

Riparian Plants of the Avon Catchment

a field guide

Department of Environment 2004

By Brendan Oversby



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Main cover photo: Riparian vegetation on the Avon River, Northam.

Your guide

This field guide gives a brief pictorial and textual description of some of the native plant species found in riparian areas of the Avon River Basin. Species have been catalogued by genus then family, with each family having a distinctive coloured tab. On the front of each page there is a photo of the plant along with its name. On the back there is useful information on identifying the plant, where it is commonly found and points on its use in a revegetation program. It is hoped that this guide will allow easier identification of riparian species as well as assisting with choosing the best plants for riparian revegetation within your area.

This guide has been designed so that new species can continually be added as information on them becomes available. To check for recent updates please contact

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Avon riparian vegetation and zones

Riparian Vegetation

Vegetation growing along waterways is commonly referred to as riparian vegetation. This vegetation performs a number of crucial ecological services within the riparian zone. These include:

- the natural filtering of pollutants
- stabilisation of sediments
- interception and slowing of surface and sub-surface flows
- nutrient absorption and cycling
- the retention of particulate matter and sediment trapping from adjacent agricultural land
- provide organic matter and tannin production from the natural fall of leaf litter and woody material
- balance soil organisms such as anaerobes and aerobes by pumping oxygen into waterlogged soils
- provision of habitat, food and corridors for native wildlife
- aesthetics and recreational values
- localised salinity abatement.

To perform these functions many of the species must interact and complement each other. Most natural and healthy riparian vegetation complexes are composed of a range of species that are suited to particular niches. There also tends to be a layering of species, with an understorey, midstorey and canopy. For example, low understorey species such as samphires, native grasses and sedges stabilise the soil surface while the larger shrubs and trees use their extensive root systems to lock the whole soil profile in place. There are examples though where the vegetation is dominated by a particular species within a defined zone, such as some melaleuca thickets and sedge beds around permanent springs.

The Avon regions waterways:

The Avon, Lockhart and Yilgarn sub catchments, situated directly east of Perth, comprise an area of approximately 120,000 square kilometres (Figure 1). For simplicity in the context of this field guide, these catchments will be collectively referred to as the Avon River Basin.

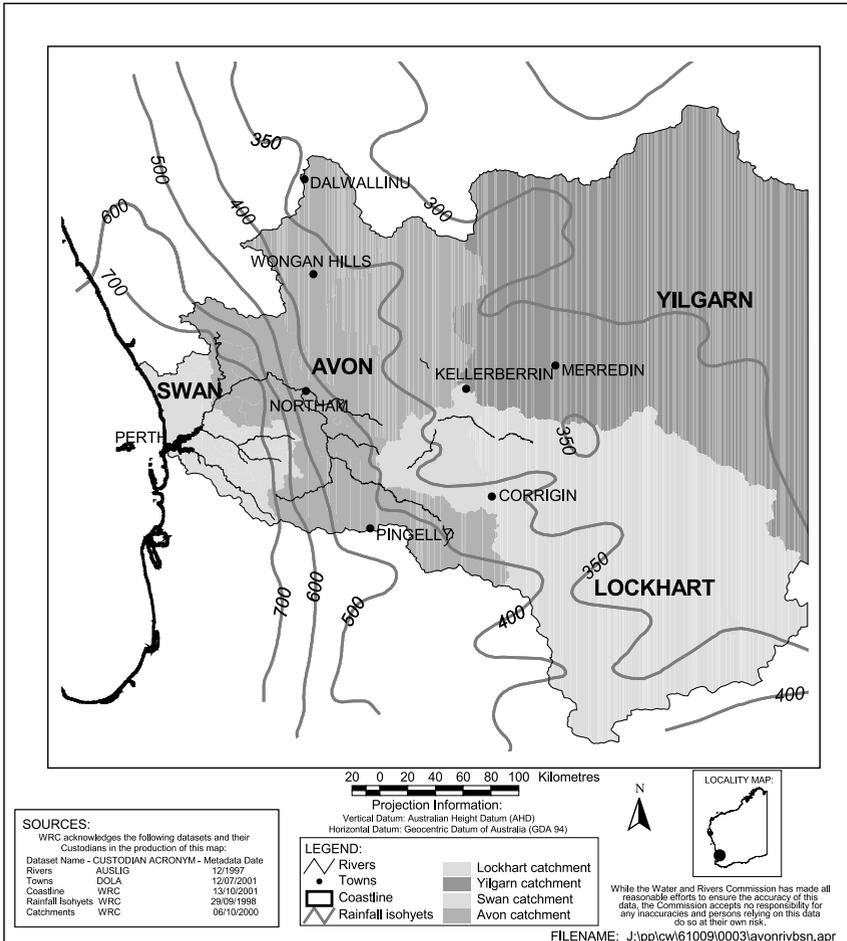


Figure 1. The Avon, Lockhart and Yilgarn sub catchments, showing the rainfall isohyets of the region.

The majority of the Avon River Basin falls within the Transitional Rainfall Zone (300-800 mm), and is subject to a broad range of climatic influences. Coupled with this is a patchwork of varying soil types and changing topography, which has resulted in the evolution of a rich and diverse flora. Broadly speaking, riparian vegetation patterns within the Avon typically reflect this, being influenced by underlying geology, differences in water quality, the flow regime of surface waters, soil moisture and an overriding trend of decreasing rainfall in an easterly direction across the catchment. Much of this flora is unique to the region, due to the demanding conditions present, including inundation and high salt loads. This has selected plants specially adapted to these conditions.

