

# FACT SHEET

## RIPARIAN CONNECTIVITY AND BUFFERING CAPABILITY

### WHAT IS A RIPARIAN ZONE?

Riparian zones are unique ecosystems that border water bodies such as rivers, streams, lakes, and other water courses. They are a transitional area occurring between land and freshwater systems. The plants which grow in these zones are called riparian vegetation and are significantly different to the vegetation growing upland of the water body.

### WHY PROTECT AND MAINTAIN YOUR RIPARIAN ZONE?

Riparian zones with structurally diverse native vegetation offer a wide range of ecological functions and services which should be protected and maintained to ensure the health and resilience of local waterways. Riparian vegetation is essential to prevent streambank erosion and provides an array of benefits including:

- improved water quality
- supports healthy ecosystems and biodiversity
- maintains river courses
- dissipates stream energy
- reduced threat of invasive weed species
- increased capital values
- shelter effects
- retention of nutrients
- increased fish stocks
- landscape refuge
- provides shade, helping to regulate water temperature
- decreased algal growth.



## RIPARIAN ZONES BENEFIT GRAZIERS AND GROWERS

Healthy riparian zones provide numerous benefits to our local farmers. There is great value in maintaining and re-establishing these areas.

### Production Benefits

- Enhanced pollination of crops through provision of habitat for pollinating insects.
- Pest control through biological control of pest species by birds and other animals.
- Shelter belts for stock and crops.
- Reduced mustering time if riparian zones are fenced off.
- Reduced flood or waterlogging damage.
- Reduced erosion into paddocks.
- Minimised runoff.

### Improved Property Price

- Well maintained riparian frontages can improve the market value of a rural property.

### Improved Aesthetics and Landholder Wellbeing

- Healthy riparian zones are peaceful and beautiful. They provide attractive areas for recreational activities.
- Native bird and wildlife attraction.
- Increased recreational value.



**Figure 2** - Cedar Creek with in-stream habitat, shade, pools and riffles



**Figure 3** - Coastal riparian zone along Murray Creek providing buffering and bank stability to adjacent cane headland



## BUFFERING EXTREME WEATHER EVENTS

In recent years, the Mackay Whitsunday Isaac region has experienced several catastrophic climate driven events which have led to widespread damage of natural and built infrastructure across the region. Evidence shows that the areas which responded best to these events had healthy riparian zones that acted as a natural buffer.

Riparian areas with a range of native vegetation delays the delivery of surface and groundwater which can reduce the downstream flood peak. The riparian zones and in-stream vegetation impedes water flow. This slows down floodwaters, therefore reducing damage to streambanks from erosion and minimising impacts to downstream communities.

Slowing down flood water is likely to make it less destructive. It also allows the water to spread over localised areas and floodplains, moving into wetland systems. This can remove

some of the sediments and nutrients from the system before it reaches the end of the catchment.

For many years, riparian vegetation was cleared to speed the flow of flood waters and remove it from areas faster to prevent crop damage. Evidence now shows that riparian vegetation acts as a buffer and can help reduce the impacts of flooding on a catchment scale, while also reducing damaging impacts such as erosion and sediment and nutrient transportation.

In addition to mitigating flooding impacts, well-established vegetation can provide some protection from cyclonic wind damage. Well-established, strong trees can trap debris and act as a windbreak on properties, protecting assets. The presence of tall trees and shrubs can also reduce high wind speeds that are typically responsible for the spread of bushfires.

## THREATS TO RIPARIAN ZONES

The major threats to riparian zones include:

- Removal of riparian vegetation due to urban development and agriculture.
- Uncontrolled stock access.
- Cropping and irrigation in close proximity.
- Prevalence of invasive pest plants and animals.

These threats can lead to erosion, soil compaction, habitat loss, reduced water quality, spread of invasive species, decreased biodiversity and loss of productive agricultural land.

Uncontrolled stock access to riparian zones may lead to bank destabilisation, soil compaction and higher overbank flow velocities. This increases the likelihood for flood events to erode banks and adjacent land, requiring extensive works to re-stabilise and rehabilitate.

Weed species are more likely to invade riparian zones that have been disturbed, as the majority of weed species find it difficult to invade and establish within intact riparian vegetation. Weeds will usually find it harder to compete and establish if vigorous pasture and healthy riparian vegetation is maintained or established.



**Figure 4** - Damage at a revegetation site from feral pigs, this disturbance also allowed aggressive weed recruitment in the area.



## OPTIONS TO MANAGE YOUR RIPARIAN ZONE

There are a range of management options available for riparian zones. However, maintenance needs to be considered at the catchment scale because this is the scale at which species move. Working with your neighbours and catchment community can help increase the positive impact you can have on the environment.

**Restricting stock access** to riparian areas and waterways is one of the main management actions that can be implemented. Access can be restricted through the installation of **fencing and off-stream watering points**. Controlling access, especially through the wet season, can greatly reduce the impact of cattle on riparian areas and allow these areas to recover.

Uncontrolled access by stock to riparian areas can result in over-grazing and trampling of vegetation, soil exposure and compaction. This uncontrolled grazing can lead to excess runoff, bank erosion, decline in native habitat, reduced water quality and damage to in-stream ecosystems. Implementing off-stream watering points provides stock with a clean and reliable source of water that is easily accessible.

Fencing riparian zones has co-benefits for graziers through the exclusion of cattle from areas that are hard to muster and present a risk of injury to stock.

**Controlling invasive pest plants and animals** encourages native plant and animal uptake in the area. This improves the vegetation structure diversity and improves stabilisation on streambanks. When native vegetation begins to establish and gain a canopy cover, they can become self-sufficient in preventing weed species uptake. The increase in native



*Figure 6 - Riparian cattle fencing along the O'Connell River*

vegetation also encourages native wildlife to return to areas and can act as pest control.

**Rehabilitating riparian areas** can be a course of action to prevent further damage to your property. It is important to treat the cause of the problem, not just the symptoms and ensure you understand the waterway system. Riparian areas require different types of vegetation to function and become sustainable as each plant group performs a different function. It is also important to try and work with your neighbours and community to ensure the best outcome for the ecosystem.



*Figure 5 - Grazing paddock along Murray Creek*



## OTHER CONSIDERATIONS

Fence placement should consider the likelihood and impact of inundation, setting fencing back from waterways. Fence lines should generally be placed well back from the top of the stream bank. The distance or buffer width from top of bank will often be dependent on the size of the watercourse and what is practical for the landholder; however, aiming for a minimum of 20m for creeks and 50m for rivers is often recommended.

This enables the recruitment of riparian vegetation, providing the buffer benefits outlined in this fact sheet. Riparian zones

are not necessarily unproductive or lost grazing areas because carefully managed riparian grazing can provide drought fodder, shelter, bank stability and improved habitat function.

Fencing in flood-prone areas usually requires additional considerations as fencing construction needs to be strong enough to withstand flood inundation and the force of water and debris. Certain fence designs can also be implemented to reduce damage risk such as hanging suspension fences, drop fences, and laydown fences.

Key resources to assist landholders with any additional riparian management questions include the:



[Grazing ABCD Framework](#)



[MWI Pasture Standards Guide](#)

[Cane ABCD Framework](#)



[Smartcane BMP](#)



## REFERENCES



Riparian Vegetation



Managing riparian land: benefits to beef cattle farmers



Fact sheet - Riparian Zone



Natural assets for flood and cyclone resilience



Fact Sheet - Riparian Revegetation



Vegetation buffers to sensitive water resources



Managing riparian land: benefits to croppers



Are my waterways in good condition?

