

The Centre for Tropical Environmental and Sustainability Science



Hello TESSians,

I hope you enjoyed the last issue of the TESS newsletter. We always welcome a chance to show off your achievements so do keep us posted – we need some good news after the mind-boggling events of the last month.

In this issue we have highlighted a cross-section of member research papers, some key events to look forward to (thank you Brandan and Karlina) and some interesting items from the news that may have slipped past. We are excited to introduce another new HDR but more than a little sad to say goodbye to Professor Bob Wasson, who has left the Tropics for the cooler climes of Canberra.

Wishing you lots of fun over the Easter weekend, and don't forget today!

Susan Laurance

Director



CENTRE NEWS

Research Centres and Institutes undertake annual reporting under the Institutes and Centres Policy to ensure progress against their goals, objectives, and key performance indicators. At the most recent JCU Research Committee meeting in March, annual reports from all the Research Centres were submitted. Professor Susan Laurance also presented directly regarding TESS. The presentation was well received and was commended for clearly addressing all key elements and showcasing the strength of our Centre.

TESS was recently contacted by the manager of a 2.5 acre, 3–6-year-old tropical/subtropical food forest and home agroforestry system at Cawarral, QLD (4702). The site features a high diversity of fruit & nut trees, native Australian food plants, starches, edible greens, medicinal plants, and bamboos, all cultivated using fully sustainable management practices. Water for irrigation is supplied through an integrated on-site system that includes a repurposed fishpond, demonstrating closed-loop water management.

He would like to explore whether this property could be used as a field site for teaching, research projects, postgraduate theses, or collaborative studies in areas such as:

- Agroforestry system dynamics & biodiversity
- Soil carbon & nutrient cycling
- Water use efficiency in integrated systems
- Species interactions in diverse perennial systems
- Climate resilience of mixed cropping systems

Let us know if you would like his contact details.

PAPER ALERTS

As mentioned above, TESSians have produced more excellent papers in March and should be congratulated on their achievements and collaborations. We have picked out a few to share but there are always more to be found in the News section of the [website](#).

[Artificial Shelters as a Monitoring and Conservation Tool for Terrestrial Breeding Frogs](#) - Jordy Groffen, Lyanne Brouwer, Myles H. M. Menz, Conrad J. Hoskin

Amphibians are among the most threatened vertebrate groups, yet monitoring cryptic, fossorial species is difficult and often risks disturbing both their microhabitats and the individuals themselves. We tested whether artificial shelters could serve as a monitoring and potential conservation tool for cryptic fossorial amphibians in natural habitats. We deployed two different artificial shelter designs (concrete and wood) in the Australian Wet Tropics and assessed the number of *Austrochaperina robusta*, a terrestrial-breeding microhylid frog, using them over 2 years. Monthly shelter surveys recorded the highest frog numbers in the cooler, drier months, indicating clear seasonal trends. Sliding-window analyses showed that frog numbers under concrete, but not wooden, shelters declined with warmer minimum temperatures over the 6 days pre-survey. Frogs used concrete shelters more (75% of records) compared to wooden shelters.



[Soil phosphorus drives subcontinental patterns of carbon isotope discrimination across Australia](#) - Iftakharul Alam, Alexander W. Cheesman, Graham D. Farquhar, Thomas J. Givnish, Martin G. De Kauwe, Ernst-Detlef Schulze, Andrea C. Westerland, Ian J. Wright, Lucas A. Cernusak

Several transects have been established to study the sensitivity of carbon isotope discrimination ($\Delta^{13}\text{C}$) in woody plants to mean annual precipitation (MAP) across Australia. These have shown a surprising divergence in $\Delta^{13}\text{C}$ -MAP sensitivity among subcontinental regions.

We analysed previously reported data alongside new measurements from a transect in northeastern Queensland to explore potential drivers of regional-scale $\Delta^{13}\text{C}$ -MAP sensitivity.

Multiple lines of evidence indicated this sensitivity is related to soil phosphorus. In phosphorus-poor regions, $\Delta^{13}\text{C}$ decreased less with decreasing MAP than in phosphorus-rich regions. Along two contrasting transects in northern Australia, $\Delta^{13}\text{C}$ correlated with leaf phosphorus in the phosphorus-poor Northern Territory, but not in phosphorus-rich northeastern Queensland, where it instead correlated with leaf nitrogen.



