

Soil carbon cycling in the brigalow bioregion – the effect of land clearing and land use change.

A project in collaboration with U.Pillai-McGarry, Centre for Mined Land Rehabilitation (CMLR), UQ

The brigalow bioregion in eastern Australia occupies an area of about 40 million hectares and hosts forest communities including *Acacia harpophylla* (brigalow) in the forest canopy. From 1962 to 1985 land clearing within the Fitzroy Basin of Central Queensland caused the loss of 4.5 million hectares of forested land. Concerns were raised as to the stability of the landscape as the brigalow soils though considered to be fertile for cropping, were inherently salty and had a propensity to erode.

The Queensland Department of Natural Resources and Water (NRW), with support from the Department of Primary Industries and Fisheries, commenced a long-term study in 1965 to quantify the impact and complex processes that might occur as a result of the change in land use. The site is located at the Brigalow Research Station near Theodore and Moura. The site consists of three different catchment treatments—the largest area consists of uncleared remnant vegetation, a cropped catchment and a grazed buffel grass pasture. Over the trial period NRW has collected continuous rainfall and run-off data as well as a range of water balance, resource condition and productivity data.

The uniqueness of the site is the ability to evaluate the impact of land clearing and land use over time.

This project aims to characterise soil organic matter within the three catchments and evaluate the impact of land use on soil quality and stability.

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