A unique characteristic of Avon River Basins riparian zones is their braided nature (Figure 2). This refers to a watercourse having more than one channel. These watercourses are also generally broad and shallow and some of the channels only flow following high rainfall. More information on the nature and characteristics of braided streams can be found in RR17, Recognising channel and floodplain forms (Water and Rivers Commission 2002). Most of the waterways are seasonal, running only after winter rainfall and after occasional summer storms or cyclones.

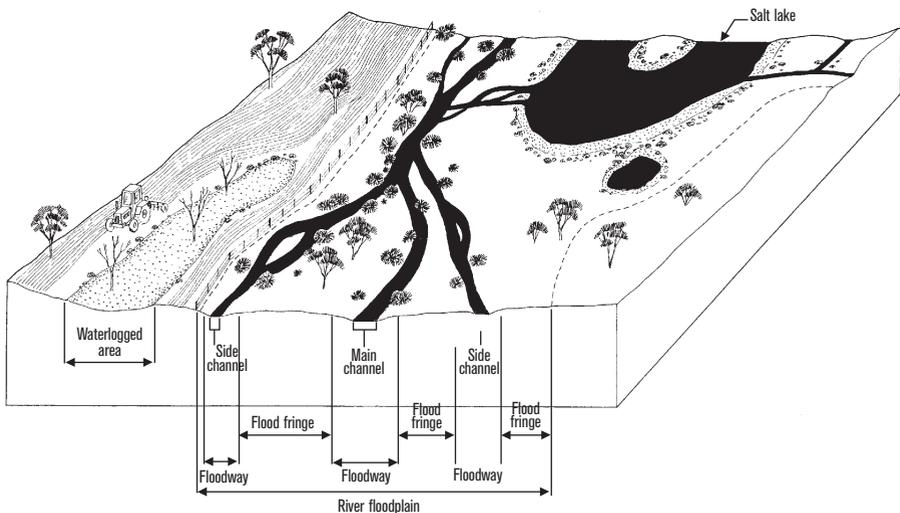


Figure 2. Cross sectional representation of a typical watercourse in the Avon catchment.

It is important to understand the approximate locations of the different areas within the riparian zone, such as the floodway or the flood fringe, as these influence the type of species that can be successfully grown. Fig 2 and the associated descriptions in the glossary explain these zones in greater detail.

Revegetation

In degraded areas, many of the functions provided by vegetation to waterways has been lost. Revegetating the riparian zone with native species can improve these functions if the choice of species takes into account the reasons for the degradation and the present site conditions.

It is common throughout the Avon River Basin to find waterways that have altered dramatically since the clearing of native vegetation for agriculture. Most waterways now carry much larger volumes of water, often with a higher nutrient, salt and sediment load. These changes have often destroyed the original vegetation. The change can be so great that even if the original flora is reintroduced by revegetation, it often won't survive. In these instances it is advisable to attempt to create a new stable ecosystem based on species that are adapted to the conditions present. There are many species that naturally occur in the Avon River Basin which are suited to these changed conditions. It is strongly advised that species from the Avon catchment be used over species from outside of the catchment. This will reduce the chance of the chosen species becoming a weed in surrounding areas or clogging the waterway. Species from the Avon River Basin are also more likely to provide the necessary habitat and food sources for our native fauna.

Many of the species listed in this guide are now used in riparian revegetation programs throughout the Avon River Basin. It is hoped that this guide will assist with your selection of plants for riparian revegetation.

Glossary

Aerobe/Aerobic microbe	– A microscopic organism that requires oxygen to live.
Anaerobe/ Anaerobic microbe	– A microscopic organism that lives in oxygen free environments such as is commonly found in wetland soils.
Awn C3/C4	– Slender, bristle like appendage on the end of some grass seeds. – Refers to the method used by a grass species to convert sunlight into energy. For practical purposes – C3 grasses grow best during cooler periods (eg winter), – C4 grasses grow best during warmer periods (eg summer).
Flood fringe	– The area of the floodplain outside of the floodway.
Floodplain	– Includes all flood prone land out to the area likely to flood once in a hundred years.
Floodway	– The main flow path during an average 2–3 year flood.
Inflorescence	– An arrangement of flowers on a flowering axis.
Lake edge	– Area around lakes that may be flooded sporadically, where the soil moisture is generally greater than the surrounding landscape.
Lignotuber	– A woody rootstock that can often produce new stems.
Phyllodes	– An expanded specialised leaf stalk with the form and function of a leaf.
Riparian	– Land associated with water, including riverbanks, floodplains, saline seeps, intermittent streams and lake edges.
River bank	– Inclined edge of the main channel in defined creeklines/river.
Swampland and waterlogged areas	– Flood prone land that may have surface water only occasionally. The soil moisture is greater than surrounding land.

Other resources

There are a number of Water Notes that deal with the specific requirements of riparian revegetation. These include:

WN 20: Rushes and Sedges,

WN 24 Riparian zone revegetation in the Avon catchment,

WN 29 Long-term management of riparian vegetation,

WN 31 Revegetating with native grasses in the Avon catchment

WN 32 Establishing samphires in the Avon catchment.

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