Enhancing your farm dam

A guide for enhancing your farm dam to create a place of habitat for local wildlife whilst maintaining its role in the productivity of your farm

Stock have been fully excluded from this site and a mix of trees and shrubs were planted around the dam margins in 2008. The water in the dam is clear, with very low turbidity. When needed, water is pumped from here to another dam, from where it is gravity fed to a series of stock troughs.

Why improve your farm dam?

Farm dams typically exist solely to provide water for stock and for irrigation. They are often not much more than a hole in the ground or a raised dam with mounded sides. Sometimes they comprise a wall over a gully or creek which impedes flow and accumulates water forming a dam. Regardless of their physical structure, dams hold a large amount of water that are used in farm production, either for watering crops or for stock, and sometimes to supply house and gardens.

Whilst the primary role of your dam may be to supply water for farm production, there are some simple and inexpensive steps that can be taken that will allow your dam to become a haven for a wide range of local wildlife.

Typical steps in enhancing your farm dam for wildlife

- Fencing around the dam to exclude or limit stock access.
- Planting of suitable local native species around the dam, including in the wet areas, using species that are tolerant of being seasonally or permanently inundated.
- Including a farm gate to allow access to pumps and water supply equipment, for maintenance such as weed spraying, providing access for fire-fighting equipment and to enjoy your new space.
- Consideration of other infrastructure that may be required to deliver water from your dam to where it is needed on your property e.g. stock troughs.

These on ground actions will also lead to improved water quality in your dam, which has long-term benefits for the health of your farm and your stock. If these features are added to several dams across the farming district (the more the better), then the benefit to the natural environment of the district will be even greater.

Earth works can be undertaken to successfully create areas with shallow margins on steep sided dams and to form islands. These are specialised activities and can be expensive. Expert advice is recommended and these type of works are not covered in this brochure. Talk to your Landcare Facilitator or Project Officer for more advice on these options.

What are the benefits?

Better farm productivity

- Excluding stock provides immediate **improvements to the water quality in your dam**, by removing possible fouling of water by stock and limiting the disturbance and erosion to the dam margins. Stock disturb sediments when wading around in water, which increase the turbidity of your water (when your water will appear brown and cloudy).
- **Cleaner water for stock and irrigation**, as vegetation around the dam will filter nutrients, soil particles and effluent runoff from adjacent paddocks. Aquatic plants (those plants growing below the waterline such as rushes and sedges) are really good at taking up nutrients which find their way into the water. Less nutrients in your dam water will help prevent outbreaks of toxic blue-green algae.
- **Reduced water loss from evaporation** as planting trees around the dam creates shade over water and screens the dam from drying winds.

Enhanced biodiversity at your dam

- Providing clean water and establishing native vegetation of different forms and heights, provides **habitat, refuge and food** for wildlife such as birds, amphibians (frogs), mammals (possums and bats), reptiles (lizards, turtles and snakes), fish, yabbies, aquatic organisms and insects such as butterflies and dragonflies. A food web will establish and this will attract a diverse mix of local wildlife species to your dam. These extra insects, birds and bats will help with **pollination of pastures, crops, trees and plants in your garden**.
- The exclusion of stock provides opportunities for **natural regeneration** of species around your dam. You may find that individual trees will germinate and pop up and it is possible that rushes and sedges will re-colonise around the fringes of your dam. These plants spread easily from seed and play a vital role in stabilising wet areas and filtering runoff entering dams.

Juncus semisolidus (Plains Rush) fringing the edge of a farm dam near Greta West. No sedges or rushes were planted at this site; these plants have recruited naturally. There is also an abundance of Swamp Wallaby Grass (Amphibromus sp.), that has come up since stock have been removed.

This farm dam at Greta was fenced and some tube stock planting was undertaken in 2012 to complement scattered remnant trees at the site. There has also been natural recruitment of River Red Gum (Eucalyptus camaldulensis), Blackwood (Acacia melanoxylon), Prickly Tea-tree (Leptospermum continentale) and rushes (Juncus sp.) at the site. The site is grazed by sheep for short periods to reduce grass loads on occasions.

