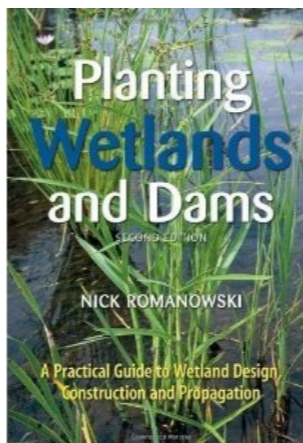


RESOURCES FOR KVLG LANDHOLDERS NOW AVAILABLE

If you are interested in borrowing any of the books listed below which have been made available to us by MLI please contact Sam Shannon on 69331443 or 0487 953776 to arrange collection.

Planting Wetlands & Dams - A Practical Guide to Wetland Design, Construction and Propagation Second Edition Nick Romanowski Paperback – 2009

Wetland planting can bring back biodiversity, reduce the impact of drought and flood, improve water quality and conserve beauty in a mismanaged landscape. *Planting Wetlands and Dams* is a step-by-step, plain language guide to the creation of conditions in which wetland plants will thrive, from design and construction to collecting plants, seeds and propagation. Completely revised and expanded, this new edition includes comprehensive information for around 200 genera of wetland plants from Tasmania to the tropics, complemented by more than 60 new colour photographs. It discusses the modification and improvement of existing dams, new lining materials available, and planning for plant and animal habitat needs. It provides updated information on legal requirements as well as significant exotic weeds, and examines the pros and cons of establishing new wetlands in dry climates.

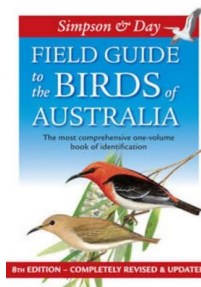


Field Guide to the Birds of Australia

Eighth Edition Nicholas Day & Ken Simpson Paperback – 2010

Since it was first published in 1984, Simpson & Day's *Field Guide to the Birds of Australia* has been one of the most - if not the most - respected bird guide in the country.

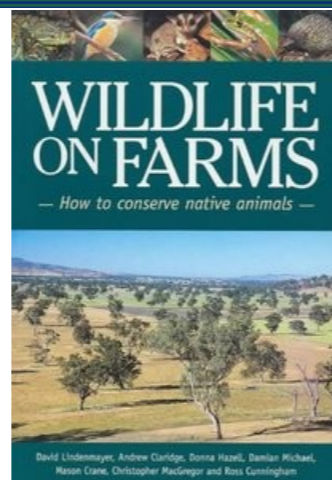
The guide contains 132 superb full-colour plates showing all Australian bird species; key points of identification using the latest classification system; distribution maps for all species; over 900 black and white line illustrations; breeding information; a vagrant bird bulletin; a core library list; and easy-to-use indexes. This eighth edition has been revised and updated, including some beautiful new plates.



Wildlife on Farms - How to Conserve Native Animals

Andrew Claridge, Donna Hazell, Ross Cunningham, David Lindenmayer, Damian Michael, Mason Crane & Christopher MacGregor Paperback - 2003

Many landowners are interested in the native animals that live on their farms or once occurred there. In particular they want to know why particular species are present (or absent), what they can do to encourage them to visit, and what they might do to keep them there. *Wildlife on Farms* outlines the key features of animal habitats—large flowering trees, hollow trees, ground cover, understorey vegetation, dams and watercourses—and describes why landholders should conserve these habitats to encourage wildlife on their farms. It shows how wildlife conservation can be integrated with farm management and the benefits this can bring. The book presents 29 example species—mammals, birds, reptiles and amphibians—that are common to a large part of southern and eastern Australia. Each entry gives the distinguishing features of the animal, key features of its required habitat, and what can be done on a farm to better conserve the species.



