

## CASE STUDY: JULIE ROSS

# Many benefits to be seen in created wetland at Kokoamo Farms

***At Kokoamo Farm, near Duntroon in North Otago, dairy farmer Julie Ross, with her husband Matt and their team, have created a 2.5 hectare wetland, which is now a well-established, effective mechanism for improving water quality, as well as being a flourishing habitat for aquatic wildlife.***

The area started out as a boggy, willow-infested corner at the bottom of the farm boundary, fed by a large catchment area and at the head of the spring-fed Kokoamu Stream.

Julie and Matt originally decided to enhance an unattractive part of their farm, whilst at the same time testing the filtering ability of a created wetland and providing a suitable pond for duck hunting. Since then, the focus of their work on the wetland has changed, and it is now primarily about improving water quality, reducing the environmental impact of intensive farming, and providing a habitat for flora and fauna to thrive. In 2008, they received a grant of \$5,000 from Environment Canterbury to assist in the project but have funded the majority of the project themselves.

The area was firstly cleared of willow and a spillway was formed at the downward end of the area to create a shallow pond. In Autumn of 2009, native plantings were undertaken within the fenced-off margins. In 2010, the riparian plantings were extended further up the stream towards the spring. After three years of planting and maintenance, Julie says they have finally mastered the formula for plant establishment.

The wetland has proven to be an effective way of improving water quality. "As part of our Farm Environmental Management Plan we are required to test the quality of any stream or waterway which may be influenced by farm runoff" says Julie. "Each irrigation season I sample water above my wetland area and below the boundary of our farm to test both the influence of the establishing wetland area and the impact of our farming operation on the stream. What is significant is both Nitrogen and Phosphate levels reduce by up to a half between the samples. These results show us that what we are doing is positive and beneficial."

Koura (freshwater crayfish) were known to inhabit Kokoamu Stream many years ago, and since the wetland was created, these have returned and are now beginning to thrive.

The increasing biodiversity of the site is something Julie is particularly proud of.

"We have numerous families of birds that regularly breed and establish on our wetland. We have had pied stilts, New Zealand shoveller, scaup, brown teal, and paradise and mallard ducks raising clutches of eggs over the seasons. We also have many frogs, lizards, and spiders that live amongst the plants."

The wetland creation has been very much a team effort. "There is a social aspect that has been rewarding for me." Julie says that over the years they have had many university students and part-time employees who have contributed to the area's establishment and maintenance. "Many ask 'why bother' at the beginning of their involvement but after a while they can see the benefits, and then they become really enthusiastic about it."

Julie adds that this year they have two university students working for them – Shaun Snoxell and Charlotte Hay, who are helping Julie's 'right hand woman' Sharon Rawlings get the area looking wonderful and re-vegetating areas that haven't been planted. Julie is hoping that now they have developed a 'winning formula' for plant establishment this will be the last planting effort required.

Julie also credits the excellent plant stock they source from Matai Nurseries in Waimate as a key part of their success.

The next step will be to introduce floating mats to further improve water quality through better nutrient uptake by the aquatic plants.

"As farmers we need to return to the old adage of leaving the land better than we found it. If not better, then no worse off. Riparian plantings and wetland areas are a great place to begin this process. It starts you thinking about other areas of your farming system in a different way, considerations that you may not have thought of at another time."