Hamparsum revegetation project

and the 6 steps for success for revegetation in cotton landscapes

Case study

MARCH 2025

Brother/sister farming duo John and Juanita Hamparsum farm at “Drayton” on the Breeza Plains, south of Gunnedah. They produce cotton, wheat, sorghum, sunflowers and canola on the self-mulching soils of the Liverpool Plains, one of the most fertile farming regions in Australia.

“We’re really fortunate and privileged to be farming these beautiful Black soils on the Liverpool Plains and we feel a very strong responsibility as custodians of this soil to look after it,” John says. “It’s just an attitude right across everything we do.”

The plains themselves are often naturally treeless due to the cracking clay soils, which harden and crack as they dry out, damaging tree roots. But it’s a different story in the wetter areas in the landscape – the rivers, creeks and associated riparian areas and flood zones support a rich vegetation community including trees and shrubs and provide critical habitat for wildlife.

The Hamparsums were interested in undertaking some revegetation along the Mooki River (part of the Namoi River catchment) which runs through “Drayton.” This was expediated through the Biodiversity Project, a partnership between Country Road and Landcare Australia, support by Cotton Research and Development Corporation and Cotton Australia. They focused on 16 hectares of riparian zone with good potential for habitat enhancement to enhance biodiversity, including to support koalas and other wildlife, and they followed the “6 steps for success” identified in the Native Revegetation Guide for Australian Cotton Growers. (https://cottoninfo.com.au/publications/native-revegetation-guide)

Juanita Hamparsum and John Hamparsum. Image credit: Country Road

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STEP 1: SET GOALS

Establish your revegetation goals

The Hamparsums' goal was to create an interlinked treeway that would provide habitat for koalas, shade and cool the river, support biodiversity across the farm, and recruit young gum trees to replace the old trees that were being lost from the landscape.

"We are in an area that used to have really high populations of koalas," John says, "but unfortunately with the drought in 2017 to 2020, combined with chlamydia moving into koalas in the area, we haven't seen a koala since.

So, we'd like to have trees available and shade and water, so that if koalas do return, there's habitat all linked together so they can move through the landscape safely and re populate the area."

In this region, riparian vegetation is particularly important for koalas – leaves are more palatable in high-nutrient areas along the river, and connectivity is key for enabling koalas and other wildlife to move between areas of vegetation.

"By providing a connecting corridor of vegetation, you're not only enabling the habitat to extend itself, but you're also providing a freeway, so to speak, for the fauna to be able to move in a safe way."

While creating koala habitat was the main purpose for the Hamparsums, it supported other key goals as well – providing habitat and connectivity for biodiversity more broadly, as well as supporting the growth of seedlings that will become the large old trees of the future.

"There's also a lot of benefits with insects, bats and birds, and biodiversity generally, having a good, strong tree belt through the farm," John says.

"There's also a lot of old gum trees on the farm, but there wasn't a lot of regenerating new gum trees, so that was a bit of a concern and we thought, well, if this project does what we think it'll do, we'll be able to get the younger generation coming through in a strong way."

They also hope to increase shade over the river to reduce the water temperature, one factor in supporting healthy fish populations in the waterway. "It wasn't the primary goal, but it was a little benefit because I'm a pretty keen fisherman," John says.

STEP 2: PLAN

Select your site (understand its history, characteristics and risks) and choose the best planting method

Years ago, the Hamparsums used to run cattle along the river that runs through "Drayton". The cattle enabled some production to be generated from land that wasn't suitable for cropping, but maintaining fences in areas prone to flooding was a challenge and eventually they decided to stop running cattle altogether.

With the cattle gone, John says the riparian areas soon began to change; "We noticed that our young trees were coming back, and it was just naturally recovering." It was evident that the riparian areas had good potential for recovery, and the Hamparsums made an early attempt at revegetation. Unfortunately, that first planting wasn't successful, in part due to root-bound tube stock that failed to thrive, and so the revegetation idea was put on hold.

The second time around, the Hamparsums worked closely with Landcare Australia to identify areas of habitat along the river that could be revegetated to meet their goals of increasing koala habitat and supporting wildlife movement along the riparian corridor.

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The project was divided into three areas that would be planted in a single season. The plantings follow the contours of the Mooki River, with randomized spacing to help create habitat complexity over time for flora and fauna. With no cattle on the property, there was no need to fence areas to prevent stock grazing newly planted areas.

Floods are an inevitable and regular occurrence along the Mooki River, and they planned for this by planting away from the mid- and low-flow flood zones (areas that could be expected to flood regularly), focusing instead on the upper bank, which would be out of reach of most floods.

It was a fine line between flooding and tree failure, however, as one of the challenges of planting on the Liverpool Plains is that areas further back from the river are subject to soil cracking. This cracking damages tree roots, so the revegetation effort really did need to be closely concentrated on the riparian zone close to the river.

