

NATURAL VALUES: *Linking the Environment to the Economy*

9

RIPARIAN AREAS

Natural Values: Linking the Environment to the Economy was developed by Ducks Unlimited Canada (DUC) to improve the environmental and economic understanding of natural systems. In Canada, policy, legislation and regulation efforts must accelerate to protect our important resources. To view other instalments in this series, visit www.ducks.ca/conserves/wetland_values/conserves.html



RIPARIAN AREAS ARE FOUND BETWEEN UPLANDS AND WETLANDS, LAKES, RIVERS AND STREAMS. They are often referred to as shoreline areas and can be characterized by lush vegetation that can include combinations of trees, shrubs, cattails, sedges and grasses. Riparian areas are highly valuable ecosystems; their position in the landscape connects aquatic areas with terrestrial areas and allows them to act as natural filters of both surface water and groundwater and buffer against flooding and erosion. Across Canada, natural riparian areas have been altered by industry, agriculture and urban development, which can have serious consequences for the long-term quality and availability of our freshwater. However, the restoration of affected areas and the conservation and careful use of remaining riparian areas has accelerated as our understanding of their critical role in watershed functioning and their economic value to society has increased.

Between 1996 and 2002, the Saskatchewan Watershed Authority assessed the health of approximately 830 riparian areas surrounding rivers, creeks and streams in southern Saskatchewan. Thirty three per cent of the riparian areas were "unhealthy"; 50 per cent were "healthy with problems"; and only 17 per cent were considered "healthy".¹

Environmental Values

- Riparian areas filter and reduce surface water runoff from surrounding uplands, thereby trapping sediment and sediment-associated pollutants such as nutrients, pesticides and bacteria.
- Vegetation in riparian areas increases the infiltration of water into soil and helps replenish groundwater.
- Vegetation in riparian areas anchors soil with its roots and traps sediment, helping to build stream banks and prevent erosion.
- Riparian areas store floodwater and slow stream flows during periods of flooding, thereby decreasing downstream flooding and erosion.
- Riparian areas provide habitat for a number of plants and animals, including species at risk.
- The vegetation in riparian areas can help maintain the productivity of wetlands, streams and lakes for fish by influencing water quality, water temperatures, and providing spawning and rearing areas.



Riparian areas remove or retain pollutants from surface water runoff before they reach our freshwater system. ²

	% Retention
Sediment	66-97
Nitrogen	35-96
Phosphorus	27-97
Pesticides	8-100
Fecal coliform	70-74

Economic Values

When riparian areas are degraded there is a financial cost incurred by society to replace the lost ecological goods and services through:

- 1 Increased water treatment costs
- 2 Increased illness and health care costs due to decreased water quality
- 3 Increased insurance costs due to flooding
- 4 Increased costs for dredging sediment from waterways
- 5 Decreased property value due to degraded aesthetic qualities
- 6 Decreased swimming/fishing opportunities
- 7 Decreased revenues from tourism activities associated with healthy ecosystems

“Riparian areas account for only 1-2% of the total land base of the Prairies, however they provide important environmental and economic benefits.” – Agriculture and Agri-Food Canada, 2004 ³

The Value of Riparian Areas in Canada

Riparian areas trap sediment before it reaches our freshwater system. The cost of removing sediment from municipal water in southern Ontario has been estimated to be between \$9.34 and \$28.02/tonne of sediment. ⁴

In the Grand River Watershed, a 100-metre riparian buffer on both sides of a stream channel decreases flood damage at an estimated value of between \$2.10 and \$7.50/ha of vegetated riparian area. ⁴

Decreasing sediment loads in creeks and rivers increases the number of recreational fishing days. In southern Ontario, the value of the additional fishing days ranges from \$44.04 to \$132.12/tonne of sediment removed from the rivers. ⁴

Non-fishing freshwater recreation in the Grand River is estimated to be worth \$0.70/ha of riparian cover. ⁴

DUC Recommends That:

- **Canadians** educate themselves on the ecological goods and services provided by riparian areas. Become active with a watershed group or conservation organization that supports the conservation of riparian areas.
- **Educators** incorporate the value of riparian areas into science, social studies, geography and economics courses.
- **Non-governmental organizations** fund and deliver programs that conserve and restore riparian areas.
- **Governments** develop and implement policy and legislation that protects and ensures responsible management of riparian areas. Governments should also fund research to determine the environmental and economic value of riparian areas; provide incentives for those who protect riparian areas.

Endnotes

- 1 Saskatchewan Watershed Authority. No date. Health of Riparian Areas in Southern Saskatchewan. Accessed June 2006 at: <http://swa.ca/publications/documents/HealthofRiparianAreasinSouthernSaskatchewan.pdf>.
- 2 Gabor, T. S., A. K. North, L. C. M. Ross, H. R. Murkin, J. S. Anderson, M. Raven. 2004. *Natural Values – The Importance of Wetland and Upland Conservation Practice in Watershed Management: Function and Values for Water Quality and Quantity*. Ducks Unlimited Canada unpublished report. 55 pp.
- 3 Agriculture and Agri-Food Canada. 2004. Riparian Area. Accessed July 2006 at: http://www.agr.gc.ca/pfra/land/riparian_e.htm.
- 4 Olewiler, N. 2004. *The Value of Natural Capital in Settled Areas of Canada*. Published by Ducks Unlimited Canada and the Nature Conservancy of Canada. 36 pp.

What's Next? Fact Sheet 10: Forests

Important Links

- www.ducks.ca/conserv/wetland_values/conserv.html
- www.ducks.ca/aboutduc/news/archives/2004/041115.html



Ducks Unlimited Canada
CANADA'S CONSERVATION COMPANY