifically

inform conservation management strategies in order to protect the Thick-billed Grasswren from any further decline.

Summarise the results of your project.

We undertook bird surveys across 250+ plots across NFSA's Witchelina Nature Reserve and across a large area West of Lake Torrens, to determine presence or absence of Thick-billed Grasswrens at these sites. Habitat features including predation pressure and insect abundance were related to the presence or absence of Thick-billed Grasswrens and we found that Thick-billed Grasswrens were more likely to be absent from sites that had heavy grazing impacts and present on sites with small creek beds. Sites with Thick-billed Grasswrens had more rodents, more beetles, and more rodent predation. Thus, to conserve habitat for Thick-billed Grasswrens we suggest reducing grazing impact and controlling rodents.

A nest of Thick-billed Grasswren: chicks age two days post hatching (top) and eight days post hatching (bottom) Photo: Marina Louter

To identify morphological and genetic differences between difference Thick-billed Grasswren populations we capture individual Thick-billed Grasswrens and took a blood sample from each individual. We sampled across two populations and caught a total of 164 birds: 88 individuals of subspecies A.m. raglessi (Witchelina population- East of Lake Torrens) and 76 individuals of subspecies A.m. indulkanna (population West of Lake Torrens). We found morphological differences between the two populations, where the Witchelina birds were found to be smaller in body size and had a narrower but thicker bill than the birds that occur west of Lake Torrens. These difference in morphology might be caused by reduced exchange of genetic information between the two populations (gene flow), which could lead to population differentiation. Genetic analysis of collected blood samples is planned for Dec 2014 and 2015.

What is the most exciting thing about this work?

- Feeding observations at a Thick-billed Grasswren next in Witchelina revealed cooperative breeding in this species, which was suspected, but not known.
- Thick-billed Grasswrens in Witchelina are highly specialized in their nest-building behaviour: 80% of all TBGW nests (134 of 168) were located in the Blackbush *Maireana pyramidata.*
- Song recordings were made of both male and female Thick-billed Grasswrens and will be analysed to compare for differences between A.m. indulkanna and A.m. raglessi (work in progress).
- Blood parasites were detected in both populations of Thick-billed Grasswrens. These parasites may play an important role for fitness, which remains to be tested (work in progress).

“ In order to complete genetic tests for identifying sex in young birds, detecting blood parasites, understanding parentage and looking at breeding interactions across the population we need a small blood sample. Catching a Thick-billed Grasswren adds a new level of complexity to studying a bird that is already difficult to see. In order to catch a Thick-billed Grasswren you need a sense of instinct that puts you right in the mind of the Grasswren as you need to calculate where they are going to go and how they are going to respond to you. The easiest way to describe it is herding but it is very challenging and they can always surprise you” – Amy Slender

“This bird species is- without a doubt- the most difficult bird species I have ever worked with. Yet, despite its elusive nature and against all the odds, we have managed to find and capture a total of 162 Thick-billed Grasswrens in 2013 and 2014 so far. The challenge that lies ahead of me now is to observe colour-banded individuals on Witchelina Reserve in their natural habitat, and to discover what life is all about for a Thick-billed Grasswren. Trotting in this unknown territory will be tough and demanding at times, but it will also be very exciting and I am very much looking forward to getting to know the Witchelina Thick-billed Grasswrens” – Marina Louter

Typical Thick-billed Grasswren habitat: Gibber with chenopod shrubs, predominantly Cottonbush (*Maireana aphylla*) and Blackbush (*Maireana pyramidata)*
Photo: Paul Vagnarelli