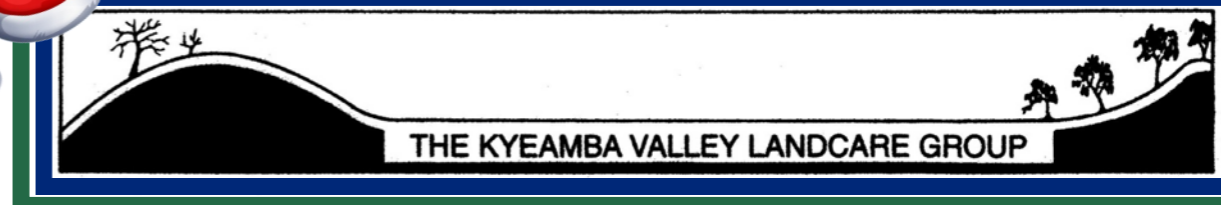
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Kyeamba Valley Landcare Group
170 Big Springs Road
WAGGA WAGGA NSW 2650

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KYEAMBA VALLEY LANDCARE NEWSLETTER - Summer 2012-2013

Message from the Chairman

Peter Lawson - Chairman KVLG

Since our last correspondence we have had, what I considered to be, a very successful field day / workshop on erosion control, held in conjunction with the Tarcutta Landcare group. There was quite a lot of information received and ideas discussed, with some site visits to get a practical view of what can be done in certain areas.

The main factor determining the most suitable method of erosion control seemed to be the extent of the erosion at a particular site. This is quite often a reflection of what order of stream is involved. The simple explanation for this is that a 1st order stream is the first drainage line, generally closer to the tops of the hill or slope. When two 1st order streams meet up it then becomes a 2nd order stream, and when two 2nd order streams meet it becomes a 3rd order stream and so on.

The second part of the erosion control workshop is happening on Tuesday the 11th of December (see further details in the newsletter.) This will be looking at **low cost** solutions for generally 1st and 2nd order streams, bearing in mind that the methods shown can generally be scaled up for bigger areas. It should be a very interesting day so we look forward to seeing as many of you there as can make it. It is also our hope that we will have another day during the middle of next year (as will the Tarcutta group) concentrating on how best to use vegetation to arrest some of the larger erosion gullies and creeks.

The feature article for this edition is on Lyn and Francois Retief and the wild life surveys that have been done by Mason Crane and his team over numerous years. If you have an interest in what lives with you on your patch, keep your eyes peeled as you may be surprised what you see. Mason will hopefully be joining us early in 2013 with some

of his findings over his years of researching our area. A couple of the endangered birds that are known to have graced our area are the Swift Parrot, the Regent Honeyeater, the White browed Tree creeper and the Bush Stone Curlew. There are many others that are considered vulnerable and obviously lots of common ones to enjoy too.



Swift Parrot

With this newsletter you will receive your annual membership invoice. Kyeamba Valley has a long history (in Landcare terms) of strong membership and support. With yet another restructure looming in the way funds are to be distributed, the one constant throughout all the changes has been Landcare Groups. More and more funding opportunities are now being distributed directly through the groups instead of through other organisations. Hopefully one day the powers that be will get the balance right and not swing wildly one way and then back the other so we can get the best possible assistance and gains for landholders, as 'more \$\$ on ground'. Anyway, enough rambling, we encourage you to re-join and please encourage others to do so, even if it is just to ensure you get this newsletter. With the year drawing to a close we would like to wish you all a very merry Christmas and hope that you are able to take a break over the festive season, leading into a wonderful new year.

Regards, **Peter Lawson**

The Kyeamba Valley Landcare Group wishes everyone a wonderful Christmas and New Year filled with happiness, good health and bountiful seasons.

The Kyeamba Valley Landcare Group proudly supported by:



The Kyeamba Valley Landcare Group is grateful for the support of the **WAGGA MUTUAL CREDIT UNION** in printing their newsletters

Revegetation Encourages a Flurry of Fauna

By Bundle Lawson. Photos by Mason Crane

Lyn and Francois Retief started farming in the Kyeamba Valley in 1984. Since taking over Lyn's family farm *Winbirra* in 2000, they have been gradually undertaking revegetation and erosion control work to enhance the biodiversity on their 122 hectare property.

"Both the formal projects and private works we have undertaken have been highly successful and effective, and we continue to enjoy the outcomes of these efforts," Lyn said.

