

# Collaborations

## Proof of Concept

Western Landcare NSW Inc.



### Benefits of Rangeland Rehydration Works for Soil, Vegetation & Landscape Function in Western NSW

#### The issue

Nil research into the effectiveness waterponding has with regards to increased water filtration to restore diverse, productive and functional landscapes in otherwise unproductive areas of Rangelands ecosystems in Far West NSW.

#### The solution

Seven ponding sites across three properties north-west of White Cliffs, NSW, were selected for monitoring. Soil organic carbon, soil nitrogen, soil pH, bulk density, ground cover, plant biomass, plant species richness, perennial grasses, landscape function (stability, nutrient cycling, infiltration), water infiltration and soil strength were assessed along transects extending up to 20m upslope from the base of ponding banks. Similar transects were located in adjacent unponded areas as control sites. Comparisons of fractional cover between ponded and control areas were also made using remote sensing data.

#### The impact

Overall, results of this study revealed positive effects of strategically located waterponding banks on soil carbon in the upper soil surface layers, vegetative ground cover, plant biomass, plant diversity, perennial grass abundance, landscape function (infiltration and nutrient cycling), and soil strength. Differences in these measures were apparent up to 10m from ponding banks. Generally, effects were more pronounced at sites which had been established for the longest length of time, indicating potential of more recently established ponding sites to further improve in regard to these measures. However, even at sites recently established (eg, <1 year prior to sampling) increases in cover, biomass and landscape function were apparent.



### Key facts

- 1. Ponding banks slow the movement of water through the landscape
- 2. Ponding banks increase water filtration into the landscape
- 3. Ponding enables unproductive and degraded areas become functional
- 4. Monitoring and evaluation of ponding in the Rangelands is important for educating landholders about the benefits of ponding

### Project Partners



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