LAND FOR WILDLIFE
VOLUNTARY WILDLIFE CONSERVATION

Healthy Dams

Constructed water bodies such as dams and ponds are built for a variety of reasons, both practical and aesthetic. This Note examines the importance of a "healthy dam" that will attract wildlife to visit and inhabit it more readily. *Land for Wildlife Note W3 - Wildlife Friendly Dams*, talks specifically about the type of fauna that may be found in, or on, a healthy dam.

This dam is frequented by large numbers of waterbirds. Partially submerged branches and islands provide safe roosting sites.

Dams are generally constructed for watering stock, irrigation, or as an emergency water supply. However, dams may also be built as landscape features and some dams are even constructed for wildlife, as a way of increasing biodiversity on a property. To this end, some dams are designed with habitat features in mind, including logs, rock walls (for reptiles) and sand piles (for burrowing frogs). This level of structural diversity provides different types of habitats for a range of wildlife.

Keeping dam water clean

Soil particles and organic fragments are the most common materials suspended in dams resulting in poor water quality. Turbidity is a measure of the degree to which the water loses its transparency due to the presence of these suspended particles. Coarse and dense particles rapidly settle to the bottom, but smaller particles may stay suspended for longer periods. Some soils that contain clays are particularly susceptible to suspension in water.

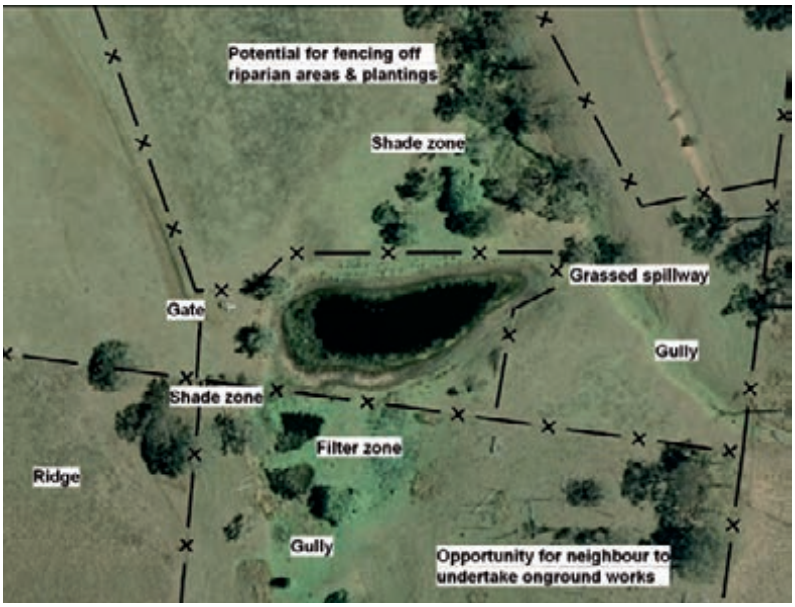
Turbidity and siltation in dams is generally a result of soil erosion caused by water flowing down steep-sided, unprotected excavations into the dam. Ongoing erosion and turbidity can be initiated, aggravated and maintained in dams by wave action, stock trampling and activities from other fauna such as waterbirds and feral animals.

Dams with high levels of turbidity and siltation offer limited habitat for native plants and animals as they reduce the ability of plants to photosynthesise and for fish and other aquatic animals to survive.

Where possible, try to avoid using chemicals around or near dams as some chemicals can harm aquatic life. In addition, increased nutrient runoff from stock manure or excessive fertiliser use can encourage aquatic weed growth and, in some instances, algal blooms. This results in decreased water quality and value of your dam as a resource for wildlife, domestic stock or irrigation purposes.

Frogs are often found in and around healthy dams.

Dams with clean water and well-vegetated margins are more likely to be visited by waterbirds as there are more fish, frogs and reptiles for them to prey on.



Example of a layout for trees and shrubs within a dam area.

Retention of vegetation on your property and in the surrounding catchment will assist in the maintenance and improvement of water quality in your dam. Ground that is bare due to the loss of vegetation can be prone to erosion. Vegetation removal can also result in the water table rising, bringing salt to the soil surface. This is referred to as dryland salinity, which can inhibit plant growth and contribute to soil erosion.