Basic principles

The Retiefs run a certified organic (biodynamic) beef cattle and viticulture (wine grapes) operation at *Winbirra*. Their country ranges from sandy clay loam on the Kyeamba Creek flats to loam topsoils overlaying weathered quartz, sandstone and siltstone in the nearby foothills.

"Our enterprises are run in accordance with the principles of Holistic Management," Lyn said. "The combined effect of rotational grazing and biodynamics has had an amazing impact on things such as soil biological diversity, and we have seen a measurable increase in soil carbon levels."

Project participation

In addition to revegetating several sites themselves, the Retiefs have been involved in a number of projects to revegetate various areas of their property and, in turn encourage native flora and fauna.

In 2000, the *Bidgee Banks* project involved fencing out a gully for erosion control and revegetating the area with local, native trees and understorey species using direct seeding. The area has since been judiciously grazed, and there has been ongoing monitoring of flora and fauna populations.

The *Heartlands Farm Forestry* project undertaken in 2001/2 focussed on the 'break of slope' area of the property. Again the area was fenced out, ripped and planted with trees and understorey species. In addition to monitoring flora and fauna in this area, groundwater readings are also regularly taken to see what effect the vegetation has on recharge.



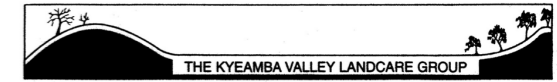
On many sites on Winbirra, remnant vegetation has been enhanced by the planting of local, native trees and understorey species to provide a more diverse habitat for native fauna.

The most recent project the Retiefs have undertaken on *Winbirra* is the *Communities in Landscapes/White Box Woodland* project during 2010-2012. This has tied in well with the Retief's beef enterprise as the project has enabled them to increase the number of watering points on their property. This has facilitated rotational grazing, which together with revegetation, has enhanced biodiversity.



Lyn and Francois Retief have undertaken a variety of revegetation and erosion control projects, to enhance the biodiversity and productivity of their biodynamic farm Winbirra.

A bit about the Kyeamba Valley Landcare Group



The Kyeamba Valley Landcare group is a community volunteer organisation that was formed in 1989 by a group of Kyeamba Valley landholders with a common concern about the protection of our natural resources. Kyeamba Valley was one of the first Landcare groups to establish in NSW and now has a membership of around 100 rural landholders, including some of those founding members who remain active volunteers of our group today.

Our activities are concentrated in the Kyeamba Creek Valley, an area of around 100,000 hectares. The valley parallels the Tumbarumba Rd, from the Sturt Highway junction near Ladysmith to the Hume Highway Junction 40km east. The valley incorporates the communities of Kyeamba, Gregadoo, Big Springs, Book Book, Ladysmith, Coreinbob & Borambola.

The group was initially formed in response to the emergence of land degradation problems in the Valley, such as salinity, soil acidity and erosion and the desire to address these problems. We are a community-based organisation that operates as an incorporated body administered by a Chairman & a Committee of six elected by the members at our AGM in May each year.

The community vision for the Kyeamba Valley Landcare Group is "working toward a better future". Through education, participation and community ownership we are aiming to achieve a viable, sustainable and productive environment through a planned approach to the rehabilitation of degraded land, water and vegetation and the implementation of more sustainable land use practices.

We have completed more than 60 major environmental projects on both privately & publicly owned land in the Kyeamba Valley. This has led to significant improvements in water quality, salinity, biodiversity and soil health and will be a legacy for future generations.

Through field days, forums, guest presenters, training courses and social functions, The KVLG has provided opportunities for participants to increase their awareness and understanding of a variety of topics including environmental, farming, business, health and community issues.

The group has helped local farmers understand and embrace sustainable agricultural practices leading to increased farm profitability. Successful, profitable farms result in progressive rural communities who are more confident about making decisions about their future and who are equipped to adapt to a changing environment.

So why should I join the Kyeamba Valley Landcare Group – what's in it for me?

Many of us share a concern about the protection of our natural resources but are unsure of the benefits to each of us in actually belonging to and becoming actively involved in a Landcare group. So why join.....?