Cleaner natural environment beyond the farm

- Improving the water quality of your dam has flow on **effects for downstream waterways**. This benefits all species of fauna (terrestrial and aquatic) downstream of the dam. Cleaner water for the environment means less nutrients and less sediment, and this is important for our rivers, all of which receive water from farm dams.
- North East Victoria contributes 38% of the flows into the Murray Darling Basin, so we need to be mindful of the downstream users who depend on our water to support their families and livelihoods.

Improved amenity, enjoyment and learning

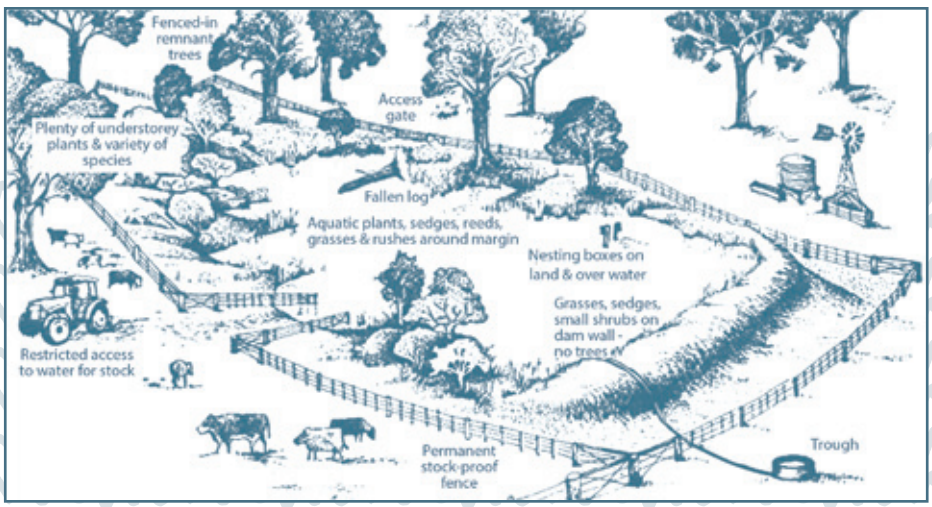
- Farm dams that have suitable habitat can also be **stocked with fish**, to provide fun recreation opportunities for friends and family. There are a number of fish species, including native species, that offer great fishing opportunities and because of the ready availability of food in the dam, stocked fish can put on very good weight over time. Consult with your local Agriculture Victoria office to identify the most suitable species for your dam and to locate fingerling suppliers.
- Farm dams that are well managed, with good water quality and habitat values, look great and can enhance the **aesthetic value and capital value** of your property.
- A fenced and flourishing dam area can be **a great place to have a picnic** or BBQ with family and friends. Kids and grand-kids can be shown water bugs and insects, go fishing, catch a yabby and learn about our amazing birds. Kingfishers, Reed Warblers, Rainbow Bee-eaters and lots of different waterbirds will be attracted to your dam area.

What are the factors needed for success?

The main factors which determine if the enhancement of your dam will achieve its full potential to support local wildlife include:

- An **appropriate margin of land around the dam** needs to be reserved, to ensure enough space for planting native vegetation and to be an effective filtering strip to catch nutrients, effluent and sediment. Ideally this margin will be a minimum of 10m from the high waterline.
- Don't forget to think about how much extra area is wet in good seasons with lots of rain. **Seasonally wet areas, that wet and gradually dry, are important**. They provide different types of habitat, often supporting many unique plants, providing shallow water for wading birds and places for unusual creatures such as Burrowing Crayfish - these guys create neat holes with raised edges and have tunnels reaching down to the water table.
- **Consider including other existing natural features**, such as connecting drainage lines and boggy/rushy areas, or farm infrastructure that may be better located inside fenced areas.
- If your dam is on a slope, having a **bigger margin upslope**, can be an effective way to capture nutrients and soil washing downhill.
- Include **old remnant trees** (living or dead, standing or fallen, on land or in water) within the dam fence line. These offer great habitat for wildlife.
- **Stock-proof fencing** needs to be permanent and effective.
- A **farm gate** should be installed to allow maintenance of the revegetated margin, including the management of weeds and the replacement of lost plants.
- Plants selected for **revegetation** should be local native plant species, selected for the various zones that are located within the planting site (e.g. wet/boggy zones, fringing zones and dry areas). Achieving a good mix of trees and understorey plants including shrubs, grasses, sedges, and groundcovers, will provide a good diversity of plant types for your site. Consult with your local native nursery or Landcare group when determining which plants, where to plant and how many plants you will need for your project. The North East Revegetation Guides are a great reference to help with plant selection.
- The inclusion of **fallen timber** into your site is highly recommended. This provides habitat for a range of insects, birds, fish and lizards. Timber can be positioned within the dry margin around the dam, on the dam banks and within the water. Having timber extending from within the water up onto dry land, provides perching places for birds whilst drinking and areas for frogs to safely enter and exit your dam. Timber on the edges of the dam may need to be secured to ensure it doesn't float and move when water levels vary. Star pickets, fencing wire or timber poles are easy and cheap ways to secure your fallen timber.
- **Installing nesting boxes** around the dam will provide birds, mammals and bats with somewhere to nest. Hollows can naturally take over 80 years to form, so if there are no old remnant trees to provide hollows naturally, then providing a variety of nest boxes will help to encourage local wildlife to make your dam their home.

Illustration by Helen Timbury, October 2010.
From Haughton (2011)



Steps to enhancing your farm dam

1. Plan the project

Think about your farm water supply, now might be a good time to do a farm water infrastructure plan and water budget. Talk to your local Agriculture Victoria staff for help with this.

- Decide on how you might set up a supply system from the farm dam for your property and what infrastructure may be needed.
- If offstream watering is not practical, consider constructing a fenced track or area with a gravel base to the water's edge to allow controlled stock access to water. These types of access areas also provide an area for kangaroos, wallabies and other wildlife to drink and provide clear access for firefighting equipment.

Draw a mud-map of your dam and surrounding areas, and mark on it the proposed fence-line and gate locations, poly piping, troughs and the location of pumps and tanks. Mark different zones (seasonally wet areas, rushes, dry area etc.), potential revegetation areas and existing natural features.

Do some maths. Calculate the:

- **Area of land to be included in the new fenced area**. Remember to consider including natural features and seasonally wet areas. The size of this area and the different types of zones will dictate the number and type of plants required. Get help from your Landcare Facilitator or Project Officer with this planning. The area of land to be fenced, will dictate the length and type of fence required.
- **Length of high water-line in your dam**. This will provide a basis for working out the number of aquatic plants required (those plants that are rooted below the high waterline). To establish your aquatic vegetation, work on the basis that you will need to plant at a rate of 1 plant per metre at, or just below, the high waterline. Over time, these plants will self-seed and fill out a fringe around the dam perimeter. Aquatic plants can also be planted in permanently and seasonally wet/boggy areas away from the dam edge. Again, talk to your local Landcare staff for help.

Nest boxes like this parrot box can be installed on young Eucalypts to provide additional hollows at your site.

2. Select your plant species

Consult with your local native nursery, Landcare group or check some of the *Other Resources* listed, to understand the types of species that will work at your site and within the different zones and how many of each you may need. Existing rushy areas and seasonally wet zones that support lots of herbs, may not need any planting. A mixture of open water, rush and herb areas, and shrub zones is ideal. In shrub zones, trees should make up only 10% of plants, with shrubs making up the remaining 90% of plants.

3. Order your plants

To guarantee availability of selected species in required quantities, order your plants in advance – before Christmas for the coming autumn-winter-spring. For ease of planting aquatic species, consider planting when the dam is seasonally low (e.g. autumn).

