

## Program Partners

- Agriculture and Agri-Food Canada
- Ducks Unlimited Canada
- Environment Canada
- Fisheries and Oceans Canada
- Manitoba Agriculture, Food and Rural Initiatives
- Manitoba Cattle Producers Association
- Manitoba Conservation
- Manitoba Habitat Heritage Corporation
- Manitoba Water Stewardship

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For more information please contact:  
Riparian Program Coordinator, Manitoba Habitat Heritage Corporation  
200-1555 St. James Street,  
Winnipeg, MB. R3H 1B5  
Phone: (204) 784-4358  
Fax: (204) 784-4359  
Email: mhhc@mhhc.mb.ca

This and other related material, including a stocking rate calculator, an aerial photo library and other pasture management tools, can be found at [www.riparianhealth.ca](http://www.riparianhealth.ca)



## Riparian Grazing Strategies

# Improving Bank Stability

(One of a series)

## Success Indicators

*There are signs that indicate bank stability is improving.*

- Vegetation cover is increasing including tree and shrubs and deep-rooted native plants such as sedges, cattails and grasses.
- Trees and shrubs are regenerating.
- The amount of bare ground is decreasing, including that caused by livestock activities.
- Structural damage to the bank and impacts to the soils in the area caused by livestock and human activity are decreasing.
- Incisement (down-cutting) of banks is beginning to heal. The floodplain is beginning to develop or widen and channels are stabilizing.



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Stable streambanks maintain channel configuration, integrity and bank shape. Healthy riparian vegetation is key to ensuring bank stability. When streambanks are physically altered, erosion can increase and the banks can become unstable. Management practices for bank stability should include actions that reduce physical impacts to the streambank, maintain bank vegetation and avoid “bare dirt” patches along the banks.



### Streambank Erosion

With the straightening of streams, use of culverts and other land use changes, the rate of streambank erosion has increased in most areas of agro-Manitoba. Extensive clearing of natural vegetation from watershed areas and the widespread removal of riparian vegetation has resulted in much faster runoff at higher peak flows. This has placed increased pressure on stream channels, resulting in increased erosion.

Streambank erosion takes place by three main processes that may occur singly or in combination.

#### Bank surface erosion

Bank surface erosion begins with processes that loosen the soil of the streambank, including trampling by livestock and human activity. The soil is then vulnerable to being carried away by flowing water, especially when water levels rise.

#### Scour

Scour often takes place at the toe of the bank – at the water’s edge – where suspended particles in the flowing water scour away bank material.

#### Slumping

Slumping occurs when portions of the bank collapse as a result of undercutting or other structural weakness within the streambank.