Whilst The KVLG receives government funding for desig-

nated rehabilitation works, which are matched by community contributions, the group does not receive any funds for group operation and administration. Therefore, we depend upon the support of our members through an annual subscription along with community and industry partners to maintain our small operating budget.

Benefits for you of belonging to a Landcare group include:

- * Source of technical information and advice
- * Learning opportunities through Landcare field days
- * Networking with other landholders to exchange ideas and information
- * See the results of Landcare activities locally ie: what other farmers have done and how
- * Opportunity to source funding incentives to offset costs of Landcare activities. *Please note there has been a recent policy shift back to funding Landcare groups directly for projects and this should provide an increase in the access to funding opportunities in the future.*
- * Savings on inputs eg: bulk tree orders; negotiated discounts on fencing materials
- * Strong communities through involvement in common community and social issues
- * Improved health of the whole catchment – a legacy for future generations

Benefits of carrying out Landcare measures on your property include:

- * Future income earning capacity of your land and water resources can be improved and protected
- * Increased property values
- * Increases in productivity
- * Tax offsets and tax deductions are available for capital expenditure on Landcare measures

So come on...join up now – the Kyeamba Valley needs you!

Your subscription entitles you to regular bulletins and newsletters to keep you informed of local Landcare issues, events & funding opportunities. Members monthly meetings are held on the second Wednesday of every month (except December & January) at the Ladysmith Hall at 7.30pm.

If you would like to join or renew your subscription to the KVLG please forward your details and your cheque for \$22 to Tracey Everett 603 Big Springs Rd, Wagga Wagga 2650.

If you would prefer to use internet banking our details are:

The Kyeamba Valley Landcare Group
Wagga Mutual Credit Union
BSB: 805 022 A/C: 38717958
Reference: Your name & invoice number

Please email your remittance to candteverett@gmail.com

If you would not like to join and would prefer not to receive any further mail from the KVLG, please be kind enough to let us know by post to Tracey at the above address or phone 69281344, 0427-281344 or email candteverett@gmail.com.

KEEPING IT CLEAN – CREATING HEALTHY FARM DAMS ... *continued*

Whatever the species, once established they perform a remarkable job in cleaning the water and minimizing erosive wave action. They also provide critical breeding, nesting, feeding, sheltering and perching habitat for aquatic life, from insects to frogs and fish.

To further increase the habitat value of the batter zone and ensure the water's edge has a variable margin, add clumps of rocks and logs here and there around the edges of the dam.

In the drink

The permanent water in the dam is another zone, which includes the width, depth, variability of levels, variability of temperatures and rate of sediment build-up. To provide habitat for various native fish species and many other aquatic species, a diversity of underwater structures can be created by adding fallen logs into the dam itself.

"These offer shelter, nesting and breeding sites to many species," Alison said.

"Water provides a variety of niches offering specific growing conditions for different species of plants. For example, they can be free-floating on or below the surface, or have their roots into the substrate soil and emerge above the water surface. Most species have strategies to survive exceptional times such as extreme drought, but prefer year-round water to com-

plete their life cycle.

"Farmers have found that many of the plants, and the animals dependent on them, will gradually appear in and around their dams once the stock pressure has been removed and the habitat increased."

Weed control

From Alison's experience, the issues of weeds and fire fuel loads building-up in areas excluded from grazing are often raised, and are of justifiable concern.

"Weeds are usually more problematic than the potential fire risk around dams. Using herbicides close to water is not advisable, but if it is considered essential, then Roundup Bioactive (not simply Roundup) is preferred. This product has a different surfactant in it compared to straight Roundup, which is less likely to damage frogspawn.

"Slashing weeds to preventing future seeding and spread ensures the soil continues to be stabilized and the run-off water slowed-down and filtered while the desired vegetation becomes established."

Every dam and water-way have various zones surrounding them which require different management strategies to maintain their health

TAWNY FROGMOUTH (*Podargus Strigoides*)

By Junior Landcarer: Carly Everett, age 12 years

Last week I enjoyed helping my mum look after a young Tawny Frogmouth which was taken into care by WIRES after it was found sitting in the middle of O'Briens Creek Road. We cared for the frogmouth for a few days before it was passed on to another carer so it can be raised with other frogmouths and taught to hunt live prey before it is released back into the wild. I did some research & have found out the following information about Tawny Frogmouths.