STEP 3: PREPARE

Create the conditions for your plants to thrive

The Hamparsums undertook site preparation across the proposed koala corridor. This preparation included initial weed control, slashing and ripping lines of soil where the seedlings would be planted. The rip lines help break up any soil compaction and enable moisture to infiltrate into the disturbed areas. The rip lines were also sprayed with herbicide to control weeds – spraying beyond the rip lines was avoided to reduce unnecessary damage to the native plains grasses that were the dominant grass at the sites.

Potential threats at the site were also considered. The kangaroo population was not high, so they weren't considered to pose much of a threat. The wallowing behaviour of feral pigs can damage or destroy seedlings, but pig numbers have been kept at bay in the area.

Tree guards were used to protect the young trees from smaller feral animals, especially hares which can do significant damage.

STEP 4: PLANT

Give your plants the best start in life

Generally, plants needed to be ordered 6-8 months in advance of planting, from a reliable native plant nursery. For the "Drayton" planting, 4000 seeds were propagated in October 2021, in preparation for planting in autumn 2022.

Planting was undertaken in autumn so that the seedlings could benefit from the following winter rains and be well established in case the following summer was dry.

A big factor in the timing for the Hamparsums was planting in the lead up to a La Nina period. "Last time we attempted to plant there was an El Nino coming through, which at the time I didn't really think through the implications of," John says.

John Hamparsum planting, May 2022. Image credit: Country Road

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"We were watering the trees and trying to keep them going, but it was just too hard. Whereas when we were planning this planting, we spoke about it and said it's a waste of time unless we can plant into a La Nina, and that's what we did. It definitely helped – almost to the detriment because we had two years of flooding in a row," John says.

One of the downfalls of a wet summer is that the weeds also take off, which can require increased weed control – a challenge in hot summer weather as the weeds essentially shut down and are not vulnerable to chemical control.

STEP 5: GROW

Ensure you have the right plants for your farm

4000 seedlings were planted in autumn 2022. Plant choice was guided by information available from the NSW Local Land Services about the plant community types in the region, but it is difficult to replicate the wide diversity of plants that might exist naturally in riparian areas in this region. Instead, a subset of 7 canopy and midstorey species were chosen for planting.

At the Hamparsums' property, as with most of the revegetation work done in riparian areas in this region, the dominant species planted was river red gum (Eucalyptus camaldulensis). In this case consideration was given to planting a mix of species that provide both food and shelter for koalas, as shown below.

Common name	Number	Botanical name
Food trees		
River red gum	X 1100	*Eucalyptus camaldulensis*
Yellow box	X 500	*Eucalyptus melliodora*
Shelter trees		
Brigalow	X 400	*Acacia harpophylla*
Weeping Myall	X 400	*Acacia pendula*
Cooba	X 600	*Acacia salicina*
Belah	X 600	*Casuarina cristata*
River oak	X 400	*Casuarina cunninghamiana*

No ground cover species were planted – ground covers are difficult to establish through planting as they are rarely propagated. The expectation is that over time, the planted canopy and midstorey species will shade out weed species and allow for natural recruitment of grass layers.

Other canopy and midstorey species will be able to reestablish either from existing seed banks or through seeds being brought in via wildlife, wind and water.

STEP 6: MONITOR

Measure your progress and record your success

The big challenge has been flooding, with significant flooding during the two years after planting. About half of the young plants were lost during flooding – many of the young trees simply didn't survive being inundated for such long periods of time and died, although others benefited from the wet conditions.

Since then, the Hamparsums and Landcare Australia have been gradually backfilling (*see Landcare Australia image below*), replanting areas where trees were lost so that they return to the original numbers of 4000 plants in the ground. In the 2024 season, a dry winter was initially worrying, but this was followed by good spring rain, and many of the trees had a growth spurt. Seedlings from the first round of planting that survived the flooding are up to 2 metres tall in many cases.

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The Hamparsums have continued to slash the planted areas between the rows to keep the weeds down and minimize competition with the trees.

"We help water the trees when required, that sort of thing, but hopefully it gets to a point where the trees look after themselves," John says.

This work is usually required for several years until the planted seedlings are big enough to outcompete the weeds and survive dry summers.

Newly planted rows of tube stock. Image credit: Landcare Australia

This project is part of The Biodiversity Project, a partnership between Country Road and Landcare Australia, supported by the Australian cotton industry.

OTHER RESOURCES & INFORMATION

- Native Revegetation Guide for Australian Cotton growers: Revegetation to improve natural capital, ecosystem functions and services on cotton farms - 6 steps for success.
  - **Access via the CottonInfo website:** https://cottoninfo.com.au/publications/native-revegetation-guide
- Managing Biodiversity in landscapes tool
  - **Access via the CottonInfo website:** https://www.cottoninfo.com.au/managing-biodiversity-cotton-landscapes
- Cotton myBMP: Sustainble Natural Landscapes (Natural Assets) module
  - **Access via the myBMP website:** https://bit.ly/42R9xjS

Two and half years after planting. Image credit: Landcare Australia

For further information:

Visit www.cottoninfo.com.au

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