

# Watson revegetation project

## and the 6 steps for success for revegetation in cotton landscapes



### Case study

MARCH 2025

The Watson family grow cotton as well as canola, wheat and corn near Boggabri in NSW.

Andrew Watson runs the farming enterprise with his wife, Heike, and his parents John and Robyn are still involved.

Robyn and John had done significant revegetation work in the 1970s on the home property – work that Andrew says he and his family are the beneficiaries of today.

“That original farm has these really beautiful areas along the river where there’s trees, shrubs, grasses – and if you head off there in the mornings, the birds are going nuts and it’s a nice area.

“But it’s also an advantage to have those trees along the river to reduce spray drift and enhance beneficial insects that control pests in crops.

“The beneficial insects come out of the trees because we have tree lines and riverine areas where they can live. Further studies highlighted the role of birds and bats as a contributor here too – and where do they like to live, but trees and riverine environments?

“So, it turned out that what my parents were doing [in terms of planting] was helping us in all of what we did across the farm system,” Andrew says.

“It’s been a lifelong passion of my parents and I’m seeing the benefit of it.”



Andrew Watson. Image credit: Country Road

In 2021, the Watsons had recently acquired an additional property, also fronting onto the Namoi River. The Biodiversity Project, a partnership between Country Road and Landcare Australia, supported by Cotton Research and Development Corporation and Cotton Australia provided an opportunity to extend the revegetation – and the associated benefits – to this new property.

Given their significant experience in revegetation already, Andrew and his family had a good idea of their goals and the process they wanted to follow, which includes the “6 steps for success” identified in the Native Revegetation Guide for Australian Cotton Growers. (<https://cottoninfo.com.au/publications/native-revegetation-guide>)



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### Establish your revegetation goals

Fifty years ago, when Andrew's parents, Robyn and John, began revegetation work at the home property, Kilmarnock, their goal was to try and stabilise riverbanks along the Namoi River.

"There was a lot of wash on the riverbank, some due to historical stock watering on the river making the banks bare, and some from willow trees on opposing banks, causing high flows to swirl. So, the first step was to stabilise the banks, so they stopped grazing riverbanks, took farming back from the edge and planted trees along the riverbanks to stabilise it, and took out the willows."

But over the years that followed, it became clear that the work they'd done was not only stabilising the riverbanks, reducing erosion and improving water quality, but had a range of other benefits for the farming system too. So when the Watsons bought the property Merriendi, they were keen to replicate what they'd done on the main farm.

This history made it easy for the Watsons to set goals for the revegetation – stabilising the banks where the Namoi River runs through the new property and creating further habitat for beneficial insects and other wildlife that help control pests. These goals also worked well with the broader aims of the Country Road Biodiversity Project, which aims to improve biodiversity, drought resilience and sustainable agricultural outcomes.

"Biodiversity is really important to me in so many ways," Andrew says. "It may be the insects; the birds and the bats that help reduce pests in our crops. It may be the grass cover and legumes that are growing in our grazing paddocks. It may be diversity in our soils and how we provide different nutrients back into the soil—biodiversity is really, really important to making our farm work as a system."



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

Given their experience with riverine revegetation in the past, the Watsons were keen to apply the same approach to the additional Namoi River frontage that they had recently purchased.

Between that new property and Andrew's brother's adjoining property, they identified 3.6 km of riparian zone and chose to rehabilitate the entire strip along the eastern side of the river, ultimately revegetating 15 hectares with a variety of native species.

This stretch of the river did not have any willows, unlike the areas that Andrew's parents, John and Robyn, had rehabilitated in the 70s, which required significant work to remove willows. The banks were nonetheless showing signs of degradation, and although there had been some attempts to plant trees in the past, there were a lot of bare banks that they were keen to revegetate and stabilise.

The first key element in achieving their goal of riverbank restoration was to pull farming back from the edge of the river by approximately 50 metres, either by maintaining a fenced buffer along the river that livestock can't access or pulling back the edge of the farmed area for cotton or other crops.

Since the Watsons' property doesn't cross the river, they also talked with their neighbours on the western bank about work they could do on that side of the river to prevent stock access during low river flows.

Working with Landcare Australia, the project plan included a number of different elements (see over page).



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- **Planting method:** The Watsons had previously trialed spreading seed onto prepared or unprepared sites via drone, and found this to be ineffective at their sites. Therefore, they intended to use the tried-and-true methods that had worked for them in the past – planting seedlings into prepared ground.
- **Timeframe:** The decision was made to plant over two planting seasons due to limited availability of local provenance seedlings for the first season. 700 seedlings were planted in the first season and 1000 in the second.
- **Species selection:** the focus was on planting river red gum and sheoak species, both trees that are suitable for riparian areas and, as large trees, play a key role of stabilising river banks, which in turn enables other species (including local grasses, shrubs, understory and other canopy species) to colonise over time.
- **Planting design:** plant seedlings in rows that follow the contour of the Namoi River, spaced randomly to create habitat complexity.

In this environment, a major risk for riverbank revegetation is the potential for floods. This influences species choice, with the main tree species planted being river red gum and sheoak, which can handle periodic inundation once established.

However, the risk of floods taking out young plants before they are established is harder to mitigate against.

Drought is also a risk, as it can mean hand-watering is required to enable young plants to survive. The Watsons were also aware from previous experience that kangaroos and wallabies could destroy young seedlings, and so they planned to mitigate against this by using tree guards.



### Create the conditions for your plants to thrive

Site preparation and understanding soil constraints is key to successful planting. For the Watsons, planting in riparian areas would often involve willow control as a first step, but this particular project site was free of willows, so the main preparation required was site cleanup, weed control and ripping planting rows.

“You need to get the site reasonably smooth and clean up all the rough bits of timber,” Andrew says.