Distribution: Although common throughout most of Australia Tawny Frogmouths are so well camouflaged that we don't often notice them. Being nocturnal birds, during the day they roost on a sloping branch or in the fork of a tree and remain perfectly still with their eyes reduced to narrow slits & with their mottled grey-brown feathers they just look like a short broken branch.

Description: They are 35-53 cm in length with mottled grey & brown feathers.



Habitat: Tawny Frogmouths live in most kinds of open woodland, especially in eucalypts or wherever there are trees for roosting and open areas in which to hunt. Pairs mate for life & maintain

permanent territories of 40 to 80 hectares, marked by a persistent call.

Call: Low monotonous "oom-oom" call repeated 10 to 50 times, then again after a short break.

Diet: At dusk Tawny Frogmouths begin to hunt, waiting patiently and then swooping onto prey. They prey on worms, slugs, snails, spiders, cockroaches, mice & small mammals, reptiles, frogs & small birds. They usually pounce from a low perch, such as a fence post or road sign, onto small terrestrial animals crossing bare ground. Quiet roads provide ideal conditions for this technique, but the Tawny Frogmouth is not especially agile, so unfortunately many are killed by vehicles.

Breeding: Their breeding season is August to December. Their nest is a flimsy platform of sticks, placed in a horizontal tree fork up to 15m from the ground. The female usually lays 2 eggs which are incubated for about 30 days & the young fledge at 25 to 35 days. Both parents build the nest, incubate and care for the chicks. A breeding pair will usually return to the same nest site year after year. One pair has been recorded as using the same nest tree for 14 years.

Many people think Tawny Frogmouths are owls but they are not, they are nightjars. Both have anis dactyl feet (1 toe facing backwards & the other 3 facing forwards) but the difference is that owls have much stronger, more flexible, taloned feet so they can use their feet to catch their prey on the wing but frogmouths have quite weak feet because they use their beaks to catch their prey.



Revegetation Encourages a Flurry of Fauna —*continued*

According to the Retiefs, all these projects have helped to create a flora and fauna haven on their property, which they are naturally very proud of.

"Enhancing the range and amount of local native trees and understorey, and increasing the number of watering points, has in turn provided a more diverse habitat for fauna – including birds, mammals, reptiles and insects," Lyn said. "It has also created a healthier, more productive environment for raising our beef cattle."

"In recent years we have been especially pleased to see birds such as Nankeen Kestrels, White Falcons and Barking Owls on *Winbirra* and animals such as black wallabies, echidnas and goannas regularly around the house area rather than just out in the back paddocks."

Bird studies

One ongoing project that the Retiefs are especially pleased to be involved in since its inception during 2003, is the *Southwest Slopes Restoration Study*. The study has been led by Prof David Lindenmayer, together with ANU scientists from the Fenner School of Environment and Society including Mason Crane, Damian Michael, Chris MacGregor, Geoff Kay, Rebecca Montague-Drake, and volunteers from Canberra Ornithologists Group.

The study was originally set up to examine how wildlife respond to tree planting on farms, but has become much more than that. Over a decade of monitoring means that these researchers have begun to examine how wildlife populations across the southwest slopes are tracking and what may be causing any changes.

According to a report in the June 2012 edition of the ANU's *Wildside* newsletter, the researchers have seen a steady increase in the average number of bird species detected at each site, after a dip in numbers between 2004 and 2006. There appears to be a positive response in bird populations to increases in woody vegetation across the region, and

there has also been a decrease in 'pest' bird populations such as noisy miners.

Even back in 2007, Mason Crane said the study had shown an average increase of three to four bird species on farms where there were tree plantations. This could increase to six or seven extra bird species per farm if those farms were heavily cleared of woody vegetation.



Blue Tongue Lizard

The surveys are conducted in winter and spring at least every second year, and include recordings of any animals and reptiles seen on each site during the survey period, including under spotlight. The Retief's have five survey sites on *Winbirra*, and the most recent surveys during 2011 show an increased frequency of sightings of many bird species at these sites. At one site during the 2011 spring survey there were nine bird species recorded that had not been seen at that site before, which is very encouraging for the Retiefs.

