

### WHY MANAGE A WATERCOURSE?

There are many reasons to improve watercourse management including:

- stopping soil erosion
- improving water quality
- providing permanent wildlife habitats
- increasing your property value.

The following information will give you a brief introduction to some of the issues involved in improving management of your watercourse.

### NATURAL STREAM PROCESSES

When rain falls on a catchment, water that is not absorbed into the soil flows downhill and collects in low lying areas where it forms a stream. Over thousands of years this runoff process, plus streambank erosion, stream meandering and flooding have developed the stream systems that we have today. Streams are always changing - or causing change - in response to rainfall, runoff and land management practices in the catchment.

### STREAMS AND LAND MANAGEMENT

Landuse and land management within a catchment directly affects;

- the health of a stream
- its ability to recover from a flood or pollution
- the maintenance of the stream's aquatic life.

In particular, land development for agriculture, urban or recreational use changes the water runoff pattern and affects the natural stream processes.

### THE RIPARIAN ZONE

The riparian zone is the area immediately next to, and influenced by, the watercourse. It includes aquatic and semi-aquatic plants plus tree and understorey vegetation. It provides an important link between the aquatic environment and adjoining dryland areas.



### WHY IS IT SO IMPORTANT?

Riparian vegetation plays a key role in protecting the watercourse from damage by activities carried out on adjacent land.

### DUTY OF CARE

Under Section 17 of the *Water Resources Act 1997* landholders have duty of care to take reasonable steps to prevent damage to a watercourse. This includes damage to the bed and banks plus habitats that are dependant upon the watercourse.



## THE IMPORTANCE OF NATIVE VEGETATION

Native vegetation reduces the speed of water runoff, which reduces the risk of erosion and encourages deposition of soil eroded elsewhere. The roots of vegetation on the banks and floodplains of streams, hold the soil together and protects the area from erosion.

Aquatic plants such as reeds and rushes also trap sediment and protect the banks from erosion by reducing the speed of flow within a stream. They remove nutrients from the water and provide food and habitats for stream animals.

## NATIVE HABITAT

Maintenance of natural habitats is necessary to protect native species. A variety of habitats will ensure the existence of a large diversity of organisms. Pool and riffle environments and stream meanders should be retained for natural aquatic animal populations. Indiscriminant clearing, straightening of stream channels and filling in of billabongs should not be undertaken.

## STREAM PROTECTION

### Stream buffer zones

Planting and maintaining a buffer of native vegetation between a stream and adjoining cultivated or grazed land, will slow runoff and minimise soil loss. The buffer of vegetation also reduces the risk of chemicals and manure entering the watercourse and contaminating the water.

The resulting improvement in water quality provides for a greater diversity of aquatic life. Vegetated buffer zones on creeks in the Mount Lofty Ranges should be at least 10 metres wide, greater if possible.

To maximise the benefits of a buffer zone, your revegetation program should aim to

establish a full range of local native plant species, including trees, shrubs, grasses, groundcovers, sedges and reeds.

