

# Valuing Wetlands in Southern Ontario's Credit River Watershed

## Ecological Goods & Services Fact Sheet

### Fast Facts

- Wetlands are among the most productive and valuable ecosystems in the world.
- They provide a number of vital services to society, including the maintenance of water quality, flood/drought/erosion control, commercial and recreational fishing and hunting, other recreational amenities, climate regulation, and others.
- Wetlands are among the most rapidly declining ecosystems in the world.
- It is estimated that **48%**, or **13,331** acres of wetlands in the Credit River watershed have been lost or degraded since 1954, largely due to human activities such as expansion of urban areas, agriculture, and industrial developments. This represents a loss of **0.87%** (or **242** acres) of wetlands every year.
- As wetlands have declined in the watershed, so too have the ecosystem functions and services they help support.
- According to the CVC Natural Capital study<sup>1</sup>, wetlands' ecological services (such as climate regulation, water supply and water treatment) were found to be the most valuable in the Credit River watershed, providing annual benefits worth at least \$187 million per year.
- The Wetland Valuation study<sup>2</sup> found that households were willing to pay a significant amount for wetland retention/restoration programs (approximately \$229 to \$259 annually per household over the next 5 years).

### The Study:

A study, Valuing Wetlands in Southern Ontario's Credit River Watershed, was conducted in 2010 by Credit Valley Conservation (CVC), with the assistance of the Pembina Institute. The purpose of this study was to estimate the value of retaining and restoring wetlands in the Credit River watershed.

A total of 1,400 households were asked their *willingness-to-pay*<sup>3</sup> (via voting for/against an increase in their property taxes over the next 5 years) for several wetland retention/restoration programs in the Credit River watershed. Scenarios ranged from retaining over 2,500 acres of wetlands to retaining/restoring over 13,500 acres of wetlands from 2009 to 2020.



### Key Findings:

- Approximately 70% of respondents indicated that they were not aware of the loss of wetlands that occurred in the Credit River watershed over the past 55 years (1954-2009).
- When presented with the facts, almost 95% indicated they were either very concerned (approximately 55%) or somewhat concerned (approximately 40%) about the issue.
- Results indicate that households were willing to pay a significant amount for the wetland programs considered in the study: approximately \$229-\$259 per household over the next 5 years.
- On average, households placed the same value on a wetland retention program as they did on a wetland restoration program.
- The study produced total *present value*<sup>4</sup> *willingness-to-pay* estimates in the range of \$220.9 million to \$250.4 million<sup>5</sup>.

### How the findings can be used:

The *willingness-to-pay* estimates produced in this study provide useful information to policy-makers. The estimates can be interpreted as the perceived social benefits of wetland programs in the Credit River watershed and can be used in cost-benefit analyses to compare alternative wetland restoration programs.

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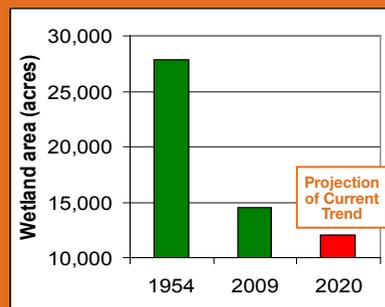
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### Fast Facts

Recent research indicates that the ongoing loss of 242 acres of wetlands each year may result in:

- An annual increase of **11 tonnes** of nitrogen and **2 tonnes** of phosphorous added to the Credit River watershed (equivalent to one-and-a-half semi-truck loads of fertilizer).
- An annual increase of **287,000** cubic meters of flood water and **1,600** tonnes of soil lost to erosion.
- An annual loss of **16** breeding pairs of ducks (an indicator for other living species).
- An annual release of **6,112** tonnes of carbon into the atmosphere (equivalent to carbon emissions from **1,222** cars on the road).

If past trends continue, **18%** (or 2,573 acres) of the remaining wetlands in the watershed could be lost by **2020**.



### How the findings can be used continued:

CVC has developed a Wetland Restoration Strategy that serves as a guide for managing wetlands in the watershed, whether it is protection of existing wetlands, restoration of wetlands that have been lost or creation of new ones. The study shows the importance of wetlands to watershed residents and provides useful guidance for developing wetland restoration programs.



**Credit Valley Conservation**

**Wetland Restoration Strategy**  
fact sheet

**Why protect wetlands?**  
Wetlands provide valuable ecological services to plants and animals, people and communities.

- Reduce flood damage
- Reduce sedimentation and erosion
- Improve water quantity and quality
- Provide habitat for fish and wildlife
- Help mitigate the effects of climate change

**Development of a Wetland Restoration Strategy**  
Because wetlands are so critical, CVC is looking toward protection of our remaining wetlands, and is seeking to restore wetlands that have been lost as well as to create more wetlands in the Credit Valley Watershed.

CVC's Wetland Restoration Strategy brings together a wide range of information and provides an analysis of potential wetland restoration opportunities, highlighting the suitability of potential wetland restoration facts to climate change, the priority need for improved wetland services within the sub-watershed, facts that have been flagged previously for potential improvement, estimates of the sector of wetland degradation, the wetland's sensitivity to climate change, and the importance of the services provided by the wetland.

**Strategic areas for wetland protection and restoration**  
The Strategy looks at the 23 sub-watersheds in the Credit Valley Watershed, within these strategic areas:

**Green belt:** The total area in the upper portion of the watershed including the Gibraltar as defined by the Ontario Ministry of Municipal Affairs and Housing (2005).

**White belt:** The areas in the watershed still available for urban development.

**Urban belt:** The areas in the southern portion of the watershed that are already developed including Georgetown, Mississauga and Brampton.

Approaches to protecting and restoring wetlands may differ according to the priority area where the wetland or potential wetland is located. The Strategy takes the different land uses and policy contexts in each of these areas into account when proposing approaches to protecting, restoring or creating individual wetlands.

**Analysis & actions**  
The results of the analysis indicate that the facts with the highest potential for restoration and top priority for restoration are found most often in the White belt, and the Strategy sets out specific actions for CVC to address.

Key messages from the Strategy recommendations: a focus on wetland creation and low impact development measures (e.g. storm water gardens and green roofs) to help capture precipitation where it falls, and to improve the capture of spring and winter run-off.

The Strategy also provides recommendations with respect to future actions, including setting wetland targets, strategy monitoring, project design guidelines, climate change adaptation, refinements of GIS analysis, and more detailed site selection.

**Fact:** Credit Valley Conservation's Natural Credit study determined wetlands provide a minimum of \$187 million in ecosystem services to watershed residents every year.

[www.creditvalleyca.ca](http://www.creditvalleyca.ca)



<sup>1</sup> For more information please see Estimating the Value of Natural Capital in the Credit River Watershed at <http://www.creditvalleyca.ca/bulletin/downloads/CVC-NaturalCreditReport.pdf>

<sup>2</sup> For more information on the study please see Valuing Wetlands in Southern Ontario's Credit River Watershed at <http://www.creditvalleyca.ca/bulletin/resources.htm>

<sup>3</sup> The willingness to pay (WTP) is the maximum amount a person would be willing to pay, sacrifice or exchange for a good. The WTP is used to define the value people place on changes in the level of environmental quality and natural resource use.

<sup>4</sup> Present value refers to a value (either in the present or in the future) evaluated in the initial (present) year.

<sup>5</sup> The estimate was obtained by multiplying the household willingness-to-pay estimates by the current number of households in the Credit River watershed region (212,865)