

Creating a healthy farm dam

Alison Elvin (Natural Capital)

Is your farm dam just a hole in the ground storing stock drinking water of dubious quality? Many farm dams are like this: the banks are bare, eroded and trampled. There are few aquatic plants and animals. There is no buffering vegetation to slow, filter and spread the polluted storm water that rushes across the paddocks into the dam. Where stock walk along the water's edge, the eroded sediment and animal manure further contaminates the water. Without shade, the water becomes uncomfortably warm in summer, and with little dissolved oxygen, it can brew up many disease-causing microorganisms.

While the water keeps stock alive, it has been estimated that the live weight of stock reduces by as much as 20% when they drink poor quality water, and their overall health similarly deteriorates. Improving the health of your dam will boost your farm business and local biodiversity.



A typical farm dam, with little biodiverse vegetation surrounding it



A biodiverse farm dam

How can a healthy farm dam be created from such a typical dam?

The key to cleaning the water and renewing biodiversity is vegetation cover - a dense cover of tussock-shaped grasses across the inflow area and throughout the buffer zone, with reeds and rushes and other water plants at the water's edge, clumps of shrubs and trees scattered around the riparian zone, and habitat logs and rocks both in and out of the water.

To achieve this, the biggest single cost will be to exclude your stock while the vegetation establishes. This can be achieved by fencing out the entire dam, its in-flow and the surrounding riparian edges. This will also require the cost of providing alternative stock water with troughs, pumps and piping. Alternatively, you could fence out the dam but leave a relatively narrow walkway access into one small section of the water, stabilized with rocks or logs to prevent erosion from stock trampling the edges.

If you practice rotational grazing regimes, with stock grazing a paddock for a few days or weeks a year, you may not need to fence out the dam, providing appropriate vegetation cover establishes. Once the protective vegetation is established - which typically takes about three years - the dam area can then become another source of feed, especially suited to crash grazing when required.

What does the vegetation do to the water flowing into the dam?

The vegetation slows and filters the in-flowing water, causing it to drop some of its sediment and attached pollutants. The improved water quality reduces animal diseases and boosts their growth. Slowed run-off water also begins to percolate into the soil, providing sub-surface moisture into the pasture and increasing resilience to drought. In addition, vegetation, logs, rocks and pebbles all increase available habitat and create microclimates. This encourages many native species to live in and around your dam - you will start to see birds, insects, frogs, yabbies, fish, tortoises, reptiles and mammals making use of the water and habitat provided by your healthy farm dam.

What plants belong where?

All dams have a series of recognisable 'zones'. The outermost zone is the **catchment zone** - this is usually the surrounding paddock. Reducing over-grazing in the paddock allows rainfall to percolate into the soil before running off, which reduces the amount of sediment, manure and chemicals running into the dam.

Around the dam, up to 30 metres or more from the high-water mark, is the **buffer zone**, or riparian edge, which includes both the inflow and outflow areas. Dense sedge, pin rush and grass cover including ground-hugging species such as couch grass are critical in this zone to reduce erosion and compaction, provide habitat, increase soil moisture and slow and filter water flows. You can also plant clumps of trees and shrubs through the grasses and sedges, with the tallest-growing species planted to the northwest to reduce evaporation from summer winds. Species can include eucalypts, wattles, bottlebrush, tea-trees, paperbarks, banksias, bursaria and other prickly shrubs, and many forbs such as lomandra. Revegetate so you can slash or spray weeds without damaging your desirable plants. Standing and fallen trees with hollows will provide additional habitat.

