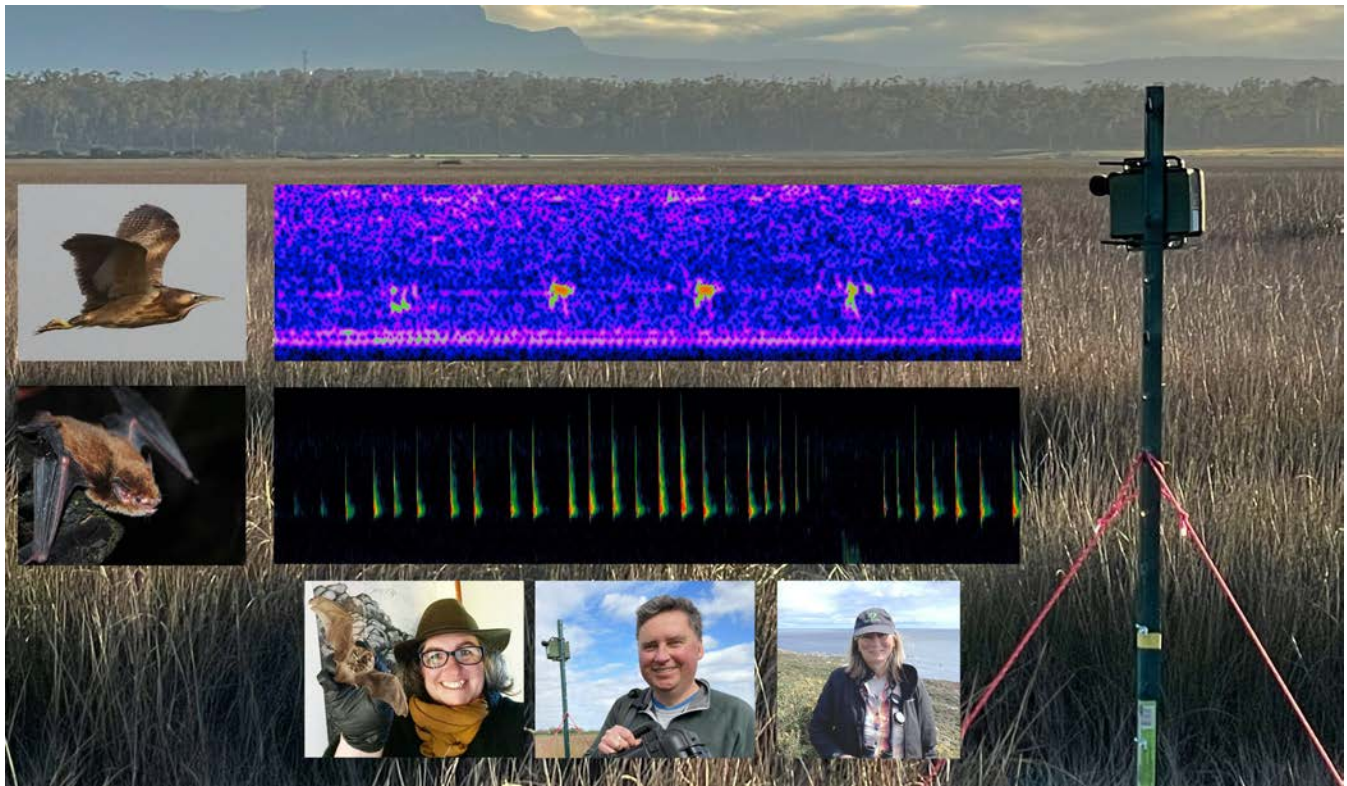




Eavesdropping on animals with CallTrackers



This August, find out what happens when an astrophysicist joins forces with two ecologists - and they engage everyone who's interested to search for bats and a secretive endangered bird.

For National Science Week, join NatureTrackers' Dr Jim Lovell, Dr Lisa Cawthen and Dr Liz Znidersic, to find out what black holes and stars the size of a city have to do with protecting our native wildlife. Find out how you can help listen out for sounds we can't hear from animals that hunt in the dark, and to find and monitor birds that don't want to be seen. Discover the hidden worlds of bats and bitterns.

"Many animals are difficult to spot but they give themselves away by the sounds they make", Dr Lovell said. "For the CallTrackers project we're really excited to invite everyone to get out into the wild and help search for these elusive creatures."

During a CallTrackers trial last summer and autumn, over 3000 ultrasonic bat calls and hundreds of haunting bittern booms were recorded in 18 locations over 23 days by 16 citizen scientists. They collected well over 500 gigabytes of data!

This August, NatureTrackers is travelling to the east coast (Aug 14 and 15) to muster more citizen scientists as part of National Science Week. Participants will be able to find out how they can help the CallTrackers project by borrowing an audio recorder.