This is usually done with a stick rake, making it easier to walk on the site for planting and enabling mowing between the rows once the trees are planted.

“Once you’ve cleaned up the site, our process is to put rip lines where you want to put the trees. We use a single tine ripper behind a tractor and rip down 600-800mm, usually 3 lines a couple of metres apart.

“We let the riplines sit for up to a year. Hopefully, the moisture runs down into that ripline and then you come along and plant your trees staggered along those riplines, into a softened bit of dirt, hopefully with a lot of moisture.”

They also sprayed along the rip lines to ensure that weeds weren’t taking all the moisture.



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### STEP 4: PLANT

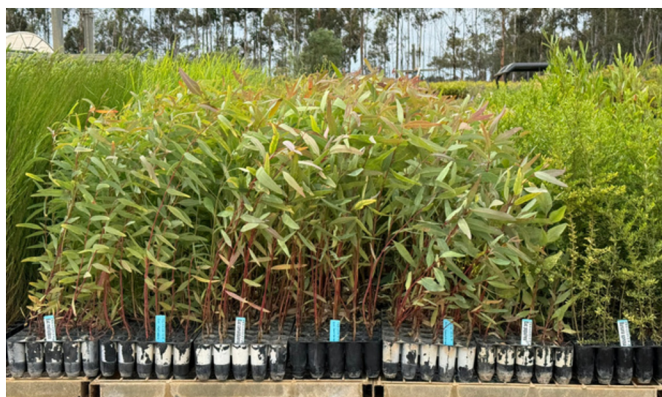


#### Give your plants the best start in life

Soil moisture is essential to successful revegetation. While ripping lines early and controlling weeds along rip lines helps support soil moisture accumulation along the rip lines, it is still ideal to plant seedlings in cooler periods and when leading into wetter periods. For the Watsons, planting tubestock seedlings in autumn provides the best chance of survival, but due to project timing this did mean spreading their planting out over two seasons.

Predicting longer term rainfall cycles is more of a challenge. Both drought and floods can pose risks and extra challenges. Young seedlings often need hand watering during dry times. The Watsons have water tankers available to use for hand watering if needed. On the other hand, excessive rain can be a problem if it leads to the river flooding and washing away young seedlings, which was the case with this project, leading to several re-plantings.

As well as appropriate timing for planting, the seedlings were given a head start with deep-watering and fertilising at the time of planting and were staked and protected by a tree guard against rabbits, hares and kangaroos.



### STEP 5: GROW



#### Ensure you have the right plants for your farm

The Watsons initially focused on planting river red gums (*Eucalyptus camaldulensis*) and river sheoaks (*Casuarina cunninghamiana*) on riverbanks, both species that can handle periodic inundation and for which local seedlings were available in the initial planting season.

Further back from the river away from the serious flood zone, the Watsons plant more wattle and a greater variety of trees.

But ultimately, Andrew says, “the big trees are the beginning. We didn’t plant a broad variety of species, we just planted mainly two species along the river because we know they will survive there, and what tends to happen over time is the birds will bring other species of seeds in and drop them.

“So, if you’re happy to sit back knowing it’s not a today-tomorrow project, it’s a lifetime project, that’s when the birds bring other species that will survive there. The fifty-year-old plantings that we already have show that – there’s different sorts of trees in those areas.

“You really want provenance,” Andrew says.

“You don’t want to bring in anything grown elsewhere as they’re not necessarily used to the soil type, pH, etc. My mother also harvests a lot of seeds from local trees and grows her own seedlings, so there’s quite a lot of natural provenance in the trees that we use.”

Tube stock ready for planting . Image credit: Landcare Australia



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### Measure your progress and record your success

Post-planting weed control is particularly important for the first 12 months, but ongoing weeding, watering and slashing can be required for up to ten years after planting until the trees are established. Over time, the developing tree canopy and shrub layer will shade out weed species and allow for better natural recruitment of native grasses.

"There's a fair bit of work mowing up and down between the tree lines in the early years," Andrew says, "just to give them a chance to get away, and potentially halo spraying around them just so you don't have grass taking moisture from the tree roots." In some cases, replanting can be required to replace trees lost to drought, flood or herbivores.

"I look at some of the tree lines we've planted over the years, and we haven't had to go near them, and we've got huge tree plots," Andrew says, "but other ones where the rabbits and hares and kangaroos just come and eat them and we're forever replanting."

### BENEFITS & CHALLENGES

For this particular planting project along the Namoi River, the biggest challenge has certainly been the floods. Timing turned out to be less than ideal as the riverbanks were flooded 9 times in four years. "We have had to replant four times now as the trees were washed away," Andrew says.

"The first time that happened it was a bit heartbreaking, I must admit, but we'll get there."

**For further information:**

**Visit [www.cottoninfo.com.au](http://www.cottoninfo.com.au)**

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

The awareness that this is a long-term project certainly helps when there are unexpected setbacks like the floods. Reducing pesticide use over the long term is a big motivator for revegetation work of this nature.

"Cotton, along with all the other crops that we grow, do have pests that predate and cause problems," Andrew says. "Previously there'd been a lot of control work with chemicals, but I don't want to use chemicals unless I have to."

"If we can have tree lines linking riverbank environments and remnant vegetation elsewhere on the farm, which will act as a highway for birds, microbats and beneficial insects to move amongst the landscape and our crops. They'll be able to prey on the insects we don't want, which to me is a fantastic outcome."

"The idea of being able to have beneficial insects actually kill the pests in our crops rather than having to use chemicals is one that's majorly appealing. I think we're really starting to prove that there's an economic outcome as well as a massive ecological outcome."

### 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: Sustainable Natural Landscapes (Natural Assets) module
  - **Access via the myBMP website:**  
<https://bit.ly/42R9xjS>



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