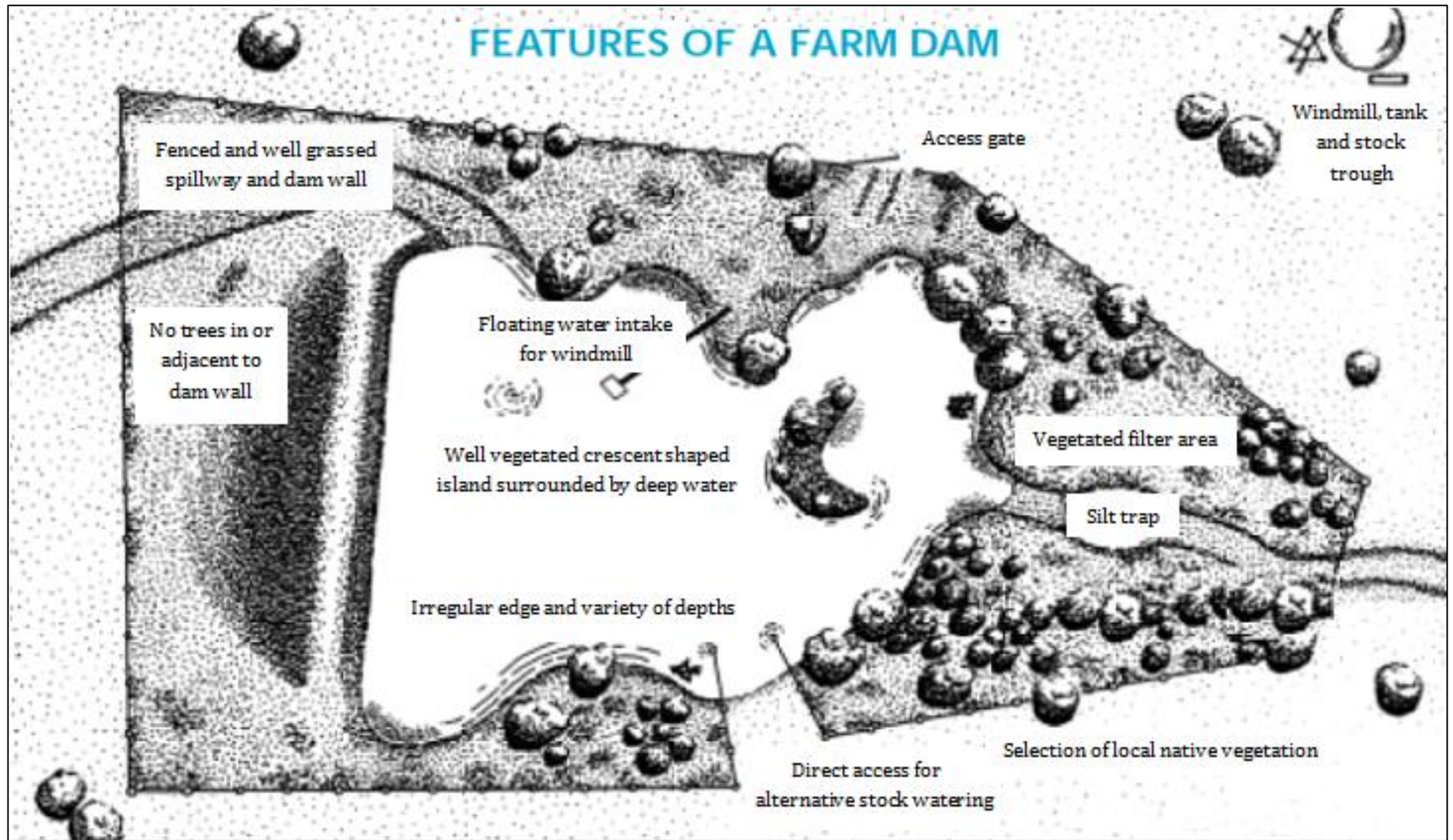
The **batter zone** lies between the high- and low-water mark, where wind-blown water can erode the water's edge without protective vegetation. The water in this zone is shallow, warmer and often nutrient-rich, supporting a wide diversity of sedges, rushes and reeds. Each species will grow in different depths of water, and perform remarkable water-cleansing roles. They also provide critical breeding, nesting, feeding, sheltering and perching habitat for aquatic life, from insects to frogs and fish. Often, these plants begin to appear naturally within weeks or months of stock exclusion, then wax and wane in density depending on the seasons. Be sure to avoid native species such as bulrush, that can become invasive in water less than 2 metres.

To further increase the habitat value of the batter zone, and ensure the water's edge has a variable margin, you can add clumps of rocks and logs here and there around the dam - you'll be surprised how quickly life returns to these spots!

Permanent water is the final zone. The greater the variety of width and depth in this zone, the greater the diversity of aquatic life. Adding fallen logs into the dam itself will offer shelter, nesting and breeding sites for many aquatic species, including fish. Farmers have found that many of the plants that live exclusively in the body of water will just appear in and around their dams once the stock pressure has been removed and the habitat increased.

You often don't need to do too much more to have a healthy, vibrant farm dam, but the results can be amazing!

For more information on creating a healthy farm dam, or to request an information pack, contact Nicole Maher at Murrumbidgee Landcare: nmaher@mli.org.au, or 0487 953 776.



Above: A picture showing many of the important features of a healthy farm dam

(image courtesy of the Mount Lofty Ranges Catchment Management Program and the SA Environment Protection Agency)