Natural Capital Valuation in the Credit River Watershed, Ontario

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Key Message: Drawing on value estimates for ecosystem services from other studies can give you a sound estimate of your natural capital. Yet, limiting urban sprawl and focusing on ecosystem services instead of on short term economic growth is not an attractive (or feasible) option to many local governments in Ontario.

Suggested citation: TEEBcase by M. Kennedy and J. Wilson (2010) Natural Capital Valuation in the Credit River Watershed, Ontario, available at: TEEBweb.org.

Picture 1: Development on the horizon
Courtesy: Credit Valley Conservation Authority

Picture 2: City of Mississauga and the Credit River
Courtesy: Credit Valley Conservation Authority

What is the problem?

The Credit River Watershed, located in Southern Ontario, Canada, is an important sub-component of the Great Lakes Basin and is home to more than 750,000 people. The Credit River flows from its origins into Lake Ontario in the City of Mississauga, with 1500 km of river and tributaries draining nearly 1000 km^2.

Given its proximity to Toronto, Canada's largest urban centre, land use change, particularly the conversion of rural landscapes to urban ones, is the most significant threat to the Credit River Watershed's health. The conversion of rural to urban areas means many ecosystem services provided by unconverted land are being lost to built surfaces, paved roads and sprawling suburbs. Current impervious cover has been estimated at

about 15% of the watershed and based on existing policies and urban development trends, is expected to increase to 25% by 2050.[1]

Which ecosystem services (ES) are considered and how?

To raise awareness on the impact of existing land-use trends and the value of ecosystem services at stake, Credit Valley Conservation commissioned the Pembina Institute to conduct a natural capital valuation of the region[2] that places a monetary value on the watershed's ecosystem services. With the data and resources available we were able to estimate economic values for climate regulation, gas regulation, disturbance avoidance, water supply, waste treatment, pollination, habitat, recreation and cultural.

Based on the method of transferring and adapting value estimates from other studies we calculated a rough total value: the Credit River Watershed was estimated to deliver a constant flow of ecosystem services of at least $371 million per year. This value estimate could be subdivided into wetland services ($187 million), upland forests ($71 million), riparian forests ($51 million), urban forests ($19 million) and others.

To estimate these values "a benefit transfer approach" to economic valuation was undertaken: single value estimates for ecosystem services taken from other studies where appropriate.[3] In summary, the process involved the following steps:

(1) Collection and review of 41 primary valuation studies (resulting in 129 value estimates) relevant to the urban sprawl and ecology of the Credit River watershed.

(2) Development of a local database to facilitate value transfers[4].

(3) Development of rules when value estimates from other studies could be applied. Transfer decision rules to maintain consistency and integrity of estimates transferred from original site to study site (i.e. Credit River Watershed).

(4) Applying the ecosystem service values to the Credit River Watershed based on local data.

For example, in Great Britain, some research has examined the benefit of maintaining access to parks that are similar in size and location to urban centres as some of the parks in the Credit River Watershed. Transferring these value estimates to the Credit suggested that recreational opportunities provided by the parks in the watershed are worth $36.44 per visitor per year.

What was the impact of the study? What policy instrument builds upon this ecosystem service information?

The study was designed to highlight the importance of non-market values for local watershed management. It generated considerable interest in the issue – in consequence

[1] CVC, Credit Valley Conservation Strategic Plan 2006 (Mississauga, ON: Credit Valley Conservation, 2007)
[2] The result is a report co-authored by the two organizations entitled: "*Natural Credit: Assessing the Value of Natural Capital in the Credit River Watershed* Available online: http://www.greeneconomics.ca/
[3] For more details on the approach taken in the Natural Credit report see: Mike Kennedy and Jeff Wilson. "Natural Credit: Assessing the Value of Natural Capital in the Credit River Watershed" (2009): 20-24.
[4] The existing database is available from the authors. The database is relevant to local policymakers but requires additional updates to be useful more broadly.

a monitoring program for ecosystems services is being developed. Stakeholders who have shown particular interest include the agricultural and forestry sectors, municipal governments, and local conservation professionals. Some of the study results have been used to demonstrate the importance of continued funding for conservation efforts in the watershed.

In Ontario there remain a number of challenges to moving beyond recognizing the economic value of ecosystem services: Embracing this perspective requires letting go of the traditional notion of economic growth, which most municipalities base their policy on. This is further complicated by the significant short term benefits to governments and local business from continued development. The costs, while quite real, are external to the decision making process and often seen as too distant and uncertain to take seriously. Furthermore, recognition that ecosystems provide valuable benefits to society has lead private landowners to argue for compensation. Since land in Southern Ontario is almost entirely privately owned this has serious budget implications for local government agencies.

Source:

Mike Kennedy, Jeffrey Wilson, (2009), Estimating the Value of Natural Capital in the Credit River Watershed. The Pembina Institute and Credit Valley Conservation, Ontario, Canada

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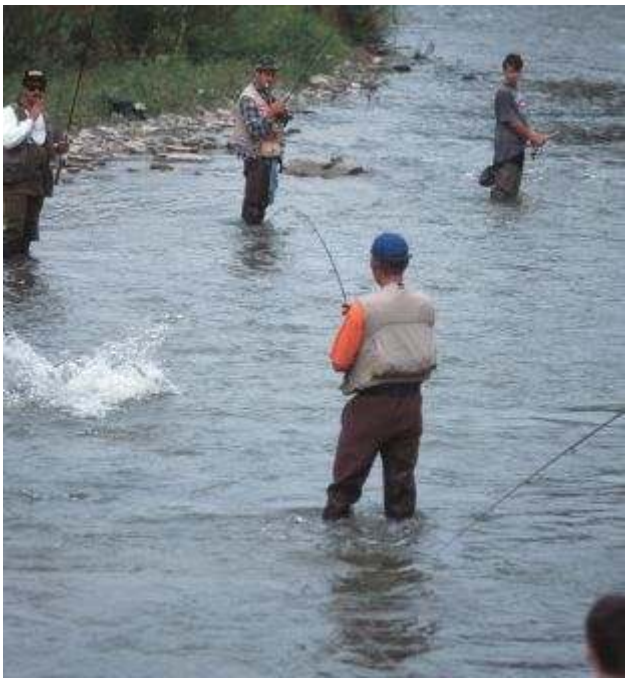
Picture 3: Residential Development in the Credit River headwaters
Courtesy: Credit Valley Conservation Authority



Picture 4: Salmon Fishing on the Credit River, a Major Recreational Resource
Courtesy: Credit Valley Conservation Authority