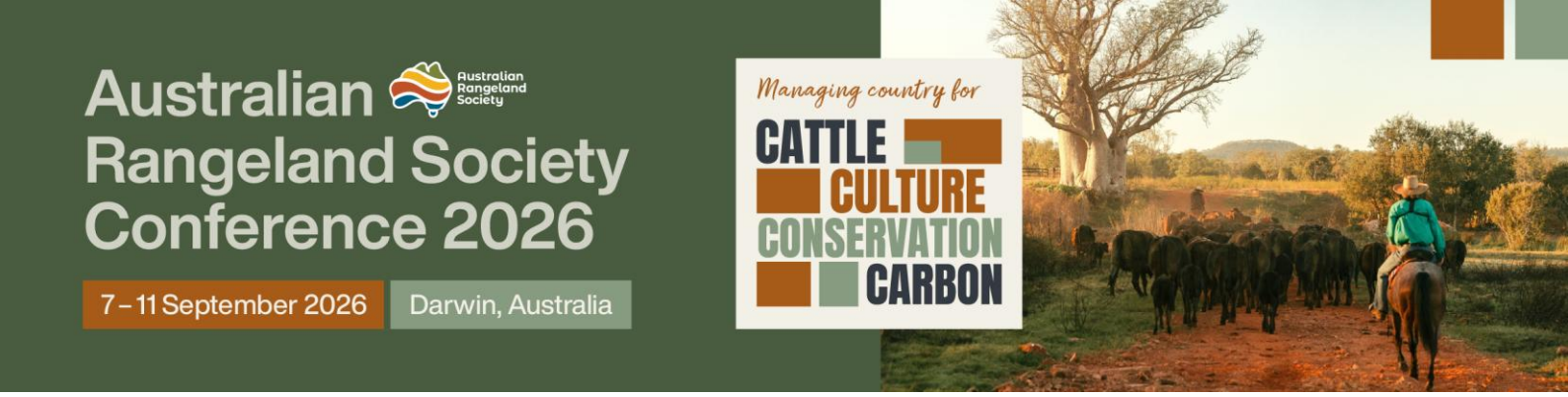


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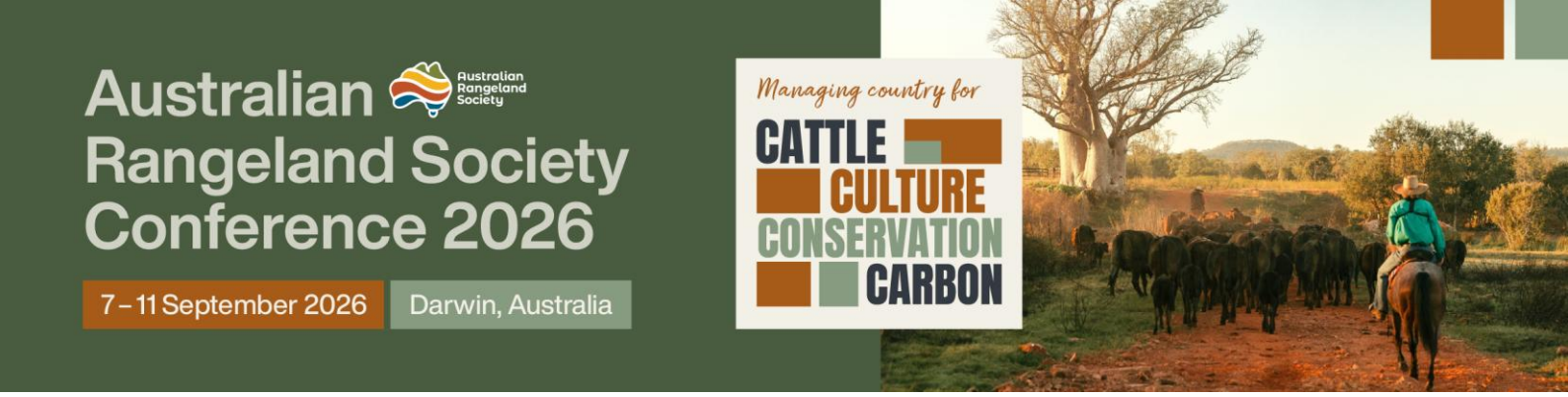
Darwin, Northern Territory

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Long-term impacts of on-farm research and extension on land condition and productivity in western Queensland

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Key words: land condition; producer engagement; grazing management; practice change; western Queensland

Abstract
Land condition decline is a prominent issue affecting northern Australia whether through natural disasters or improper grazing practices. Recovery of these rangeland systems can often be slow and complex processes involving best management practices and favourable seasons. Despite decades of research and extension, improved management practices such as matching stocking rates to available forage, and wet season spelling have not been widely adopted by industry.

