

Case Study: fencing off dams & gullies

Barry Sibly, beef farmer, Woolamai

Areas of concern

- erosion
- water security & quality
- shade & shelter
- siltation in Powlett River
- nutrient loss
- stock control



Action taken

- fence out & revegetate gullies and dams
- shelter belts
- stock crossing
- soil testing
- apply fertiliser strategically
- installing extra water tanks
- silicon film to cut evaporation

Benefits

- improved water quality
- erosion stabilised
- valuable shelter for stock
- increase in biodiversity
- better stock management & safety
- improved pasture management
- extra water storage capacity
- saved money by reducing the need for dam excavation
- stock on clean water produce less methane



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Who:	Barry, Giulia & Gabrielle Sibly
Where:	Woolamai, in the Strezlecki foothills
Size:	300ha (180ha pasture, 20ha vegetation)
Enterprise:	Beef (fat vealer market). Currently 400 head, including calves
Soil:	Predominantly grey loam
Aspect:	The property has a southerly aspect and contains many steep gullies which feed into the Powlett River.

Barry Sibly's main environmental priority has been to reduce the erosion occurring along the steep gullies running into his dams, and ultimately, into the Powlett River.

With Landcare's support, Barry has fenced off and revegetated almost 20 ha of his gullies, which has reduced erosion, and provides valuable shelter for his stock. He's also helping to reduce the amount of sedimentation and nutrients entering the Powlett River.

Barry's now going one step further and fencing off his dams. He's realised that the combination of stock and dams is not a good one – in terms of water quality, stock health and safety and the amount of water he can store.

The cattle were making a huge mess of the dams," he recalls. "The banks were collapsing, the dams were filling up with silt, and I was looking at spending a fortune on excavators."

Barry had lost one cow in the mud, and wasn't keen on his cattle drinking "recycled dung and urine" (stock that have access to clean water generally have better condition than those that drink dirty water, and are less susceptible to disease and parasites). The high levels of dung and urine were also contributing to an azolla problem in a few of his dams.

Barry has completely fenced off six dams, and already the water is a lot cleaner. It has even improved in those dams where he has only been able to fence off one bank. Barry advises anyone contemplating fencing off their dams to make sure that they fence off any feeder gullies, to filter out excess mud and nutrients.

Landcare assisted with the costs of fencing, establishing troughs and tubestock around the dams. They also contributed to the cost of constructing a crossing so that Barry could fence off a creek running through a paddock.

This too, has improved water quality and reduced erosion, and has really helped with stock management and safety.



"It's made a huge difference in water quality, and it's going to save me a lot of money in excavators," says Barry. He's also confident that his dams are less likely to dry up in dry weather.

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Nutrients & Soil

Barry used to apply fertiliser by plane, but was concerned that much was being washed down the gullies, and lost into the dams and river. He now applies the fertiliser himself, avoiding the slopes, only fertilising in dry weather, and preferring to not fertilise at all in his main catchment.

This responsible use of fertiliser has its drawbacks, however, with soil tests indicating very low levels of phosphorus on the slopes. In comparison, the ridges – where the cattle tend to camp - are very high in pot-ash. Weeds are also an issue in these areas.

Barry is altering his grazing management to distribute nutrients more evenly over the property. He is re-fencing the more fertile ridges as a separate land class from the less fertile slopes.

This lets him graze the slopes more evenly, and keeps the nutrients on the slopes rather than transferring them to the ridges, which—over time—will improve pasture production. In the short term, careful applications of phosphorus on the slopes, avoiding wet weather, will boost soil fertility.



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Pasture & Vegetation

The vegetation along Barry's gullies acts as a filter to trap excess nutrients before they reach the dams and waterways. It has also helped to stabilise erosion, leading Barry to consider fencing off the crowns of the hills above areas prone to landslip.



One of the greatest benefits provided by the vegetation, is shade and shelter. "You can find a good place to feed out without the hay blowing away, and it's more comfortable for both me and the animals."

Barry, who calves in February and March, believes he lost a number of calves last season through lack of shade. "The cows calved early and caught me unprepared," he says. "They were in a paddock without shade and three of the calves went down with white scours."

He also says that having shelter in cold weather helps stock maintain condition on less feed. "A cow that is shivering on a cold day isn't going to put on much weight."

Barry is aiming to build shelterbelts in every paddock – ideally in conjunction with fencing off his gullies. Wherever possible, he plants north of his dams and troughs so that stock can stand in the shade after having a drink. The shade also reduces evaporation.

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Greenhouse gas emissions

Barry has examined his greenhouse gas emissions as part of the BCLN Greenhouse Emissions Program. He was pleased to discover that on a per head basis, his emissions were comparatively low – largely thanks to his avoidance of nitrogen fertilisers, and his low stocking rates.

Barry could reduce his emissions, however, by using gravity rather than his petrol-driven pump to transfer water around the farm. This involves increasing his water storage facilities by installing a 95,000l galvanised tank to catch water from the roof of the hay shed and old dairy.

Barry estimates that the new tank will provide him with an extra 116,800l of water per year. This water will be transferred to a header tank (using the petrol pump) and then gravity fed to a series of troughs.

Gravity fed water systems save energy, but need to be monitored regularly. Barry checks his piping and trough fittings regularly for leaks which may have been caused by pressure blow-outs or interference from cattle.

Another water saving strategy Barry will trial in his dams over summer is a silicone-based liquid that spreads across the water surface, forming a protective 'film'. This film can reduce evaporation by up to 50% which, in a standard farm dam of around 3 megalitres, represents a saving of around 1.5 megalitres of water per year.

Resources & links to other information

- *“Stock & Waterways: a manager’s guide”*
(available free of charge from land&wateraustralia@lwa.gov.au, or 02 6263 6000)

The outcomes so far

Barry is a great believer in killing two birds with one stone. His efforts to control gully erosion double as shelterbelts; fencing off his dams has helped to secure a clean water supply and improve stock management, and his responsible use of fertiliser protects the environment while also saving him money.

Barry believes that it is important to keep moving forward, and will continue to participate in BCLN programs to build a more sustainable business.



Barry developed a whole farm plan, using aerial photographs and overlays, to help him identify areas of concern, and opportunities to capture more water. You can develop your own whole farm plan free of charge through BCLN.