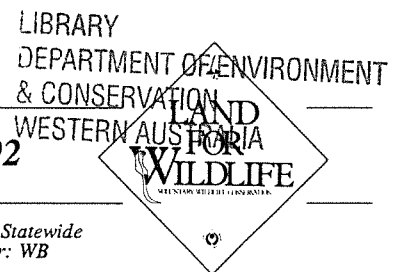


Wildlife and farm dams



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Many economic and social benefits can be obtained by incorporating wildlife habitat with a farm dam: reduced evaporative losses, improved water quality, wildlife sights and sounds, increased fish and wildlife production, improved stock safety, a source of shade and shelter for stock and humans, emergency fodder, a potential timber supply, fishing, natural pest control in pastures by wildlife, improved farm appearance, a relaxing recreational spot and improved property values as a result of the above.

This Note explains easy, inexpensive ways to improve the habitat value of your dam - both existing and newly constructed dams. It does not explain the engineering principles involved in building a dam. Such advice is available from staff of the Department of Conservation and Environment, Department of Agriculture or your local reputable contractor. Some helpful references are provided overleaf.

Provision of suitable habitats around and within a farm dam may provide for a wide range of wildlife including birds, frogs, bats and other mammals, lizards and snakes, fish, yabbies, and a wide range of insects such as butterflies and dragonflies.

The main advantage of fencing and revegetating a dam is the improvement to the overall 'health' of the dam. The healthy dam will contribute to the health of the property and your enterprises.

To achieve optimum results from a 'wildlife dam' it is worthwhile to first consider the whole catchment, the property and your aims for the property. A Whole Farm Plan is a useful method of integrating all these values and provides an opportunity to consider all the management issues, such as erosion and salinity, that might affect your plans for the dam. Contact DCE for further advice.

1. Fencing

The first step in improving a farm dam is usually to exclude stock to allow for the establishment of native vegetation, prevent erosion, fouling of the water and reduce the risk of stock drowning. Specially-designed fences can be used to exclude other problem species but care should be taken to determine what effect this might have on wildlife.

By piping water to a trough or leaving a small area unfenced near deeper water and providing a gravel ramp, stock access to water can be maintained. The latter will allow kangaroos, wallabies, emus and wildlife species that might be blocked by a fence to drink at the dam if this is your aim.

A number of wetland birds prefer open space (unfenced, short grass) beside water (swans, maned geese, shelducks, purple swamphens). Kangaroos and some small birds choose open sites for drinking. Extending the area of stock access to a wider section of deep water may benefit such species by keeping the vegetation close cut.

DO NOT PREVENT ACCESS TO FARM DAMS FOR FIRE FIGHTING EQUIPMENT. Ensure gates function properly and vegetation is kept clear of the best access point.

2. Vegetation

Vegetation can provide habitat for wildlife, a sediment and chemical filter zone around the dam, enhance the natural beauty of the property, provide shade and shelter for stock or crops, screen views, reduce evaporation and increase dissolved oxygen. Retain any naturally occurring species adjacent to the dam. Local native vegetation including trees, shrubs and ground covers typical of local wetland

areas are recommended to provide breeding sites, shelter and feeding areas for wildlife. Observe what is growing around natural wetlands in your area and try to imitate this noting the distance from the high water mark and soil characteristics for the various species of plants. Ground covers and soil upslope from the dam provide a natural filter that can improve the quality of water entering the dam.

With fencing and improved water quality, aquatic plants may establish themselves naturally as their seeds are present in watercourses.

Some birds prefer a flight path to be left free of tall vegetation.

Various aquatic plants, such as introduced Cumbungi *Typha orientalis*, are invasive and should be avoided. Seek advice from DCE regarding species that are undesirable in your area.

Trees should not be planted on the retaining wall of a gully dam as the roots may penetrate the wall and could eventually lead to failure of the wall. Instead, the wall should be vegetated with ground covers, such as grasses or reeds and/or small shrubs.

