

# Riparian Areas & Agriculture

## What are riparian areas and what do they do?

Riparian areas are the transition zones between land and water environments, and the presence of water and water loving plants set riparian areas apart from the drier upland areas. The exact boundary can sometimes be difficult to determine, and riparian areas rarely look the same. Vegetation is the key indicator to identify the boundaries of riparian areas.

While they only cover a small percentage of the landscape, riparian areas have an important role in overall watershed health that extends far beyond the area that they occupy. A healthy riparian area is able to successfully perform important ecological functions including:

- Trapping sediment – The above ground vegetation, and the below ground root systems of healthy riparian area plants act as filters to prevent sediments and pollutants from entering the waterways.
- Filtering and buffering water – Healthy vegetation in riparian areas use nutrients contained in run-off for growth which prevents the nutrients from building up in water. This vegetation also provides shade, which in turn helps to regulate stream temperature.
- Reducing erosion and stabilizing stream banks– Deep-rooted, healthy vegetation increases bank stability and protect shorelines from damaging erosion caused by water as it moves downstream.
- Recharging aquifers – A well-vegetated riparian area can help reduce the speed at which water flows during times of increased run-off. The slower stream flow allows increased absorption of water into the soil, replenishing groundwater reserves and decreasing flood risks downstream.

- Storage of water and energy – Riparian areas have the ability to hold excess water, acting as a natural sponge. By performing this role, riparian areas reduce the impact of floods and droughts.
- Maintaining biodiversity – An abundance of water, shelter, and food found in healthy riparian areas can attract all types of wildlife and sustains a diverse population of plant and animal species.
- Creating primary productivity – Enhanced soil development and forage production are benefits of healthy riparian areas.

In Saskatchewan, many riparian areas have been dramatically altered by agriculture and human development. These alterations have a negative impact on the health of the riparian area. When riparian areas are not healthy, they cannot function properly resulting in environmental and economic concerns.

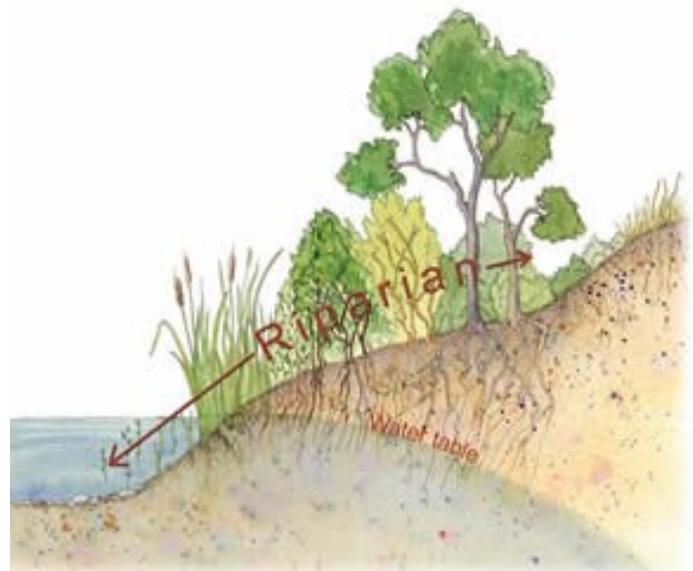


Image courtesy of Alberta Riparian Habitat Management Society

## Effects of Agriculture on Riparian Areas

Agriculture can have either positive or negative effects on riparian areas, depending on the producer's management of the riparian zone. These areas often suffer from over-use; however, when properly managed these areas can be as much as 4 times more productive than upland areas.

Examples of agricultural activity that can have a negative effect on riparian zones include:

- Overgrazing can cause bare ground and decreased plant vigor in favorable vegetation, creating an opportunity for weeds to invade the area.
- Trampling exposes stream banks to erosion and creates instability in the soils of the riparian area.
- Livestock manure introduces bacteria, pathogens and nitrates which can enter and contaminate the water body associated with the riparian area.
- Cultivation too close to the stream bank, or without leaving a buffer strip around the riparian area, eliminates riparian vegetation resulting in erosion and other issues. Erosion of soil affects fish habitat, reduces water depth, and lowers the storage capacity of groundwater reserves. Soil salinity may also increase when riparian vegetation is removed because groundwater seepage and evaporation can deposit large amounts of salts on soil surface. Excessive removal or alteration of vegetation in riparian areas decreases



friction and increase stream velocity, which in turn results in more soil erosion. Buffer strips between agricultural land and water bodies help to restore riparian areas in cultivated land, and prevent pollutants from nutrients, chemical and sediments from entering the waterway.

