

# HeART of the Basin Scholarship Research

Julie-Ann Malan - 2017/18

Off stream watering points for cattle as a method of riparian restoration.



Julie-Ann Malan submitted her PhD thesis in January 2020 following three years of research conducted through CQUniversity.

During this time Julie-Ann conducted both observational (on-farm) and experimental investigations involving beef cattle behaviour and offstream watering point (OSWP) utilisation to protect and restore riparian areas. She was awarded the FPRH HeART of the Basin scholarship for 2017 and 2018.

Julie-Ann's PhD investigations found:

- the time cattle spent on riverbanks (in the presence of an OSWP) was associated with paddock slope and distance between the OSWP and the river.
- significant relationships were identified between daily water consumption from OSWPs and rainfall events, vegetation greenness, and riparian condition.
- field observations on commercial beef grazing properties revealed that cattle consume approximately half of their daily water requirement from OSWPs when they have a choice to drink from either a river or an OSWP, with most OSWP visitations occurring between 8 am and 10 am.

This information is helpful to natural resource managers and graziers when prioritising where to place OSWPs for improved riparian condition.

The controlled experiment also indicated that:

- cattle do not necessarily prefer water of good quality (filtered municipal water) over lower quality water when given a choice, as they consumed them in equal volumes.
- when cattle only had access to lower quality water, they drank greater volumes compared to when they were offered only good quality water.
- consumption of good quality water additionally resulted in improved feed conversion rates by cattle.

The findings of this study will contribute to improved water resource management for graziers and are likely to improve animal production.

Julie-Ann's PhD research was supported by an Australian Government Research Training Program Scholarship. Additional support was provided by CQUniversity – University Postgraduate Research Awards (UPRA).

During her PhD candidature, Julie-Ann also worked on various ecological and agriculturally focused projects at CQUniversity and for local environmental consulting firms.

### Research publications:

*Malan, J.-A.C., Flint, N., Jackson, E.L., Irving, A.D., Swain, D.L., 2018. Offstream watering points for cattle: Protecting riparian ecosystems and improving water quality? Agriculture, Ecosystems & Environment, 256, 144-152.*

*Malan, J.-A.C., Flint, N., Jackson, E.L., Irving, A.D., Swain, D.L., 2020. Environmental factors influencing cattle's water consumption at offstream watering points in rangeland beef cattle. Livestock Science 231, 103868*

*PhD Conference presentation: 22nd International RiverSymposium, Brisbane Australia 22nd October 2019. Offstream watering points for cattle: protecting riparian ecosystems and improving water quality? Malan, J.-A.C., Flint, N., Jackson, E.L., Irving, A.D., Swain, D.L. <https://riversymposium.com/past-proceedings/>*

### About the HeART of the Basin Scholarship:

Fitzroy Partnership for River Health established the HeART of the Basin Scholarship in 2016. The Scholarship was established to expand research and understanding about waterway health in the Fitzroy Basin, with the award named to celebrate the significant contribution of inaugural Independent Science Panel Chair, Professor Barry Hart.

It was following recommendations by Professor Hart, that the Partnership evolved. The Hart report was prepared after the Fitzroy Basin floods in 2008 floods and a subsequent cumulative impact assessment study highlighted the need for an integrated monitoring and reporting system for water quality in the Fitzroy Basin.

The \$2,000 scholarship is open to research students at CQUniversity studying Honours, Masters by Research or PhD to progress their learnings in a research topic relating to improving waterway health in the Fitzroy Basin.

For more information on the Fitzroy Partnership for River Health, please contact:

Executive Officer Dr. Leigh Stitz

Phone: 07 4999 2821

Email: [Leigh.Stitz@riverhealth.org.au](mailto:Leigh.Stitz@riverhealth.org.au)

Web: [www.riverhealth.org.au](http://www.riverhealth.org.au)

**fitzroy**  
partnership  
for river health