3. Feeding areas

A dam with extensive shallows is more productive than a deep, steep-sided one. Existing dams can often have the water level raised by extending the bank, re-locating the spillway and raising the trickle pipe inlet (if any). New wildlife dams should be designed to maximise the area of water less than 800mm deep. Natural shallow wetlands often dry out seasonally and this should not be seen as undesirable. Increasing the surface area of the dam may increase evaporative losses when the dam is full (often in the wetter part of the year anyway), however, the major volume of water should be in the deeper part of the dam and less susceptible to evaporation.

A range of water depths including large expanses of shallow water (up to 60% of the dam) will supply a range of feeding areas used by wildlife. Shallow water provides the major feeding area for most waterbirds. Some waterbirds are divers whilst others (the majority) wade in varying depths of water. Wood Ducks prefer open grassy areas for feeding. Shallow margins will also break wave action and reduce erosion of the bank.

Increasing the bank length by varying the shape of the dam perimeter will provide increased edge habitat as do narrow, irregular islands with a long sheltered edge. These steps will complement the feeding areas provided by vegetation and structures (rocks, logs, litter) around and in the dam.

4. Secure areas

Vegetation is the main source of security for wildlife around and in the dam.

A log, living or dead tree, earth or 'floating' island (without access to predators such as foxes) can also be used to provide security and roost sites. Rocks and ground litter (branches, twigs and leaves) provide secure places for ground fauna and should be retained. Fencing can also provide security if designed to exclude certain species but this can have drawbacks (see fencing).

5. Breeding areas

Dense vegetation provides excellent breeding for a range of species. Examples of where wildlife will breed are: in tree branches, in tree hollows, in the dense crowns of tea trees and other shrubs, in reed beds and amongst dense grass, under rocks and logs. Insects will also use the above sites for breeding. A diversity of habitats will cater for a wide range of wildlife species. Some species of fish need underwater hollows for breeding such as occur in submerged hollow logs. A pipe can be used as a substitute. Where tree hollows are not available, nest boxes can be used as a short-term alternative (see LFW Note No. 14). Breeding is linked to security from predators and weather, and food sources. Tall dense nesting cover (grasses, reeds, etc.) is important for many species. The resultant growth of pasture following fencing may provide such cover in its simplest and most easily attained form. Some wetlands are naturally open and can be dominated by large areas of grasses and rushes with taller plants accounting for less than 10% of the cover. Others are crowded with taller shrubs and trees. Both are desirable for wildlife. Grazing by stock is possible after trees and shrubs have developed but it should be quick and light and should be done only in the non-breeding season, usually November - April. Grazing can be used to control heavily suckering woody species such as Black Sheoak *Casuarina littoralis* but may also have negative consequences such as removing cover and affecting regeneration. Maintenance or renovation of tall dense nesting cover which has thinned, fallen or matted can be done by grazing or burning.

An island in the dam (usually included during construction) may also be used by birds for breeding. The cost of an island can be reduced if it is placed in the shallows and a moat constructed. Deep water is essential to reduce access by some predators. Alternatively, a vegetated "floating island" (punt) can be built on an existing dam.

Keeping track

Keep records of your work. You might wish to take regular photographs. A record of the species of wildlife you observe (before and after), their numbers, breeding records (and the fate of clutches) will give you an indication of how successful you have been. If you are not successful you will need to compare your approach with those of others who have been successful.

You might also consider keeping a record of salinity, variations in water depth and other measures of the physical attributes of your new wetland dam. Further advice is available from the Department of Conservation and Environment.

Whilst most wetland plants can be easily propagated at home or transplanted to the wetland, there are nurseries that specialise in this field. Insist on local native species only. Many nurseries will be pleased to discuss propagation of plants from seed or stock supplied by you. Thus, you can ensure your stock is of local origin.