To find out how to get involved, visit naturetrackers.com.au and book your free tickets for the event at Swansea Town Hall on August 14 at <https://tinyurl.com/CallTrackersAU>

Background

NatureTrackers is the brainchild of Dr Clare Hawkins and the Bookend Trust, collaborating with individuals and organisations across Tasmania. This program of citizen science projects brings together schools and the community to track the status of our threatened species and better understand their needs. Two projects have been operating successfully for several years, focussed on our endangered wedge-tailed eagle and the Central North burrowing crayfish. A third project, CallTrackers, is set to launch later this year.

The Bookend Trust is a not-for-profit education initiative that seeks to inspire students and their communities with positive environmental engagement that helps make the world a better place.

Tasmania has 8 resident bat species, including the Tasmanian long-eared bat which is found nowhere else in the world. All of them are 'microbats' and call at the ultrasonic level (see spectrogram images). We still have a great deal to learn about their secret lives.

The **Australasian bittern** (*Botaurus poiciloptilus*) is often only detected through its night-time call - a haunting boom - around wetlands in spring. It's a relative of the heron but stockier, and very well camouflaged. It was listed as a threatened species (Endangered) Australia-wide after the millennium drought. From very limited information on its status in Tasmania it appears that it may have declined dramatically:

<https://www.environment.gov.au/biodiversity/threatened/species/pubs/1001-listing-advice.pdf>



Ecologist Dr Lisa Cawthen is a renowned expert on Tasmania's bats. Her professional experience includes academic and governmental research, environmental consultancy and practical conservation actions. Born and bred in Perth, Tasmania, she showcases the pathway for someone growing up in rural Tasmania to learn about science and work in a scientific field. She loves to make the case for Tasmania's less well understood wildlife and bust the myths about bats.



Radio astronomer Dr Jim Lovell also grew up in Tasmania, and has worked for UTAS, CSIRO and NASA using radio telescopes to study quasars. He recently started working with Lisa and other wildlife monitoring experts, applying his expertise to develop innovative acoustic monitoring approaches and to coordinate the CallTrackers project.



Ecologist Dr Liz Znidersic is known for her adventures in wetlands. She has worked in the wetlands of Australia and USA working out the best methods to detect sneaky species which would prefer to hide than be seen. Liz applies technological methods to assist her on ground fieldwork. She works for the Gulbali Institute at Charles Sturt University on the Eavesdropping on Wetland Birds Project.

What is a **citizen scientist**? NatureTrackers define this as 'A potential, amateur, or professional scientist, often learning from and collaborating with others, volunteering their time to conduct scientific work.'

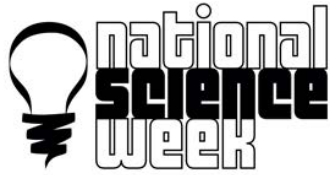
Contact information

Jim Lovell and Lisa Cawthen are both available for interviews:

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Dr Liz Znidersic: 0409 123 322, eznidersic@csu.edu.au



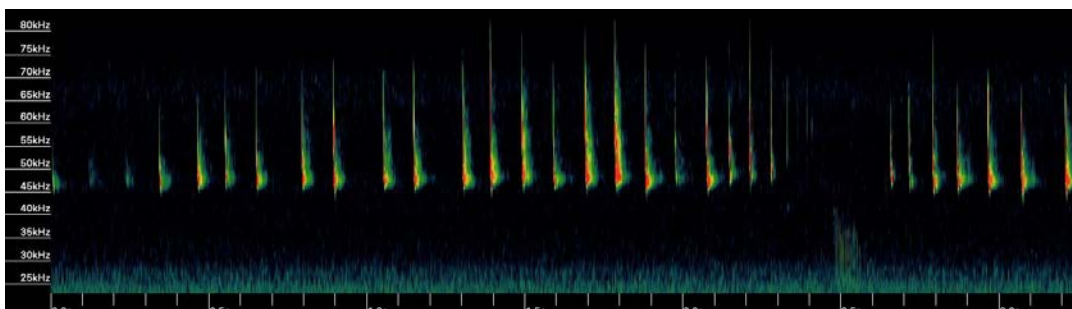
Resources

Images

High resolution versions of all the images shown in this document are available from this [Shared Google Drive](#)

