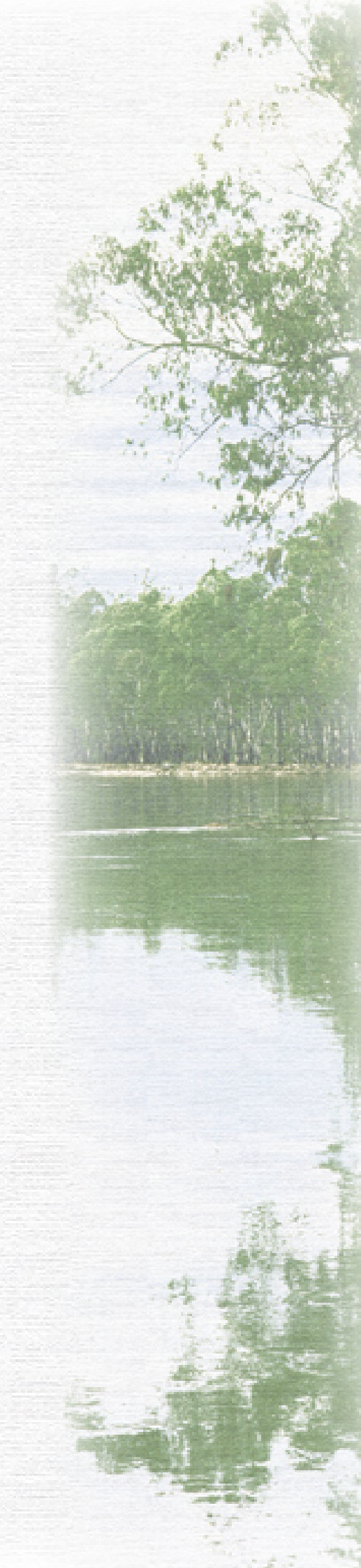


Managing Riparian Land for Multiple Uses

**By
Lisa Robins**





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Preface

This Guide provides information to farm managers, advisers, catchment and landcare facilitators on how to gain both economic and environmental outcomes from riparian land. The potential uses of riparian land are outlined, together with management principles and practices. A summary of the research underpinning these principles and practices is provided to support on-farm decision-making with the best available information. It mainly draws on information about southern Australia, but can be adapted for use more broadly.

This report is a collaborative venture between Land & Water Australia, the Rural Industries R&D Corporation and the Murray-Darling Basin Commission. It is the first in an integration initiative that brings together and collates recent findings from different research and development R&D programs, and suggests how they can be used to improve on-ground management.

This Guide summarises a range of more detailed information on riparian management, with key references noted in the text so that you may access further information about particular topics. You may use information and diagrams to develop other products and materials, providing the original source of the material is acknowledged.

For example, the material could be used for:

- courses and training
- seminars and workshops
- fact sheets and newsletters
- codes of practice

As scientific and experiential knowledge grows, it is anticipated that this Guide will be reviewed and updated. Your feedback is vital to this process – we welcome any comments or suggestions for improvement, and any relevant examples and case studies of using the riparian zone to achieve multiple objectives in Australia. The following people have worked closely with the author to integrate the research findings of their respective programs in this report:

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Chapter 1

The Values of Riparian Land

Managing riparian land for multiple uses

Riparian land is any land that adjoins, directly influences, or is influenced by a body of water. It therefore includes:

- the land immediately alongside small creeks and rivers, including the riverbank itself
- gullies and dips which sometimes flow with surface water
- land adjacent to drains and channels that discharge into streams or wetlands
- areas surrounding lakes
- wetlands, billabongs and floodplains, which interact with the river in times of flood
- vegetation dependent on groundwater supplied by a river.

Riparian land has no absolute dimensions. The key issue when managing riparian land is to consider the function that you want it to play. By way of example, the riparian area affecting stream stability may be far narrower than the area impacting on water quality. This Guide sets out the management principles and practices according to potential functions. It will help you to think about the management of riparian land in all its dimensions.

Why are riparian lands important?

