



## Ontario's Wealth, Canada's Future: The Economic Value of the Greenbelt Plan in Toronto, Canada

**Author:** Kaitlin Almack (UFZ) and Sara Wilson (David Suzuki Foundation)

**Short title:** Economic value of Toronto's Greenbelt, Canada

**Key Message:** A focus on ecosystem services shows the importance of the Greenbelt around the city of Toronto for the well-being of its inhabitants – this study significantly enhanced awareness among local policy makers.

**Suggested citation:** TEEBcase by Almack K. and Wilson S. (2010) Economic value of Toronto's Greenbelt, Canada, available at: [TEEBweb.org](http://TEEBweb.org).

### What is the problem?

Rapid development and urban sprawl is impacting the lands surrounding the city of Toronto. In general, urban development has taken precedence in land-use planning because natural capital and its ecosystem services in the region surrounding Toronto are undervalued. The population in the area is expected to increase by approximately 4 million to 11 million people by 2031. The low-density, homogenous auto-dependent housing in suburban areas are also encouraged as the dominant development path.<sup>1</sup> This places unprecedented pressure on the countryside and watersheds with low-density growth in 'urban sprawl', making it the fastest growing region in North America.<sup>2</sup>

Although the Ontario Greenbelt is currently protected under provincial legislation, there are areas in the region that need further protection. The Greenbelt remains vulnerable from exemptions that allow damaging activities to continue, such as mining for aggregates and development of highways and other infrastructure.<sup>3</sup>

### Which ecosystem services are considered and how?

The goal of a study by the David Suzuki Foundation (2008) was to show the importance of natural capital and the ecosystem services or benefits provided by the Greenbelt. The report examined the value of natural capital within the greenbelt region three years after it had been legally designated, in order to provide legitimacy to the existing regulation, and to consolidate and enlarge the greenbelt surrounding the Greater Toronto Area.

The report quantifies the value of the ecosystem services provided by the Greenbelt's natural capital, revealing the annual value of the region's measurable non-market ecosystem services at an estimated \$2.6 billion; an average value of \$3,487 per hectare.

<sup>1</sup> Gilbert, L, Sandberg L, A, and Wekerle, G, R. (2009). Building bioregional citizenship: The case of the Oak Ridges Moraine, Ontario, Canada. *Local Environment* 14:5 387-401

<sup>2</sup> Carter-Whitney, M. 2010. Ontario's Greenbelt within an International Context. Friends of the Greenbelt Foundation, Canadian Institute of Environmental Law and Policy. URL: [http://www.greenbelt.ca/webfm\\_send/622](http://www.greenbelt.ca/webfm_send/622)

<sup>3</sup> Ontario Municipal Affairs and Housing. Greenbelt Protection and Act. URL <http://www.mah.gov.on.ca/Page187.aspx>

Highlights of the Ecosystem Service Benefits:

<b>Ecosystem Valuation Benefits</b>	<b>Annual Value (2005, CDN \$)</b>
Carbon Values	366 million
Air Protection Values	69 million
Watershed Values	409 million
Pollination Values	360 million
Biodiversity Value	98 million
Recreation Value	95 million
Agricultural Land Value	329 million

Ecosystem services were evaluated by:

1. Identifying land cover and land use using land cover data from the Southern Ontario Land Resource Information System (SOLRIS).
2. Defining ecosystem services by ecosystem type
3. Valuing ecosystem services combining several methods:
  - Replacement cost method for these services: wetland habitat (annualized cost of local restoration of wetlands)
  - Estimates of avoided costs for: forest/wetland water filtration services (avoided water treatment cost), biodiversity value, carbon sequestration services of forests, loss of seed dispersal services, sewage treatment, habitat damage, drinking water treatment, loss of forest for carbon values
  - Contingent valuation and willingness to pay for: cultural values, recreation values
  - Benefit transfer approach for: watershed services, erosion control, sediment retention, biological control, agricultural services, pollination services

### **What was the input required?**

The data used during the economic valuation was based on original analysis, peer-reviewed studies and local information.

### **What policy instrument builds upon this ecosystem service information?**

The Ontario Greenbelt has had support from the public, the provincial government, municipalities and many other stakeholders since its formation in 2005. The estimated value of ecosystem services is being used to educate policy-makers in a new campaign to expand the Greenbelt's boundaries. This perspective is important since public knowledge on the connection between human well-being and ecosystem services is limited. Many policy-makers have a poor understanding of what natural capital is and how much it is worth for sustaining the health and wellbeing of communities.

There is no incentive for policy-makers to act towards protecting natural capital or a disincentive for preventing degradation. The message and the 'common language' of ecosystem services and their importance in social and economic terms has been well received by farmers, urban developers and government representatives outside the conservation community. Yet, by itself, this has not resulted in concrete changes to urban development trends.

### **Source:**

Wilson, 2008. Ontario's Wealth, Canada's Future: Appreciating the Value of the Greenbelt's Eco-Services. David Suzuki Foundation <  
<http://www.davidsuzuki.org/publications/downloads/2008/DSF-Greenbelt-web.pdf>>

**More detailed breakdown of services and their value estimates**

**Table 10:** Total Value of Greenbelt's Ecosystem Services by Ecosystem Service

<b>ECOSYSTEM SERVICE</b>	<b>TOTAL VALUE</b>
Air quality	\$68,868,821
Climate regulation (stored carbon)	\$366,451,342
Climate regulation (annual carbon uptake)	\$10,982,151
Flood control (wetlands)	\$379,676,010
Water regulation (control of runoff – forests)	\$278,103,520
Water filtration	\$131,107,489
Erosion control and sediment retention	\$532,417
Soil formation	\$6,005,164
Nutrient cycling	\$2,141,547
Waste treatment	\$294,360,279
Pollination (agriculture)	\$298,235,257
Natural regeneration	\$98,001,705
Biological control	\$8,175,746
Habitat/Refugia	\$548,184,172
Genetic resources	n/a
Recreation and aesthetics	\$95,207,535
Cultural/Spiritual (agriculture)	\$65,674,796
Total value (\$/year)	\$2,651,707,951

**Acknowledgements:** Kaitlin Almack ([kaitlin.almack@gmail.com](mailto:kaitlin.almack@gmail.com)) for compiling the case, and Gregory M. Mikkelson ([gregory.mikkelson@mcgill.ca](mailto:gregory.mikkelson@mcgill.ca)) for reviewing the case