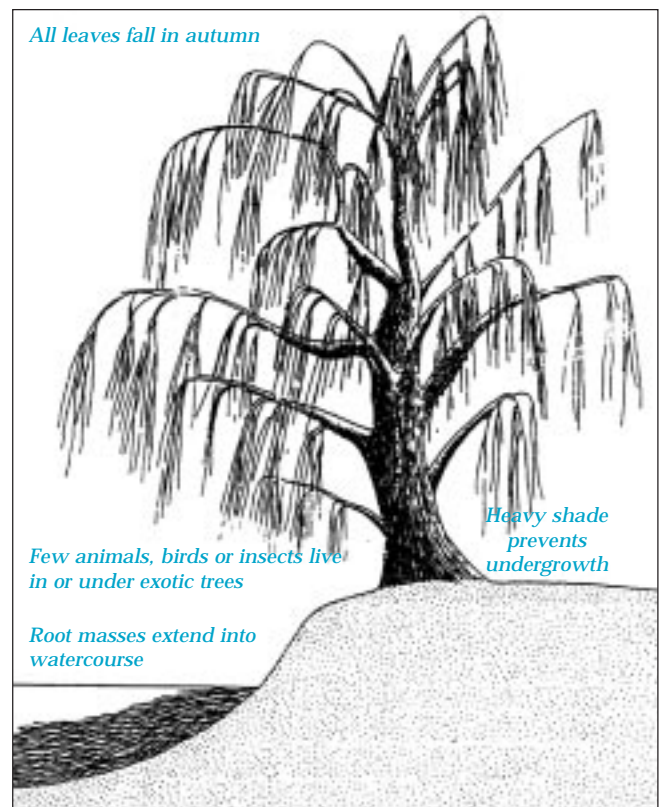
### Minor drainage lines

A good groundcover of deep-rooted grasses will minimise erosion along minor drainage lines, and encourage silt to deposit before it reaches larger streams. Drainage lines should not be cultivated.

## EXOTIC TREES AND WOODY WEEDS

Exotic trees such as willows, ash and poplar, and woody weeds such as blackberry, briar rose and gorse, are a problem along many watercourses in the Mount Lofty Ranges.

They provide poor habitats for native wildlife and contribute to poor quality water, bank erosion and exacerbate flooding. It is important to plan a control program on your property if exotic species are a problem. For more details refer to Waterwise No. 3 and 4.



## REVEGETATING IN CATCHMENTS

Revegetating or maintaining vegetation within catchments, particularly on steep slopes, decreases the amount of runoff and its speed of travel. This in turn reduces bank erosion, silting in channels and channel realignment. Water quality will improve and productive land next to the stream will be maintained.

In areas prone to waterlogging or salinity, vegetation in strategic places can help to lower the watertable and reduce these problems.

## TREES

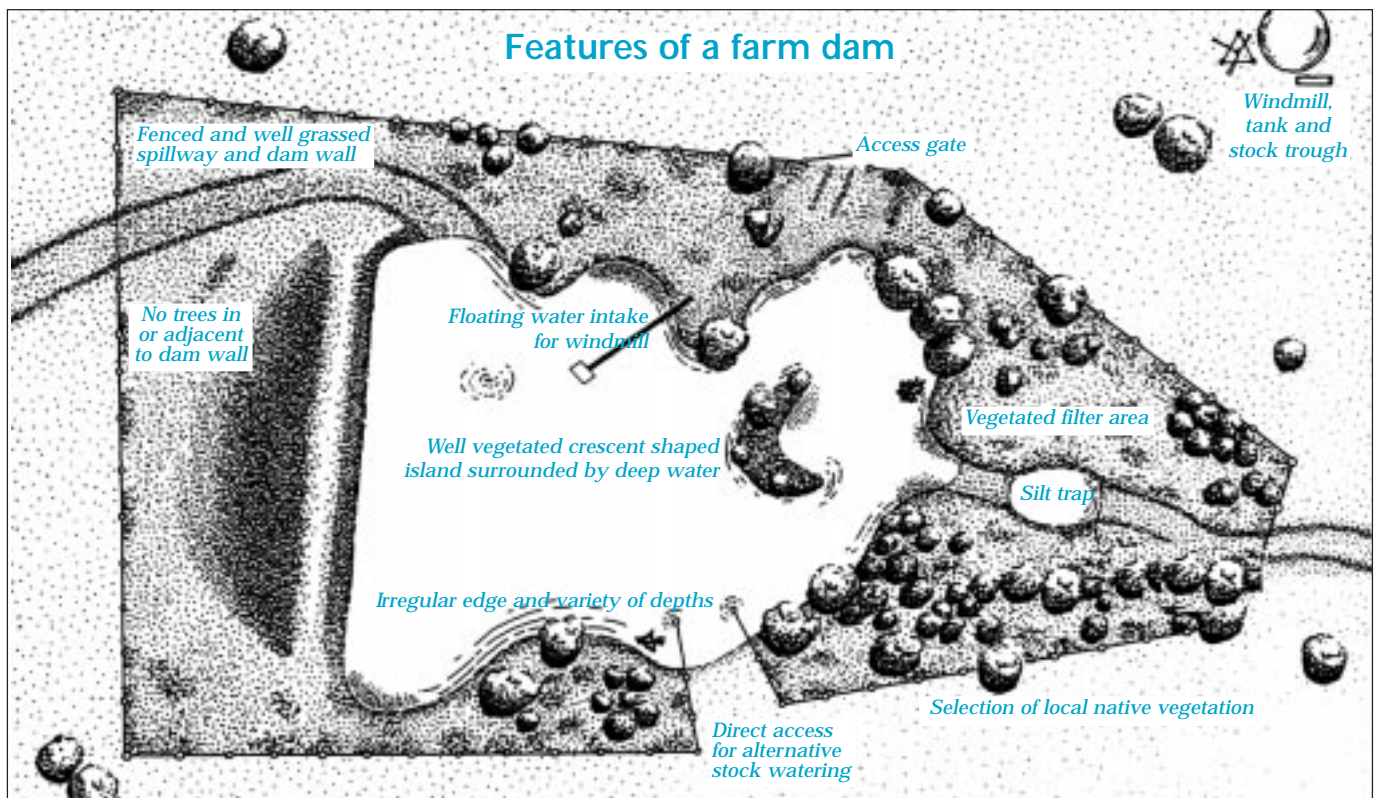
Stream bank vegetation is very important for many reasons. In your farm planning process, it is important to treat streams and riparian land as separate land units and prepare management plans accordingly.

