

# Carbon Storage in Forests within the Credit River Watershed

## Ecological Goods & Services Fact Sheet

### Fast Facts

- Forests in the Credit River Watershed hold approximately 6.52 million tonnes of carbon.
- Credit River Watershed forests are sequestering 13,326 tonnes of carbon annually.
- The climate regulation value represented by this carbon storage has been estimated at \$11.4 million annually.<sup>1</sup>
- CVC aims to plant 57 hectares of trees per year until 2014, and 91 hectares per year from 2015 to 2030.
- Along with existing plantations, these new forests will sequester an amount equivalent to the annual carbon emissions of 1,300 watershed residents.
- Deforestation due to development is currently outpacing replanting efforts.
- It is estimated that global deforestation contributed to approximately 20% of annual greenhouse gas emissions in the 1990s.
- According to the Intergovernmental Panel on Climate Change, reducing and preventing deforestation will have the largest and most immediate impact on climate change mitigation.

### What is carbon sequestration?

Carbon dioxide may be captured from the atmosphere through biological, chemical or physical processes. Forests and wetlands provide an important ecological service, holding significant stores of carbon. Carbon is stored in soils, in dead woody debris, and in living trees. Reforestation and wetland restoration are considered to be valuable measures to aid in climate change mitigation. Conservation of these ecosystems retains the carbon stored in them, and planting trees sequesters carbon from the atmosphere, helping to reduce greenhouse gases which are affecting our climate.

### How much of an impact do the Credit Valley Watershed's forests have?

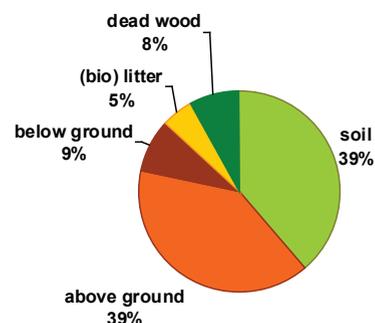
In 2010, forests in the Credit River Watershed were estimated to hold approximately 6.5 million tonnes of carbon (MtC), with an average carbon density of 331 tC/ha. As much as 97% of this is held in the natural forest, which covers 16,844 ha.

CVC owns 8% of the forest lands in the watershed, with an estimated carbon stock of 0.52 MtC. Approximately 48% of this carbon is in the living biomass (above and below ground), 13% is in dead wood and forest litter, and 39% is stored in the soil.

Since 1960, CVC, the Ministry of Natural Resources, and community partners such as the Boy Scouts have planted 2,534 ha of new forests in the watershed, in addition to pine plantations established in the 1930s. Many of these plantations will move into a period of rapid growth and optimal carbon sequestration in the next 20 years. Future plans aim to add between 57 ha/year and 91 ha/year until 2030. Altogether, these plantations will sequester an average of 5,459 tC per year, equivalent to the annual emissions of 1,300 watershed residents.

A joint study by CVC and the Pembina Institute estimated the value of climate regulation represented by the carbon stored in the watershed's forests was \$104.5 million, or \$11.4 million annually. The annual removal of CO<sub>2</sub> was estimated to be 0.75 tonnes of carbon per hectare.

**CVC Forest Stocks**



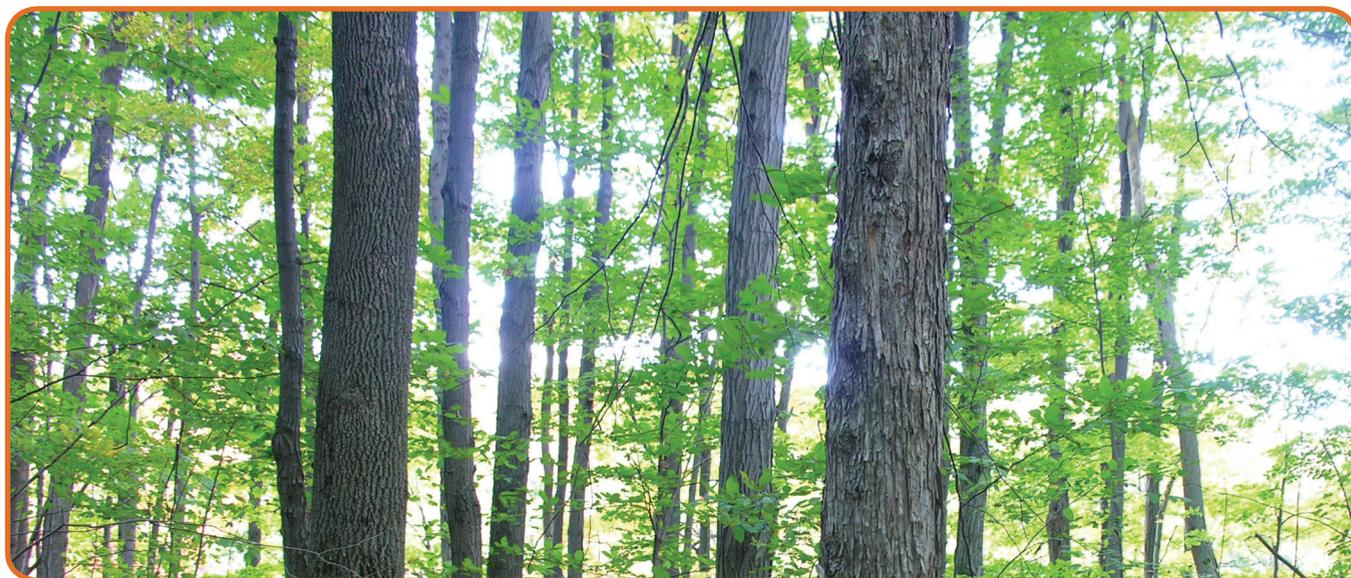
## **Development threatens this valuable natural service that our forests provide.**

In the Credit River Watershed, an estimated 25-50 ha of forest is lost to development each year. Development removes all of the live biomass<sup>2</sup> and dead wood, causing the stored carbon to be emitted. Much of the carbon in the soil is emitted as well.

At the current rate, development causes the release of 7,500 tC / year. This exceeds the rate of sequestration of 5,459 by forest plantations annually. Clearly, reducing forest loss is just as important as planting new trees.

## **How are wetlands different?**

The functions of wetlands are more complex. Wetlands store an enormous amount of carbon; it is estimated that wetlands contain 20-25% of the world's organic soil carbon, even though they only occupy about 5% of the Earth's land area. However, wetlands also emit methane, another greenhouse gas that is 25 times more potent than CO<sub>2</sub>. Wetlands also house great amounts of biological diversity, and they play important roles in regulating the flow of water, which will be of increasing importance as our climate shifts.



For more information, download the full report: [An Analysis of Present and Future Carbon Storage in the Forests of the Credit Valley Watershed.](http://www.creditvalleyca.ca/bulletin/downloads/CVC-CarbonStudyFinal.pdf)

[www.creditvalleyca.ca/bulletin/downloads/CVC-CarbonStudyFinal.pdf](http://www.creditvalleyca.ca/bulletin/downloads/CVC-CarbonStudyFinal.pdf)

---

1 CVC/Pembina Institute, Estimating the Value of Natural Capital in the Credit River Watershed, 2009.

2 Biomass is the mass of living biological organisms in a given area or ecosystem