Phytochemical Composition and Antioxidant and Anti-Inflammatory Activities of Iningai Aboriginal Medicinal Plants From Central Queensland, Australia -

Gerry Turpin, Darren Crayn, Suzanne Thompson, Karma Yeshi, Phurpa Wangchuk

Indigenous Australians possess vast ethnopharmacological knowledge of native flora and have been using it for millennia. In a collaborative initiative to document and scientifically validate this knowledge, the Tropical Indigenous Ethnobotany Centre, Australian Tropical Herbarium and the James Cook University have been working closely with traditional custodians from the Iningai community near Barcaldine, Queensland. This study aimed to evaluate crude leaf extracts from eight medicinal plant species traditionally used by the Iningai people, focusing on their phytochemical profile, antioxidant potential, cytotoxicity and anti-inflammatory activity.



HDR / ECR

We would like to introduce you to Doctor of Philosophy candidate **Andrea Frascotti**.



Andrea is from Milan in Italy.

He proposes to compare *Delena cancerides* with another (to be decided) less social species of huntsman spider. Both species will be bred locally, allowing him to investigate differences in their behaviour and brain size, and to explore how levels of sociality may influence these traits.

His mentor is Tasmin Rymer.

Event: We would like to invite HDR students to join us for morning tea hosted by the TESS Centre. If you find yourself available and in the Nguma-bada campus between 10:00 – 11:00 on Tuesday 14 April, please come to Building E2 Room 111. Come and swap research stories, have coffee and cake and chat to our host, Professor Susan Laurance. No stress if you can't make it, come to the next one on Tuesday 12 May, hosted by Professor Lucas Cernusak.

Funding: The Royal Society of Queensland wishes to bring to your attention an opportunity to advance scientific work. The Society hosts a Research Fund with the intention of supporting early-career researchers, sole practitioners and citizen scientists for projects that escape the attention of the mainstream grant programs. The second round of applications for grants from this new fund is open until **30 June 2026**. [Read more.](#)

Opportunity: If any of our HDR's have mammal trapping experience and would like to put this experience to profitable use, please contact the TESS centre for more information on an opportunity to train others.

UPCOMING EVENTS

Cairns May 20	Special TESS Seminar Dr Carsten Schradin and Dr Lindelani Makuya . Each will present a 20-minute talk. There will be an opportunity to meet them and chat afterwards in true TESS style.
Cairns July 26-29	International Society of Ethnobiology (ISE) Congress 2026 The theme of the ISE Congress 2026 is “Indigenous and Local Knowledge Connections: Honouring Heritage and Innovation”.
Cairns August 17-20	The 6th World Ecoacoustics Congress (WEC) Abstract submissions are open until the 11th of April 2026, 23:59 AEST.
Port Douglas August 24-28	15th Australasian Plant Conservation Conference Overall theme ‘Plant Conservation: Culture, Collaboration and Change’. Early bird discount is open - ends 29 May.

DID YOU SEE ...?

Rogue [mushrooms](#) running riot in North American and European forests – cloning may help species survive.

[First Dog on the Moon](#) just wants to watch a movie.

The article about [mysterious black fungus from Chernobyl](#) that may eat radiation.

The enchanting video on [Haggi naturalis](#).

ENDNOTE

Finally, a reminder that NASA’s Artemis II mission is scheduled to launch tomorrow, 2 April. You can watch it live on [NASA’s YouTube channel](#) which has a notify option, so you don’t miss anything. For viewers in Queensland, kick off should be around 02:50.

We hope you enjoyed this issue and learning more about the people and projects shaping tropical environmental research at James Cook University. If you are interested in collaborating with researchers from the Centre for Tropical Environmental and Sustainability Science, we would love to hear from you.

Credits: Masthead Image - Sunrise over mountain range © Felicia Manolache's Images via Canva Pro; Road to Somewhere © Alex Cheesman; *Pittosporum angustifolium* © mollypix from Getty Images Signature (Canva Pro Content)

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