

# Brigalow benefits at Moonie

AgForce, The University of Queensland (UQ) and Queensland Murray-Darling Committee (QMDC) hosted a successful field day at Moonie, in June, which highlighted the ecological benefits of brigalow shadelines protected in the CR (George) Telford Nature Refuge. AgForce plans to hold further nature refuge field days later this year.

AGFORCE members Warren and Lynelle Urquhart established the CR (George) Telford Nature Refuge in 2006 in memory of George Telford (1911 – 2000), who established the property, coming onto it after the prickly pear ballot of 1934 and developing it with an environmental-economic balance.

The Nature Refuge was established to preserve the wide brigalow shadelines around paddocks and over the

red soil ridges in memory of the man who designed them. The vegetation on the ridges has never been pulled.

“George was a bit different from many other landholders of the day with respect to his quiet reverence for nature,” Lynelle said. “He appreciated all the native flora and fauna (apart from brigalow suckers which gave him no end of trouble) and had a “live and let live” attitude if it didn’t impact too much on his farm.”

As a young man, George (pictured right) was a stockman on the Riverina which he recalled as treeless from horizon to horizon, where the winds whipped through with no break and summer seemed hotter with a constant haze of heat. He vowed that he would never create such circumstances on any of his own land.

“He asked questions and has encouraged a multitude of young environmental scientists to look for answers,” Lynelle said. “He would have loved to see what they have found so far, and to see what else we need to know to manage this land in an environmentally as well as economically viable way.”



Today, the CR (George) Telford Nature Refuge protects in perpetuity 1152 hectares of native vegetation, including mapped remnant timber, smaller areas and some regrowth, within the boundaries of the Urquhart’s 3600ha cattle and grain property, “Warrowa”.

Most of this vegetation is brigalow open forest, an endangered regional ecosystem, which is mainly present as shadelines around paddocks. Located opposite Southwood National Park, the Nature Refuge helps form a protective wildlife corridor for plant and animal species endemic to the area. Surveys on the property have revealed that at least 116 different species of native animals call “Warrowa” home.

The Urquharts run an average of 800 head of cattle, and farm about 1000 ha, predominantly wheat and sorghum. A flexible rotation between cropping and grazing is undertaken on a four to five year basis to help maintain soil quality.

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The average annual rainfall on "Warrowa" is 600mm. There are two distinct soil types – brigalow, belah, wilga and false sandalwood understory colonise the clay soil, while silverleaf and narrowleaf ironbark, kurrajong and box are found on the red sand ridges.

Warren and Lynelle decided to protect the brigalow shadelines and ridges to ensure they will never be indiscriminately cleared.

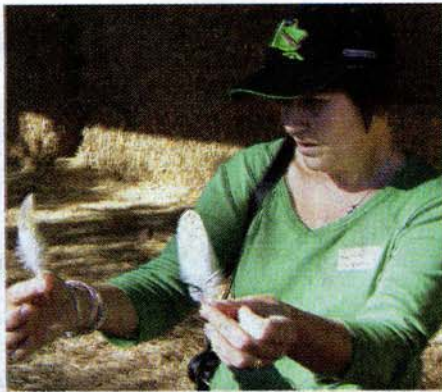
In establishing a Nature Refuge through the Department of Environment and Resource Management (DERM), they tendered through NatureAssist to replace old fencing. The QMDC Bush Tender also assisted in this fencing, focusing on brigalow regrowth and its protection.

"The Nature Refuge does not impact in any negative way on the running of "Warrowa", however we are concerned future mining exploration could pose a threat," Warren said.

The Nature Refuge can be grazed and a conservative stocking rate is maintained to ensure 50 percent groundcover in refuge areas. There is a forest management plan to harvest cypress pine whenever viable, and feral animals and native animals in pest numbers can be controlled. There is no access by scientists, the public or government staff without the landholders' prior permission.

Warren and Lynelle believe they are managing their land in a balanced, economically and environmentally sustainable manner.

"Shadelines are very



beneficial as windbreaks and shelter for stock from blazing summer sun or cold winter winds, and have also been shown to decrease evaporation over the whole property as they decrease wind speed, while the red sandy ridges aid water catchment and provide early feed after a little rain and a dry camp for stock after flooding rain," Warren said.

Perhaps even more important is the value of this vegetation in helping to keep common animals in the landscape, as the shadelines and patches of brigalow and eucalypt woodland seem able to provide for the needs of a wide range of native animals, while providing benefits for crop and livestock production."

Warren and Lynelle believe it is important for producers to promote their 'green credentials' to the public by demonstrating a commitment to sustainable production while contributing to environmental conservation.

"We consider ourselves as custodians rather than owners of the land, and we are very conscious that what we do now affects the future viability of "Warrowa" for us and for subsequent owners. We respect it and want it to continue in "health" to support both people and all the native flora and fauna it can for millennia to come."



ABOVE: Warren Urquhart at Warrowa. LEFT: Lynelle Urquhart explains the environmental value of the Nature Refuge to Moonie State School children at the field day. Pictures courtesy of Lynelle Urquhart.

## UQ research update

UQ research into the value of retaining brigalow on rural land identified numerous benefits, including the promotion of diversity, moderating climate change and carbon sequestration:

- Preliminary studies suggest a minimum of 15-20 percent vegetation cover at the 10x10 km scale is the threshold level required to maintain a high diversity of woodland birds in the brigalow. (Warrowa maintains 37 percent vegetation cover.)
- In southern states, substantial declines in the level of insectivorous birds have followed extensive land clearing. Many of these birds are still common in Queensland's brigalow Belt but a question remains as to whether they will suffer the effects of a lag from broadscale clearing.
- A 'reverse indicator' of brigalow health is the native noisy miner which appears to prosper in areas which have been disturbed. A denser shrub layer encourages the proliferation of small woodland birds, and discourages the noisy miner, which aggressively excludes smaller birds.
- Although only mature brigalow contains a significant level of hollows and woody ground layer, it has been observed that a large proportion of birds return to brigalow regrowth aged 30-50 years.
- Mistletoes provide a very good predictor of bird diversity and abundance in the brigalow. This highlights the importance of retaining remnant patches of brigalow throughout the landscape.
- Brigalow regrowth plays an important part in enhancing areas of remnant vegetation by connecting and enlarging such areas.
- Higher grazing pressure has been shown to reduce the diversity of birds in the brigalow. In order to increase regeneration and biodiversity within the brigalow, it is preferable to reduce grazing – particularly in areas of remnant vegetation.
- Recent research has shown that 150 years of land clearing and cropping in the Murray-Darling Basin has led to increases in temperature in eastern Australia of 0.4 - 2 degrees, and to decreases in summer rainfall of 4-12 percent.
- Producers who retain native vegetation, including brigalow, on their land may possibly be able to obtain future benefits in selling carbon offsets to polluters.

Further information on UQ's ongoing research project in the Brigalow Belt is available at [www.uq.edu.au/brigalow](http://www.uq.edu.au/brigalow)