## FARM DAMS

Natural seasonal variations in the volume and quality of water in watercourses are important for maintaining healthy and diverse plant and animal communities. Stream flow should not be impounded, and farm dams should be built as offstream storages, filled at periods of high flow. Farm dams can also provide water for bushfire protection, wildlife habitats, recreation, aesthetics and a sediment basin for soil eroded from the catchment. For more details refer to Waterwise No. 4.

## STOCK WATERING

Unrestricted stock access can cause stream banks to become destabilised and increase erosion. Stock watering facilities should be located well away from streams. If stock access to streams is necessary, it should be restricted to areas where the banks are stable and not prone to collapse.



## RABBITS

Rabbit populations near streams can cause increased erosion and banks collapse. They should be eliminated.

## WASTEWATER DISPOSAL

Concentrations of organic waste, such as septic tank overflow and wastes from fruit and vegetation processing and animal keeping, also pollutes watercourses. There are several methods of safe disposal; the most appropriate for your property will depend on factors such as the available disposal area, soil type or the slope of the land.

## STORMWATER DISPOSAL

Stormwater from roads, paved areas and roofs is most often discharged into streams. Increased flow rates can cause severe erosion, and the stream environment can be degraded by pollutants entering stormwater drains. By creating retention ponds or grassed swales, you can reduce the amount of pollutants reaching streams from stormwater and reduce the flow rates in receiving streams.

## TOTAL CATCHMENT MANAGEMENT

Appropriate landuses and associated land management practices, undertaken within the constraints of site conditions, will provide for sustainable agriculture and also generate good quality runoff.

Stream protection involves the whole catchment and an understanding between the different land users and water resources. The water, the land and the community within the catchment are inseparable.

## FURTHER INFORMATION

A good general reference for watercourse management include the following publications:

*WATERCOURSE MANAGEMENT: A field guide*, prepared by the Upper River Torrens Landcare Group

*Native Plants of Watercourses*, Bob Myers

*Watercourse processes: A guide for watercourse managers in the Mount Lofty Ranges*, Jason Carter

*A guide to erosion control measures for small watercourses in the Mount Lofty Ranges*, Jason Carter and Ed Collingham

### For more information contact:

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