- When grazing riparian areas, timing has a dramatic impact on how agricultural activity impacts a riparian area. In spring and early summer, the soils in these areas are most susceptible to damage from trampling because they are moist and soft. Woody vegetation, such as shrubs and tree seedlings, is also most sensitive to damage from browsing at this time of year. Mid to late summer is the best time to use these areas to ensure that the soils is protected and that the vegetation has an opportunity for regrowth prior to winter.



## How Can We Protect Riparian Areas?

There are many ways that agricultural producers can ensure that riparian areas are protected and healthy, while utilizing the productivity of the area to benefit their operation. Planting buffer strips around waterbodies on agricultural land will help to restore and maintain the riparian area health and reduce the impact of agricultural activities on the watershed. These buffer strips can also be used for forage production.

When using riparian areas for livestock grazing, it is important for livestock producers to:

- Balance livestock demand with available forage supply to avoid overgrazing.
- Distribute livestock evenly throughout the area—this can be accomplished with the use of mineral and salt blocks, temporary fencing, or remote water systems.
- Avoid grazing during sensitive seasons, such as in the spring.
- Provide a rest period for the riparian area.

Developing a management plan for riparian areas on the farm can assist producers in protecting these areas while maintaining productivity. Developing a management plan does not have to be a complicated or formal process. Ask yourself:

1. Why do you want to protect the area? For example, do you want to use the riparian area to help mitigate the effects of flooding and drought, or do you want to use the area to cut for hay to feed your livestock? Consider



the environmental and production benefits for your operation, and determine your objective for managing the area.

2. What is the current condition of the riparian area? Changes can happen gradually, and sometimes happen so slowly that we do not notice them immediately. It is important to get out, walk through the riparian area, and see what is happening. Identify problem areas, issues to address, and take stock of the overall health of your riparian area. The Carrot River Valley Watershed Association has Field Workbooks for Riparian Area Health Assessments available to producers and staff are available to assist if you would like to complete a formal health assessment.
3. What needs to be done to improve the health of the riparian area? For example, do you need to plant a shelterbelt of trees to replace the buffer strips that have been cleared for cultivation? Do you need to construct exclusion fencing to limit direct access of livestock to the area? Maintaining the health of a riparian area is easier and more cost-effective than trying to restore a damaged riparian zone.

Once you have answered these questions, put a plan into action based upon your answers. Consider which activities may be eligible for cost-shared funding through the Farm Stewardship Program and AEGP, then contact the Carrot River Valley Watershed Association for more information. The list of BMPs available through the AEGP are listed on the back page of this newsletter.



## Who are the Carrot River Valley Watershed Association and AEGP?

The Carrot River Valley Watershed Association is a non-profit, non-governmental organization that incorporated in 2011. We are dedicated to preserving and maintaining the character and integrity of the watershed through education and awareness. Our mission is to protect and improve water quantity, water quality, and diversity of the watershed through collaborative planning and facilitating partnerships. The Carrot River Valley Watershed Association administers the Agri-Environmental Group Plan for our watershed. There are 13 AEGPs throughout Saskatchewan, and these group plans allow producers that farm

within the watershed area to access funding and technical support for selected Farm Stewardship Program projects that would otherwise only be available to producers that have completed Environmental Farm Plans. Since its origins in 2010, the Carrot River Watershed AEGP has submitted project applications on behalf of producers in this area with an estimated value of 1 million dollars. In addition to assistance accessing program funding, the AEGP and Carrot River Valley Watershed Association deliver educational and technical workshops, newsletters, and promote farm stewardship with area producers.

## BMPs Available Through the Carrot River Watershed AEGP

Eligible Improvements—Beneficial Management Practices (BMPs)	Cost Share	Project Funding	Pre-Approval or Rebate
<b><i>Livestock Site Management</i></b>			
Relocation of Livestock Confinement Facilities	60%	Maximum of \$50,000	Pre-Approval
Fencing to Protect Surface Water	50%	Maximum of \$10,000	Rebate
Farmyard Run-Off Control	50%	Maximum of \$10,000	Pre-Approval
Riparian Area Grazing Management & Fencing	50%	Maximum of \$5,000	Pre-Approval
<b><i>Land Management</i></b>			
Natural Waterway Erosion Control	75%	Maximum of \$50,000	Pre-Approval
Creek & Stream Crossings	50%	Maximum of \$20,000	Pre-Approval
Protecting High Risk Erodible & Saline Soils	50%	Maximum of \$5,000	Rebate
Native Plant Establishment	50%	Maximum of \$10,000	Pre-Approval
<b><i>Precision Farming</i></b>			
Variable Rate Fertilizer Equipment	30%	Maximum of \$5,000	Rebate
Variable Rate Mapping	30%	Maximum of \$2,000	Rebate

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