The 'Developing Long-Term Carrying Capacity (LTCC) Models for the Desert Uplands (DU)' project (2003–2005) aimed to address land degradation by establishing safe LTCC guidelines for the thirteen DU land types through modelling and grazier experiences. Nine properties were selected as calibration sites to verify the modelled estimates of LTCC. Host landholders participated in a peer-to-peer learning group, supported by ongoing engagement with the project leader (P Jones) over 19 years to implement project recommendations.

For one host producer, involvement in this project provided them with knowledge and resources to implement improved management practices. The ongoing support that was provided by the project leader (P Jones) helped with various decisions such as proposing new fencelines, steps to implement wet season spelling, and understanding of the role of key perennial pasture species such as desert blue grass (*Bothriochloa ewartiana)*. When monitoring sites were revisited in 2023, and management changes were documented, positive impacts on land condition and productivity were observed.

This case study demonstrates the long-term benefits of on-farm research and extension in improving land condition and productivity. It underscores the critical role of sustained relationships between agencies and producers in achieving enduring practice change.

Introduction
Land condition decline is reported in many regions of the Australian Rangelands. Decades of research highlights that land condition is improved through grazing management practices such as matching stocking rates to available forage and wet season spelling. Despite extensive extension efforts, on-farm adoption of these practices is below the levels expected by industry professionals. This case study presents how on-farm research, coupled with extension and ongoing relationship building with producers has driven practice change on a property near Jericho in Western Queensland.

Methods
Validation of the modelled LTCC in the Desert Uplands was done through property land condition assessments and consultation with calibration property hosts in 2004. Sites were chosen based on paddock size and land type variability to give an accurate representation of the property. Land condition assessments (Chilcott 2003) were taken and fed into the model to give the estimated LTCC for each property. Results were then compared with producer estimates. Key findings from this project were extended through peer-peer learning and a series of field days across the region. The project leader (P Jones) also worked one on one with producers to implement improved grazing management strategies.

In 2023, the original monitoring sites on the case study property at Jericho were revisited to capture practice change and assess changes in land condition using LCAT (Hasset et. al. 2020). The project leader also conducted an informal interview with the host producer to capture changes in management strategies over the last 19 years.

Results

The interview showed that the landholder had implemented a range of improved practices including rotational grazing, wet season spelling, fencing to land type, and stocking around LTCC. The number of paddocks and watering points had increased significantly which improved grazing distribution and access to previously underutilised parts of paddocks. As a result, carrying capacity had increased from 700 adult equivalents (AEs) in 2004 to 1,000 AEs in 2023. Land condition over the last 19 years had improved at thirteen out of the 24 monitoring sites with some going from C (poor) to B and from B to A condition (Figure 1), as indicated by an increase in the presence of key perennial pasture species such as desert blue grass *(Bothriochloa ewartiana)*. This improvement occurred despite the overall increase in property stocking rates. Land condition was maintained at four sites and declined at the remaining six.



Figure 1. One of the property monitoring sites in 2004 (left) and the same monitoring site twenty years later in 2023 (right) showing the change from B to A land condition.

Discussion

The host producer acknowledged that involvement in the original LTCC project provided them with the knowledge and resources to implement new, improved management practices, positively impacting both land condition and animal productivity. Ongoing engagement with the original project leader over the last twenty years – and more recently their successor (D Walkington) has helped support and validate changes being observed. These results highlight the long-term impact of on-farm research and extension and the importance of strong, enduring relationships between agencies and producers.

Acknowledgements

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References

Chilcott CR, Paton CJ, Quirk MF, McCallum BS (2003) Grazing Land Management Education Package – Workshop Notes, Burnett. Meat and Livestock Australia Limited, Sydney.

Hassett RC (2020) 'Land Condition Assessment Reference Guide Version 1.0'. Department of Agriculture and Fisheries, Brisbane, Queensland.

Jones P, Aisthorpe J, Chilcott C (2006) Development of long-term carrying capacity models for the Desert Uplands *In*: 'The Cutting Edge. Proceedings of the 14th Australian Rangeland Society Biennial Conference'. pp. 235-238. (Australian Rangelands Society: Australia)