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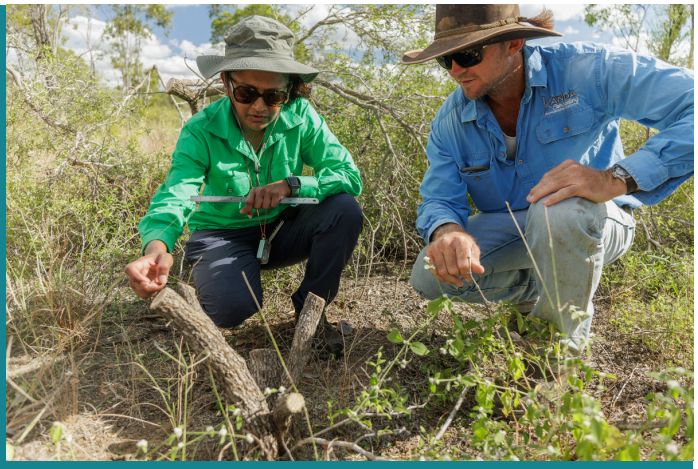
Carbon Curious: Part I
A Grazier's Perspective from the Fletcherview Flux Tower

Real-time carbon and water data from a North Queensland cattle station is helping bridge the gap between science and land management.
At Fletcherview, station manager Martin Holzwart, is combining on-ground experience with cutting-edge flux tower insights to better understand sustainability in grazing.

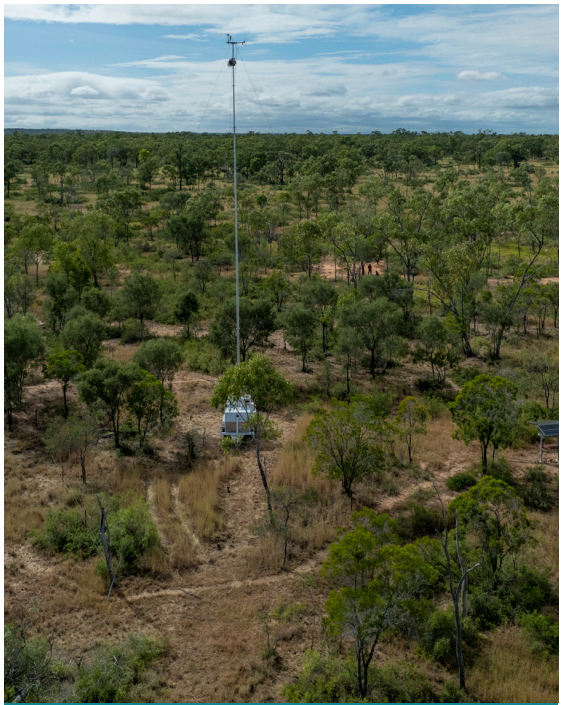
Research Station:
James Cook University's Fletcherview Research Station, 25km north of Charters Towers.

Land Management:
Station manager, Martin Holzwart, manages the property using rotational grazing management.

Site Information:
Highly variable annual rainfall averaging 636 mm (± 240 mm). Soils are deep, strongly structured, medium to heavy clay soils with surface gravels and cobbles of sedimentary or metamorphic origin throughout the site.



JO OWENS AND MARTIN HOLZWART



FLUX TOWER AT FLETCHERVIEW

Flux towers in action

The flux tower at Fletcherview Research Station was established by researchers from James Cook University, University of Southern Queensland, and the Terrestrial Ecosystem Research Network (TERN) in collaboration with CSIRO, and the Bureau of Meteorology.

At Fletcherview Research Station in Queensland, the flux tower was set up to address the lack of data on managed, grazed savanna ecosystems in Australia, particularly in regions like Queensland where cattle grazing dominates land use.

Lead researcher Jo Owens and her team are conducting a study using the flux tower data, which focuses on understanding carbon and water fluxes in a managed, grazed Eucalypt savanna. The project provides real-time data on how land management affects carbon storage and water use—key information for evaluating carbon balance in pastoral systems.

Carbon sink: Carbon sinks absorb more carbon from the atmosphere than they release – for example plants take carbon out of the atmosphere and store in vegetation biomass through the process of photosynthesis.
Carbon sources release more carbon into the atmosphere than they absorb
Carbon Neutral: Condition in which human induced (anthropogenic) carbon dioxide (CO_2) emissions associated with a subject are balanced by anthropogenic CO_2 removals. (IPCC, 2022a).

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MARTIN IN THE FIELD

Martin's journey

Martin possesses extensive knowledge of cattle, having dedicated his entire life to working on cattle stations. "I've lived on cattle stations my whole life," he explains, noting his upbringing involved home schooling. His family moved frequently across Queensland and the Northern Territory, always involved in developing country—"fencing, building sheds, and all that kind of thing."

He landed his current role through a personal connection: "I received a call one day, offering me a job… just for six months." That was 12 years ago. While Martin initially focused solely on cattle, his perspective has shifted. "I didn't care much about the grass at the time," he says, "but now, I probably spend more time looking at the grass and land condition than the cows."

Flux tower insights

As station manager, Martin helped support the logistics of setting up the tower, which measures carbon and water fluxes and collects long-term environmental data. While he initially saw the flux tower as a valuable research asset for attracting projects, he has since become more curious about the insights it could offer.

Though not deeply focused on the carbon data at first, Martin is now increasingly interested in what the measurements might reveal about his grazing management. "It has been interesting to hear that it looks like the landscape is a carbon sink*, but I don't fully understand what that means," he said. For him, the flux tower offers a potential pathway to understanding whether his station is carbon neutral and how practices like stocking rate and vegetation management affect the land over time.

Focussing on the core business

Martin recognises the value of sustainable practices like destocking to allow land recovery, even when it comes at a financial cost—but he is clear that long-term investment in land health needs to make business sense. While he supports the idea of going carbon neutral, he is realistic: "there has to be a financial incentive," noting that incentives often come in the form of penalties rather than rewards.

Martin sees potential in initiatives like carbon credits, but "with uncertainty around future regulations, any shift must be driven by solid business outcomes." Farmers may prefer to hold onto carbon credits instead of selling them. "If rules change, keeping credits could become more valuable for internal emissions management, making early sales a risk."

* excludes methane emissions from cattle.

Further information

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