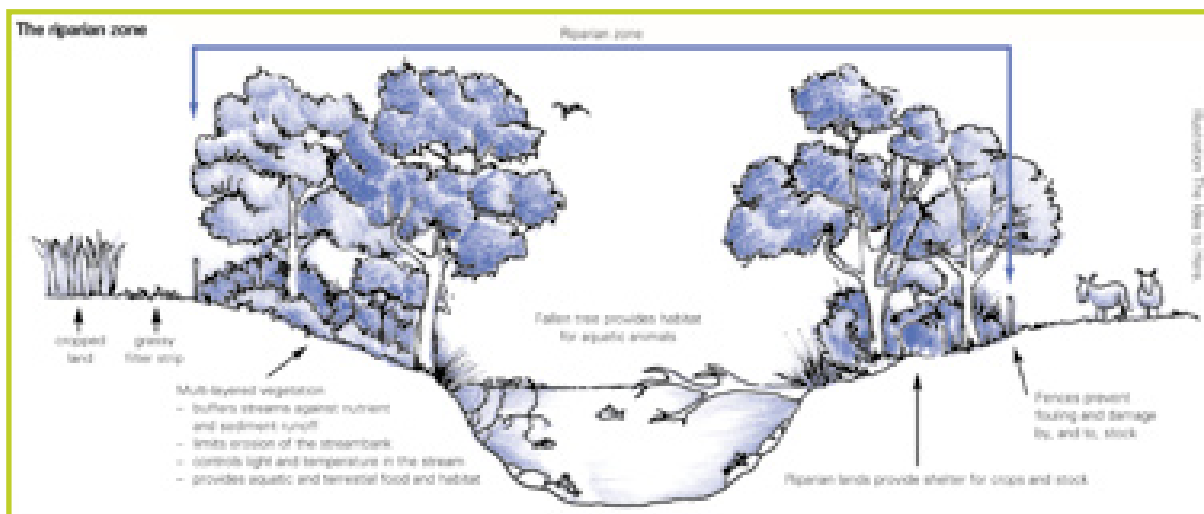
Riparian land usually supports a higher diversity of plants and animals than non-riparian land, and sometimes harbours endangered or vulnerable plants. It provides habitat for wildlife, and acts as a corridor for their movement between patches of vegetation. It is generally more fertile and productive, with better quality soils, and is the last line of defence for the protection of water quality and in-stream life. Riparian plant life is in itself unique and diverse, with vegetation that is often taller, denser, and more structurally complex than the surrounding native vegetation. Its microclimate is often more humid, and this is strongly influenced by the width of the riparian vegetation.

Riparian vegetation has a close association with in-stream life. Bank vegetation is a key source of food supporting in-stream life. The vegetation shades some, or all of the stream, lowering water temperature and light levels, and affecting in-stream plant growth. Freshwater fish and vertebrates feed on animals and fruits coming from riparian land. Large woody debris (the branches, large limbs and whole trees that fall on the ground and into streams) is an important source of food and habitat, and enters streams from neighbouring or upstream riparian land. Floodplains bridge land and water environments and are important for food supply and breeding. Flooded riparian vegetation provides shelter to fish and other in-stream animals from being washed away during high flows, as well as providing feeding or spawning grounds.

Increased sediment and nutrients (primarily phosphorus and nitrogen) in streams can lead to loss of habitat, smothering of stream life, murky waters, and changes to the mix of in-stream plants and animals. Riparian vegetation protects streams by slowing surface runoff, using nutrients and trapping sediment and other contaminants.

As well as protecting the neighbouring stream, riparian vegetation also protects adjacent agricultural production. It buffers crops and pastures from the wind and windborne material, and provides habitat for beneficial animals, especially pollinating insects. Livestock can shelter from harsh weather and graze understorey grasses and shrubs. Riparian vegetation itself can form part of the farm's production system, supplying *wood products* like timber, poles, posts, broombush, firewood and charcoal, or *non-wood products* like seeds, essential oils, foliage, honey, bushfoods and pharmaceuticals. These products may be sold or used directly on the farm. In the future, some of the natural functions of riparian vegetation, like carbon storage, water filtration and salinity control may form part of the farm's production system, and be valued and traded as part of an ecosystem services market.

This diagram shows the key functions performed by riparian land



The riparian zone. (Source: Land & Water Australia)

Checklist of potential functions performed by riparian land

- ✓ harbours important and unique vegetation communities, including endangered and vulnerable species
- ✓ provides food, refuge and passage for wildlife
- ✓ supplies food and habitat for in-stream life
- ✓ buffers the stream against nutrient, sediment and other contaminants in surface runoff and groundwater
- ✓ protects stream bank stability
- ✓ shelters crops and pastures from wind and windborne materials, and provides habitat for beneficial animals, including pollinators
- ✓ protects livestock from extreme temperatures, and provides a feed reserve
- ✓ provides wood and non-wood products that may be harvested for use or sale
- ✓ delivers ecosystem services that benefit the community and may be traded at some time in the future

Key References

- River and Riparian Management. Fact Sheets 1-11. 2002. Land & Water Australia. Canberra.
- Lovett, S. & P. Price (eds). 1999. Riparian Land Management Technical Guidelines, Volumes One and Two. Land & Water Resources Research & Development Corporation. Canberra.



Riparian areas are where land and water meet. (Photo: Siwan Lovett.)