HINTS

- * Stockpile topsoil before construction of the dam and replace it over all surfaces of the finished dam, including those that will be underwater. This is essential to re-establish plants.
- * Design vegetation to act as a natural silt trap or build a silt trap above the dam during construction.
- * A slight increase in the height of an existing dam wall might flood shallow areas increasing the value of the dam to wildlife.
- * Don't plant trees on the dam wall as the roots may mine the wall and lead to its failure.
- * Walking/compressing clean straw into the edge of a new dam will supply aquatic organisms with a source of food and kick-start the new food web whilst reducing erosion.
- * Natural fluctuations in dam water levels are desirable but should be taken into account when considering the amount of shallow water available in summer and to ensure the dam doesn't dry out.
- * Islands should be built high enough to prevent inundation when water levels are high and in windy weather.
- * Island edges should have flat (1:5 or flatter) entry to the water to prevent edge erosion.
- * Logs jutting out into the water are used by waterbirds for preening and roosting and by water rats. Some should be in the shade. Don't forget shade and shelter is important to wildlife as it is to stock.
- * Avoid using chemical fertilizers, herbicides and pesticides near water bodies. They may destroy dam vegetation or interfere with the biological life or chemical processes occurring in the dam. Accumulation of chemicals may prove harmful to stock. Problems with algae are usually due to a combination of excess nutrients and sunlight.

Further reading:

- Agnotes such as - A gully dam or a hillside dam? ON 711, How to avoid a failure of dams. ON 713, Planning and siting a dam. ON 710. Available from Information Victoria, 318 Lt Bourke Street, Melb.
- Trees at Work: Improving your Farm Dam*, Undated Greening Australia brochure.
- Wildlife and Farm Dams*, Hill, D. & Edquist, N., R.E. Ross Trust & others, Government Printer, Melbourne. Available from DCE Information Centre, 240 Victoria Parade, East Melbourne, 3002.
- Nest Boxes for Wildlife*, Land for Wildlife Note No. 14
- Victorian Wetlands Trust Newsletter*, Victorian Wetlands Trust Inc. c/- 1/250 Victoria Pde, E. Melb., 3002.
- The Bird Observer*, newsletter of the Bird Observers Club of Australia, P.O. Box 185, Springvale, 3131.
- Wetlands, Wildlife and Water Quality*, Sharp, K. & V., Trees and Natural Resources Vol. 32, No. 4.
- How to prevent dam construction failures*, (June 1988), Soil & Water Notes, Department of Conservation and Environment, Victoria.
- Fish in Farm Dams & Swimming Pools, Yabby Farming in Victoria, Fish Farming Information, Wildlife Management Notes No. 3: Floating Islands for Waterbirds, Wildlife Management Notes No. 2: Islands for Wildlife in Dams and Swamps*, Department of Conservation and Environment, Victoria publications.
- Wetlands Conservation Program for Victoria*, (1988), Department of Conservation and Environment, Victoria.
- Wetlands and waterbirds of the Snowy River and Gippsland Lakes Catchment*, Corrick, A.H. & Norman, F.I. (1980), Proc. Roy. Soc. Vict. Vol. 91, no. 1, pp 1-15.
- Wetlands of Victoria II. Wetlands and waterbirds of South Gippsland*, Corrick, A.H., (1981), Proc. Roy. Soc. Vict. Vol. 92, pp 187-200.
- Wetlands of Victoria III. Wetlands and waterbirds between Port Phillip Bay and Mount Emu Creek*, Corrick, A.H. (1982), Proc. Roy. Soc. Vict., Vol 94, no. 2, pp 69-87.
- Australian Freshwater Life, The Invertebrates of Australian Inland Waters*, Williams, W.D., (1980), MacMillan.
- Survival - Swamps and streams*, Gould League of Victoria.
- Explore Melbourne's Wetlands*, Cowling, S., (1991), National Trust, Victoria.
- Comments by Gavin Cerini, Janette Hodgson and Allison Stone were helpful in producing this Note.
- Wetland dams can be viewed at DCE's Serendip Sanctuary near Lara (052-821584).