



# RIPARIAN GRAZING AND OFF-STREAM LIVESTOCK WATERING

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Maintaining healthy riparian areas requires an understanding of how they were formed, how they function and how agricultural practices affect them. This fact sheet explains how agricultural practices in livestock production can be adopted to maintain environmentally healthy riparian zones.

## RIPARIAN AREAS

Riparian areas are the transition zones between the water's edge and the upland environments. They can be seen as green zones along lakes, wetlands, creeks, rivers and areas of increased moisture (Photo 1). Although riparian zones represent only a small percentage of the landscape, they are considered among the most productive ecosystems in the world, and are vitally important because of the abundance and diversity of plants and animals they support. Riparian areas also help to maintain water quality and quantity by performing key ecological functions like trapping sediment, reducing erosion, storing nutrients, filtering contaminants and recharging aquifers.

## DISTURBANCE NECESSARY IN RIPARIAN AREAS

The environmental health of a riparian area is defined by its ability to perform key ecological functions. The health and function of riparian areas is dependent



Photo 1: Riparian areas can be seen as the green zones along water bodies.



Photo 2: Deep-rooted vegetation holds soil in place giving streambanks stability.

upon the interactions of diverse groups of deep rooted, soil binding species, which are maintained through disturbance interactions. Photo 2 shows healthy deep-rooted riparian vegetation. Disturbances in riparian areas can be both natural and human induced. Grazing, for example, has helped to shape and develop riparian ecosystems over thousands of years in North America, through the co-evolution of native plants and grazing regimes. Historically, grazing in Prairie riparian zones occurred by native herbivores, such as deer, elk, pronghorn and especially bison. Today, cattle mimic the management functions that bison or other wildlife once performed. Other factors such as drought floods, fire, insects, topography and climate all helped to shape riparian ecosystems.

The key to maintaining healthy riparian areas is to balance and monitor the level of disturbance. At low levels of disturbance, diversity is reduced by competitive exclusion, possibly resulting in the dominance of a particular species, desirable or undesirable. Similarly, high levels of disturbance do not allow for natural succession, thus reducing diversity and the health and function of riparian areas. Therefore, for optimal functionality of riparian areas, intermediate levels of disturbance are required. Natural fluctuations in water levels and water movements may not be enough to maximise diversity and riparian function. In these cases, proper grazing management can be used to improve riparian function and biodiversity. Photo 3 shows a riparian zone with high disturbance resulting in no riparian vegetation.



**Photo 3: High levels of disturbance, if not properly managed, can be unhealthy which can leave the riparian zone and ecosystem negatively impacted.**

## PROTECTING THE RESOURCE

Soil and water quality must be maintained in order to have a sustainable and economically-competitive agriculture sector. One way of maintaining and enhancing soil and water resources and biodiversity is through the use of agricultural beneficial management practices. Beneficial Management Practices (BMPs) are encouraged to reduce the negative effects agriculture may otherwise have on the environment. The goal of integrating BMPs into a management plan is to protect soil, water and air in an economic and environmentally friendly way. Examples of BMPs that enhance riparian areas include: grazing management plans, remote (off stream) watering, concentrated stream access, and exclusion fencing.

## REMOTE (OFF-STREAM) LIVESTOCK WATERING AS A BMP:

Recent research indicates that by implementing remote (off-stream) watering systems the environmental impacts of livestock in riparian areas can be significantly reduced. Improved water quality, ease of livestock distribution and increased livestock performance can all be provided without fencing by supplying an alternative off-stream water supply. Fencing, although very effective at controlling livestock access to streams and water sources, is costly and not always practical depending on landscape features.

The effectiveness of attracting cattle away from riparian areas with off-stream watering systems is dependent on a few factors. Season and time of day are significant variables. Forage quality within riparian areas remains higher later in the season which leads to preferential grazing of these areas. These areas provide shade and protection from the heat, and the coolness of the water often draws animals to the waters edge. The trees and shrubs also provide grooming locations. To overcome these variables implement a grazing management plan and provide alternative means of shade, shelter and grooming devices. Off-stream watering devices are only one BMP that should be a component of a larger grazing management plan (Photo 4).



**Photo 4: Off-stream livestock watering devices can significantly improve the health of a riparian area and improve cattle performance.**

watering the four basic principles of range management must be adhered to;

- (1) Balance forage supply and demand,
- (2) Allow adequate rest for recovery,
- (3) Defer grazing during sensitive periods and
- (4) Distribute grazing pressure evenly.

Riparian systems are dynamic and unique, requiring customized management. Some areas may not be suitable for grazing due to their soil structure and susceptibility to degradation. Following a well thought out grazing management plan that includes rotation, rest and the use of alternate water sources will aid in the conservation of riparian habitats. Managing the total landscape should be the common goal for all land managers.

For more information on protecting and improving rural water supplies, contact your nearest Agriculture and Agri-Food Canada - PFRA office, or visit the Prairie Farm Rehabilitation Administration web site at [www.agr.gc.ca/pfra](http://www.agr.gc.ca/pfra).

## THE BIGGER PICTURE; A LANDSCAPE APPROACH TO MANAGEMENT:

Proper management of riparian areas is clearly needed to ensure they remain as healthy and productive as possible. To maximise the effectiveness of off-stream

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**Author:** S. McIver and K. LaForge, PFRA

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