4. Prepare the site

Prior to installation of any fencing, move any large pieces of timber into the desired areas. Site preparation may also include activities to prepare the site for planting, such as spot spraying, or ripping in areas away from the structural parts of your dam and wet/seasonally wet zones.

5. Install your fencing and infrastructure

Install any off-stream watering infrastructure and fencing as identified on your project plan. As you are trying to encourage wildlife to your site, avoid using barbed wire in your fence, as gliders and small possums can become entangled in this wire very easily.

6. Plant your seedlings

Consider planting your trees and shrubs in scattered patches or clumps, and space trees adequately (20-30m apart) to ensure that they have the room to develop a full canopy. Many birds like dense patches of understorey and some like patches of open ground, so aim to plant more like nature and less in straight rows. Please refer to the *Other Resources* section for more guidance on the physical process of planting and site preparation.

Do not plant trees or large shrubs on the dam wall (if there is one), as roots can damage its structural integrity. You may plant lower growing species such as native grasses, sedges and rushes on the wall, as these plants are shallow rooted and will help bind the soil in the wall and contribute to its strength.

Fringing sedges and rushes help to improve water quality, by filtering sediment and nutrients from runoff as it enters your dam. These plants also provide cover for small birds and nesting waterbirds along the margins of your dam.

Sometimes new plants may emerge at your site. Seeds may be blown by the wind, may have been dormant in the soil at the site or pieces of vegetation or seeds might be transported by birds and other wildlife. In this case, native Swamp Lily (Ottelia ovalifolia) appeared and is now happily residing in a dam at Greta West. Aquatic plants help to use excess nutrients and filter sediment from the water.

7. Monitor and maintain

Keep an eye on your farm dam, and notice over time the improvements in water quality and establishment of vegetation. Look out for the possible emergence of new plant species, these could be weeds, but also might be new native plants coming to your site.

Take the time to observe wildlife using your dam, particularly during each of the different seasons. If your dam retains water all summer, your site will be an important haven for birds during the hotter months of the year. The diversity of species that you observe at your dam will likely be greater than elsewhere on your property.

Keeping regular photographs of your site is an excellent way to record the transformation of your dam over time. Take these photographs from a consistent point at the site, so that they are comparable from season to season and year to year. Write down what species you have planted, when it was planted and any maintenance that you have undertaken each year.

The process of enhancing your farm dam for wildlife will be a different journey for everyone, as every farm dam is unique. The process should be flexible and may change over time, to suit the needs of your site. Learn from your successes and your failures and share this information with others so that we can all benefit from your experience.

References

Haughton, M (2011). Enhancing your farm dam: A guide for enhancing your farm dam to create a place of habitat, refuge and food source for local wildlife whilst maintaining its role in the productivity of your farm. East Gippsland Landcare Network, Bairnsdale.

Wildlife Branch (2002). Wildlife and Farm Dams. Land for Wildlife Note 15. Department of Natural Resources and Environment, State of Victoria.

Other Resources

The following references provide additional information for plant selection, site preparation and planting techniques. These references are available electronically on **www.gretalandcare.org.au**

Cook, D and Bayes, E (2015). Seasonally Herbaceous Wetlands: Identification and Management handbook. Goulburn Broken Catchment Management Authority, Shepparton.

DSE (2007) North East Revegetation Guides. Victorian Government Department of Sustainability and Environment, Melbourne.

Greta Valley Landcare Group (2017). Protecting and enhancing remnant native vegetation. Wangaratta.

Greta Valley Landcare Group (2017). Revegetation Planner. Wangaratta.

A farm dam in the early stages of enhancement at Meadow Creek. Earthworks were undertaken to flatten the sides of the dam and fallen timber was placed at the site to provide habitat. This site was fenced and revegetated using a mix of tube stock and direct seeding in 2016.

Acknowledgements

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