Eroded soil can be readily washed into dams and creeks reducing their capacity to support wildlife and increasing the amount of sediment in the water. The salt content of dam water can also increase if dryland salinity is a problem in the area, which can limit the growth of aquatic plants. This can have detrimental impacts on fauna (e.g. insects, fish and frogs) that rely on food and shelter provided by aquatic plants. There can be a flow on effect to larger fauna, such as birds and reptiles that prey on these species.

Dam friendly vegetation

As with all habitats, a variety of plant species is more likely to provide the necessary food, shelter and breeding resources for wildlife in your dam. If you would like to improve the vegetation around and in your dam, then you will need to consider appropriate species and their locations. The illustration (left) describes how different parts of a dam will benefit from different vegetation types. For example, any vegetation on a dam wall should only include shallow rooted plants and a filter zone should include groundcover plants such as sedges and rushes. Trees in a shade zone can help reduce water temperature in warmer months, discourage the growth of water weeds and benefit fish and other wildlife living in the dam.

Only local native plant species should be planted around dams as they are more likely to encourage and provide habitat for wildlife. Additionally, there will be little risk of them becoming invasive. If there are natural wetlands nearby, try to simulate these in terms of structure and plant species. Sometimes dam edges may have had the top soil removed or may consist of compacted clay making it difficult to establish suitable vegetation. Your Land for Wildlife Officer will be able to provide advice on the best species to plant and actions to take in these situations.

Reeds and sedges help to protect the banks of dams and provide wildlife habitat.

Before

After

This dam near Gympie was completely covered by the water weed Salvinia (top image). One year later (lower image) the infestation had been successfully controlled by biocontrol weevils and other control actions. Biocontrol insects are available for the control of Salvinia and Water Hyacinth, but hand removal using rakes is the best method for controlling small infestations.

Early detection is the cheapest and most effective form of water weed control. Detecting a water weed early significantly increases the chances of being able to eradicate it. Photos by Barry Hardingham.

Water weeds

There are a number of exotic and native plant species that can become weeds in dams. These species generally grow profusely, out-compete local native species, destroy native habitats, deplete water bodies of oxygen, restrict access or light, reduce water quality and provide breeding opportunities for mosquitoes. Under the *Queensland Land Protection (Pest & Stock Route Management) Act 2002* some water plants have been declared as Class 2 weeds, including Salvinia (*Salvinia molesta*), Cabomba (*Cabomba spp.*), Water Hyacinth (*Eichhornia crassipes*) and Water Lettuce (*Pistia stratiotes*). As Class 2 weeds, landholders have a legal requirement to control these plants on their land. For more information talk to your Land for Wildlife Officer or visit the website for Queensland Biosecurity.

Fencing dams

You might like to consider fencing off your dam or establishing off-stream watering points. Restricting stock access to your dam can prevent pollution by manure and turbidity. Stock can also trample native vegetation and transport weeds into your dam. Careful management of stock access to your dam will provide for a healthier dam for native wildlife, your stock and for you.

What you can do

- ✓ Create buffer (filter) zones by planting local native sedge species where water flows into your dam to trap nutrients and sediment.
- ✓ Maintain a good vegetative groundcover next to dams and on surrounding lands at all times.
- ✓ Minimise nutrients entering your dam.
- ✓ Revegetate dam verges to shade the dam, reduce water temperature, evaporation and erosion.
- ✓ Fence off dams and install off-stream watering points for livestock.
- ✓ Partially submerge fallen branches or logs in your dam to provide additional habitat.
- ✓ Never dispose of aquarium contents into dams as exotic aquarium species (animals and plants) can escape into natural waterways after high rainfall events.

References and further reading

Lewis B (2002) *Farm Dams - Planning, Construction & Maintenance*. Landlinks Press (CSIRO Publishing).

Lindenmeyer D, Claridge A, Hazell D, Michael D, Crane M, MacGregor C and Cunningham R (2003) *Wildlife on Farms: how to conserve native animals*. CSIRO Publishing.

Waterwatch Australia (2005) *A Waterways Health Check - Rating your Local Waterway.* Waterwatch Australia, Canberra.

Vegetated margins on dams help to maintain clean water and provide habitat for a diversity of wildlife species.

Land for Wildlife is a voluntary program that encourages and assists landholders to provide habitat for wildlife on their properties. For more information about Land for Wildlife South East Queensland, or to download *Land for Wildlife Notes* free of charge, visit **www.lfwseq.org.au**

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