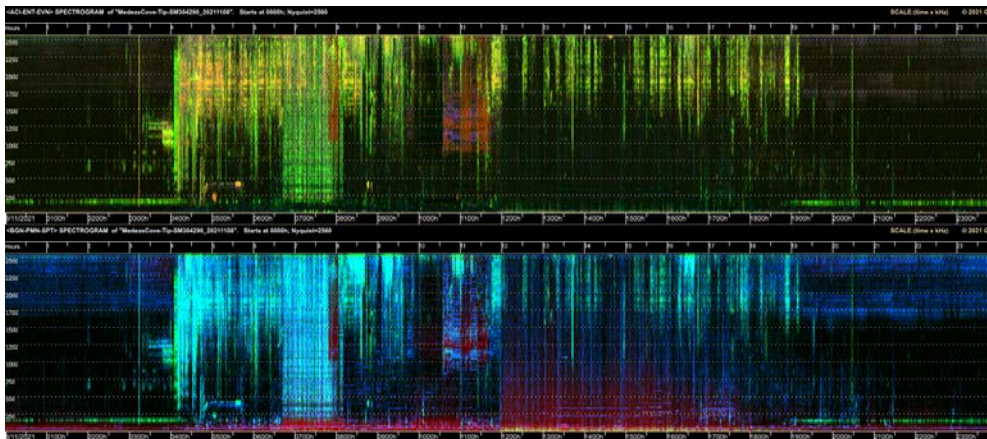
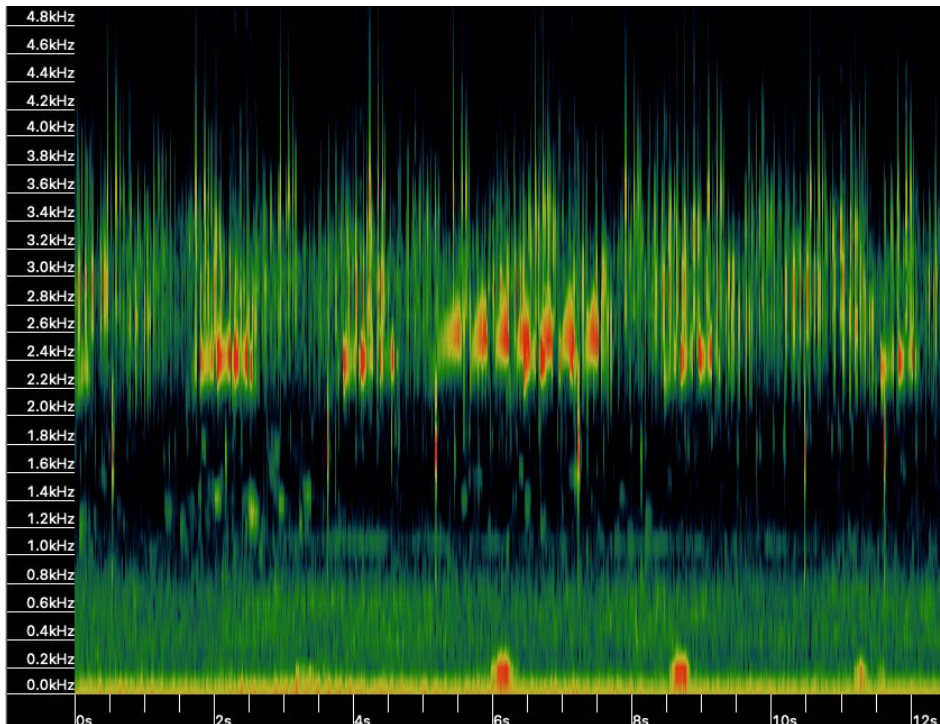
1. What bat sounds 'look' like.

One of the most useful analysis tools for a biologist studying animal sounds is the spectrogram. It can show a distinctive sound signature of the animal. Bat calls are particularly distinctive as the frequencies of the calls are in the ultrasound range and the pattern consists of a series of 'pings' as the bat finds insects and navigates through the dark.



2. What bittern booms 'look' like.

Bitterns also have a distinctive sound, but very low frequency. However, this helps them stand out in a spectrogram. This image is from a recording taken at a wetland. All of those features across the middle of the picture are frogs, but those three patches at the bottom of the picture are bittern 'booms'.



A long-duration false-colour spectrogram of a wetland which is the home to Australasian Bitterns.

Clare and Jim deploying recorders in the midlands. (photos by Clare Hawkins):



These are the animals we're looking for:



A Southern Forest Bat (credit: Lisa Cawthen)



Australasian Bittern (credit: Wayne Butterworth)

Video and Audio

We also have audio recordings of bats and bitterns on YouTube. Here are the links to them and descriptions:

1. Listen to a bittern

<https://youtu.be/MSNd9032DAU>

This is a recording of an Australasian bittern somewhere in the reeds of a lagoon in the Tasmanian midlands. There are lots of high pitched frog calls but if you listen carefully at about 6, 8 and 11 seconds in, you'll hear some low frequency bittern 'booms'. They sound a little like someone blowing across the top of a bottle.

2. Listen to a bat

<https://youtu.be/pn6pAO7cpo4>

Bat echo-locating calls are outside our hearing range. This is probably just as well because they would be as loud as a smoke alarm if we were sensitive to ultrasound! This recording has been converted into the audible range and you can now hear the bat hunting for an insect. The top part of the picture shows a spectrogram, a 'sound picture', while the bottom part shows the direction the sounds are coming from as the bat flies past. At about 3 seconds into the recording, the bat finds an insect and changes direction to catch it! The call signature indicates that this bat is a *Vespadelus darlingtoni* or Large forest bat.