"Diversity is important to our whole farm operation," Francois said. "Given we are operating an organic vineyard, we endeavour to do all we can to encourage predatory birds and animals."



Celebration dinner for International Women's Day 2013

(men are very welcome at this event)

THURSDAY 14 MARCH 2013—MTC Champagne Bar

Join us for a special dinner to help raise money for the Wagga Women's Health Centre new building initiative.

Hosted by media personality Julie McCrossin. The highlight of the evening will be an address by Fiona Simson, President of the NSW Farmers Federation. Fiona is an accomplished farmer, an ambassador for the Australian Agricultural industry and a strong activist against coal seam gas mining. This event will feature stunning choral entertainment, fantastic auction items, lucky door prizes and will be a great, fun evening to celebrate International Women's Day and raise money for a very good cause.

The Wagga Women's Health Centre has been providing important services to vulnerable women in our community for more than 30 years and does not have funding for accommodation beyond 2016. This event is part of a series of activities which will raise \$800,000 for the purchase of a building to enable the centre to continue its important work in our community. More information about this event will be made available early in the new year.

For enquiries, please contact Jan Roberts on Mobile 0428 680 779

KEEPING IT CLEAN – CREATING HEALTHY FARM DAMS

The typical farm dam usually provides stock water of variable quality, and adds very little extra benefits to the farm environment and business. But there are some simple, relatively cheap strategies that can be used to noticeably improve the water quality and biodiversity of farm dams, which Pamela Lawson investigates.

With careful management, some lateral thinking, and a little patience, it is possible to turn a typically muddy, lifeless farm dam into a vibrant, bio-diverse, sustainable wetland. In turn, the water on offer to livestock will be cleaner, cooler and of a higher quality than previously.

According to Alison Elvin from the natural resource management (NRM) specialist company Natural Capital, this process need not be costly and usually takes about three years to establish. However, many farmers report positive changes in water quality after a few months.

Common problems

Most farm dams are merely a leak-proof hole in the ground, capturing run-off water for stock to drink.

“There is often no shade, no water quality control and no wind shelter. Nor are there structures or filtering vegetation to slow and spread the velocity of storm water as it rushes into the dam and often straight out the overflow,” Alison said.

“In summer, as the water in these dams heats up, it loses oxygen and becomes the perfect environment for many disease-causing micro-organisms.

“Livestock congregating along the water’s edge to drink and cool down erode the sediment which, in addition to their manure and urine, contaminates the water. This adds to the manure and sediment brought into the dam in run-off water, together with farm chemical residues. This makes the dam water unsuitable for many aquatic animals to live in, on or around.”

Improving matters

According to Alison, the single most effective strategy to begin the process of converting a dam into a functioning wetland is to initially exclude livestock from all or most of the dam. This is achieved through fencing-out either the entire dam and its surrounding riparian edges, or most of the dam with an allocated, relatively narrow walkway into one small section of the water.



Fencing out: By temporarily or permanently excluding livestock from all or most of a dam, vegetation quickly re-establishes to slow down and filter the incoming catchment run-off water.



Typically barren: Most farm dams are little more than a leak-proof hole in the ground, capturing often contaminated run-off water which forms a stale, dirty and poor quality water source for livestock.

“If livestock are to have permanent access to a small section of the dam, it is important to stabilize their walkway to the water’s edge with rocks or logs to prevent erosion,” Alison said.

“The downside to excluding the dam is the cost of providing alternative stock-water. Troughs placed directly below the dam can be gravity fed from the dam, or from a header tank higher up in the paddock. But getting water into a header tank requires a pump in addition to piping, increasing the cost. Often the cheapest solution is to provide one small access point to the water, and exclude the remainder of the dam.

“It is important to recognize that the area around the dam is not excluded to grazing forever, but becomes another future paddock to be used for short-term grazing when required. Remember therefore to have suitable access gates built into it.”

Water requirements

If the farm practices rotational grazing regimes whereby stock use each dam for only a few days or weeks a year, it may not be necessary to fence-out the dam while vegetation is being established.

