

MEET YOUR COTTON RESEARCHER

Professor Stuart Parsons
Dean, University of the Sunshine Coast

PROFILE

AUGUST 2024

RESEARCH AREA

**Animal ecology,
bioacoustics, AI,
integrated pest
management**

CRDC/GRDC Research Project
***Improved insecticide
resistance monitoring for key
pests to support sustainable
insect management***

WHAT'S YOUR BACKGROUND?

I was born in Liverpool, England but moved to Canada as a young child. At the age of 12 my family moved to Brisbane where I completed high school. At the age of 17 I moved to New Zealand to study at university and completed degrees in Zoology.

I then worked in the UK for 3.5 years before moving back to New Zealand to start my first “proper job” at the University of Auckland. Ten years ago I moved back to Brisbane to start a job at QUT, and finally moved to UniSC 2.5 years ago.

WHAT EXCITES YOU ABOUT WORKING IN THE COTTON INDUSTRY?

I love that the research work I do can be of practical use for growers. The projects allow me to explore lots of different aspects of science, but always with the goal of adding value to growers while at the same time helping to protect and grow biodiversity.



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HOW DID YOU END UP IN COTTON RESEARCH?

My collaboration with cotton research began through a colleague, Dr Erin Peterson when we collaborated on a small project to investigate how acoustics might be used to study biodiversity, particularly of animals that could assist growers with integrated pest management. This then grew into a grant co-funded by CRDC and the National Landcare Program developing automated acoustic monitoring devices for use in cotton landscapes. At the end of 2023 we began our current project deploying our acoustic monitoring devices in cotton landscapes (in the Gwydir region) to assess how landscape connectivity helps to bring in helpful birds and bats that prey on insect pests of cotton.

WHAT DO YOU LIKE TO DO WHEN YOU AREN'T RESEARCHING?

My day job keeps me very busy even when not researching, so in my spare time I like to relax at home, read and spend time in the garden. My children have (mostly) left home and so my wife and I have been taking the opportunity to travel. Amazing food is almost always at the centre of my free time.

WHAT DOES YOUR CURRENT RESEARCH INVOLVE & WHAT WILL BE THE OUTCOME?

We are using animal acoustics – the calls of birds and sonar calls of bats - to monitor biodiversity on cotton farms.

The species we monitor are indicators of the health of the ecosystem, especially the availability of vegetation such as native trees. This is because the bats and birds need the trees for living or feeding. The species we monitor are also important as they are known to eat the best insects of cotton, and so contribute to the integrated pest management strategies of growers. To monitor the birds and bats, we have developed a device that can sit in cotton or nearby vegetation and “listen” for calls. When it hears them, it uses AI to identify the species and send this information to the “cloud” where growers and researchers can monitor biodiversity of these important species.

Our latest project is using the AI devices to determine how landscape connectivity of cotton farms helps bats and birds to provide pest control services to growers. For example, a cotton farm with areas of trees and riparian vegetation that is connected via other vegetation across the landscape may have more beneficial bats and birds than those without the vegetation. This is because the bats and birds like to have corridors of vegetation to help them move across the landscape. The more trees and vegetation, the more beneficial bats and birds, the better the pest control services they can provide. At the end of the project, we will be able to provide advice to growers on how to improve the accessibility of their farms to these beneficial bats and birds.

For further information:

Visit www.cottoninfo.com.au



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