Local Land Services

Case study | Greater Sydney

Incentive Projects S05-2023

As part of the *Healthy Soils, Productive Pastures* four-year program, 19 landholders were successful in procuring incentive grants through the Australian Government's National Landcare Program to undertake on-ground works on their properties to improve grazing management, build soil health and protect groundcover and biodiversity. Although this program is coming to an end in June 2023, Greater Sydney (GS) Local Land Services (LLS) continue to seek grant funding to assist landholders in the GS region.

This case study features landholders Vera Zaccari and David Rawlinson from the Upper Macdonald valley in the Hawkesbury. They reflect on the positive outcomes of their project for their farm productivity and in protecting the environmental assets on their property.

In 2021, Vera and David embarked on their project to install internal fencing to establish a new paddock, build infrastructure to provide off-river water for their cattle using equipment such as solar pumps, telemetry, water tank, cattle troughs etc, plant 217 tube stock of native species to provide shade and shelter, and fence off previously planted vegetation corridors to restrict cattle.

Vera and David completed the first stage of their project, a new paddock established with internal fencing to implement rotational grazing. With this method, Vera and David can rest their pastures from grazing pressure, which is very effective in promoting ground cover and soil health.

A series of flood events occurred late 2021, with two of the floods causing significant damage to the property including loss of paddocks and pasture due to erosion and inundation for several months, significant sand deposits, loss of planted trees and damage to infrastructure. COVID lockdown also exacerbated issues with project delivery due to supply issues.

Figure 1. Installing new fencing.

It was fortunate that the new paddock, which was located at a higher elevation on the property, was only temporarily flood affected.

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Vera and David stated that without the paddock fenced and ready to use, *'our cattle would have been totally hand fed since March 2021'*.

This paddock provided green pasture in between floods and *'although the herd was significantly reduced, they remained healthy'*. This not only helped productivity, but also gave them peace of mind, knowing their cattle were still able to graze and not rely only on hay while other paddocks were submerged. This paddock will continue to be of great value into the future during periods of flooding, however there is still uncertainty in how viable some of the impacted paddocks are due to significant sand deposition and pasture damage.

Figure 2. Cattle grazing in the new paddock.

Not wanting to use fossil fuels, Vera and David installed a 5,000-litre water tank, and a cattle trough with connecting pipes supplied by a remote solar pump. They also wanted to remotely manage water levels in the water tank and trough to allow the cattle to be left unattended when needed.

As one of their in-kind contributions, David designed and built a prototype water telemetry system. Once the concept was proved, David designed Printed Circuit Boards to allow easier and more reliable construction of the various elements. The system consists of microprocessor controlled low-power radio modules which remotely control the solar pump to keep the water tank filled, as well as monitor tank and cattle trough water levels, before relaying this information to the farm residence. The system provides an alarm which will sound should either the tank or trough water fall below pre-set levels or if the radio link is lost.

Figure 3. David testing the electronic boards and transceivers.

The original solar submersible pump was either buried deep or washed away in the floods. As a replacement, Vera and David researched and trialled a portable non-submersible solar pump and found it not only less expensive, but more efficient in pumping water to the height and distance required.

Another objective of this project was to protect plants (planted in previous years) from cattle through the installation of robust electric fences in various parts of the property. Some of the fencing as well as plantings were also flood affected. Despite the overwhelming challenges and with extra work, time and expense, Vera and David completed what they set out to do.

For the many landholders who have been flood affected, recovery can be a slow and difficult process. Despite the adversity they faced, Vera and David believe that without the on-ground works completed over the years, including this recent project, the impacts to their property could have been worse.

Vera and David wish to share their story with other landholders in their local community and in the GS region, so that others can benefit from the lessons they have learned.

This project is supported by Greater Sydney Local Land Services, through funding from the Australian Government's National Landcare Program.