Why fence out?

From a production point of view, the main reason for fencing out a dam is to simultaneously increase the quality of livestock water whilst slowing down run-off water as it flows into the dam.

“Better water quality reduces diseases and boosts animal growth and overall health. Slowed run-off water will begin to percolate into the soil, creating sub-surface moisture further out into paddocks, increasing resilience to drought,” Alison said.

“But a second and equally powerful reason to undertake a dam make-over, is to increase the range of species who live in and around the dam – plants, birds, insects, frogs, yabbies, fish, tortoises, reptiles, mammals.

“Increasing bio-diversity has both environmental and economic advantages, including the ability to stock fish for the table and the aesthetics of a lovely wetland.”

In the zone

All watercourses, including dams, have a series of recognizable zones around them. The outermost zone is the water **catchment zone**, which is usually the slopes of the surrounding paddock.

Keeping the catchment as clean as possible by not over-grazing it has the bonus of capturing rainfall that will percolate down into the soil before running off, reducing the amount of sediment, manure and farm chemicals that run into the dam.

All around the dam, up to 20 metres or more from high-water mark, is the **buffer zone**, or riparian edge. In this zone, the surface soil is typically dry, with deep sub-soil moisture. It is this area, and the water itself, which needs fencing out from livestock.

According to Alison, many farmers may consider a 20m exclusion to be too much, so a judgment of sensible distance should be made for each dam in each paddock on each farm.

Creating a buffer

“Often keeping stock away from the buffer zone is all that is needed for native tree, shrub and grass species to become established. After a time, the seed or seedlings of desired species can be added, along with some structural elements such as standing and fallen hollow trees for habitat to speed things along,” Alison said.

“Within this buffer zone, clumps of trees and shrubs should be planted, especially to the north-west of the dam, to reduce summer evaporation from hot summer winds. It is recommended that forage species that can be lopped during hard times are included here.

“It is advisable to plan the revegetation of this area so it can be slashed or otherwise managed to deal with any excessive weeds without damaging the desirable plants.”

Equally as important as the trees and shrubs in this zone are the grasses. Thick, dense swards of both tussock-forming grasses such as River Poa (or even Phalaris or Cocksfoot if that is what now grows there) and soil-binding grasses such as couch grass, are critical to slow, filter and clean the in-coming water. These grasses also stabilize the soil, keep it aerated, reduce soil compaction, provide habitat to many species, and increase soil moisture by slowing the run-off water down.

Existing farm dams can be turned into multipurpose wetlands with improved water quality for livestock.

On the edge

Between the buffer zone and low-water mark is a very active area of water called the **batter zone**. The two inter-connected areas of this zone consist of one that is intermittently damp, and one that is generally wet year-round.

“In the batter zone, wind blows the water constantly against the dam edge, creating wave erosion,” Alison said. “Stock will trample the edge to drink and bathe, and many birds roost in this area, polluting the water with their droppings. The water here is shallow, warmer and often nutrient-rich – it has the potential to support abundant life, if well managed. “It is in this zone that a wide diversity of sedges, rushes and reeds will grow. Often, these will begin to appear within weeks to months of stock exclusion, and their numbers then wax and wane depending on the seasons. Some species suit dam life better than others, and different species grow in different depths of water. Species such as bulrush (*Typha* sp.) can become invasive in shallower water, so advice on actual species to grow here needs to be sought from local experts.”

What to grow

“Some common stabilising plant species that often grow along the edges and in shallow water include *Juncus* sp, *Carex* sp, *Eleocharis* sp, *Bolboschoenus* sp, *Cyperus* sp, *Phragmites* sp and *Baumea* sp in deeper water.

“In permanent water, species such as Water Ribbons (*Triglochin* sp), Water Milfoils (native *Myriophyllum* sp) and Ribbon-weeds such as *Vallisneria* sp are all very useful plants to grow,” Alison said.



In-built filters: When livestock are excluded from permanent water, a variety of plant species will gradually appear to filter, clean and oxygenate the water, ultimately improving animal performance and increasing biodiversity.