NATURAL CAPITAL and why it matters

Healthy ecosystems provide

Clean air and water
Fertile soil
Natural resources such as timber and food
Protection from the spread of disease
Flood protection
Climate and hydrological systems we depend on

NATURAL CAPITAL

We place no economic value on these ecosystem services...

but they are fundamental to our survival

Shouldn't we recognize that value better than we do ?

The GDP doesn't do it.

Weaknesses in the GDP

1 GDP recognizes every expenditure as an addition to growth and well being. As such smokers add, while non smokers don't. Getting into debt to keep up with the Jones is considering a gain and investing in savings is not? What is often called "growth " is not always what people would consider "good".

2 The GDP excludes the value of unpaid housework, home childcare, communities, open spaces, watersheds, rivers, oceans and the atmosphere.

3 GDP counts the depletion of natural resources as current income rather than depletion or liquidation of an asset.

4 The GDP ignores entirely the distribution of income, the social costs of inequality and poverty.

5 GDP does not calculate the investment present education and prevention costs play in avoiding future expenditure.

THERE ARE Five Types of Capital

from which we derive the goods and services we need to improve the quality of our lives

Natural Capital

Resources (renewable and non-renewable materials), sinks (that absorb, neutralize or recycle wastes) and services/processes - such as watershed management or climate regulation

Human Capital

consists of people's health, knowledge, skills and motivation

Social Capital

concerns the institutions that help us maintain and develop human capital in partnership with others; e.g. families, communities, businesses, trade unions, schools, and voluntary organizations.

Manufactured Capital

comprises of material goods or fixed assets which contribute to the production process rather than being the output itself; e.g. tools, machines and buildings.

Financial Capital

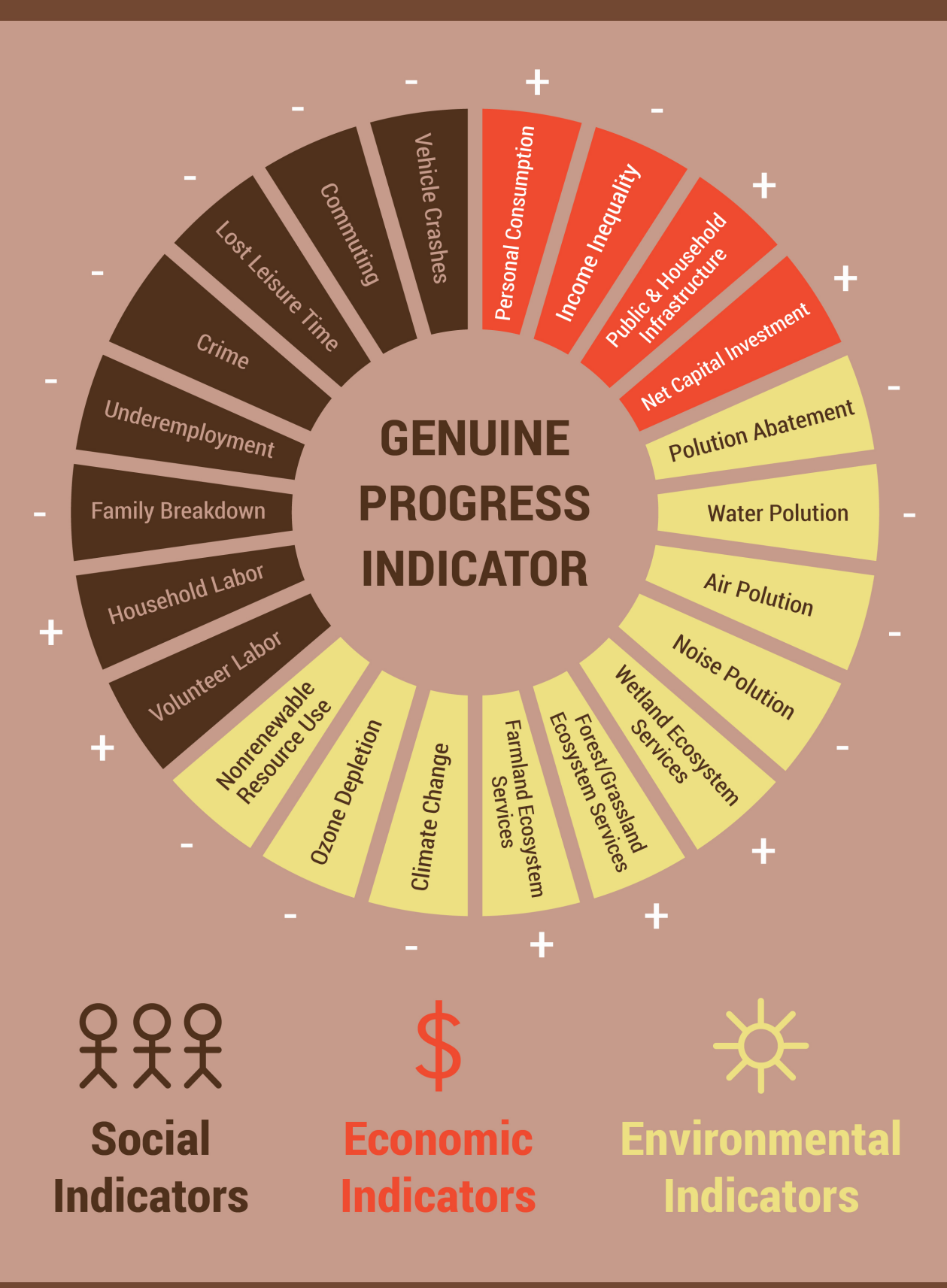
plays an important role in our economy, enabling the other types of capital to be owned and traded.

The GDP only calculates manufactured and financial capital. It does not provide recognition or place value on the remaining three forms of capital (natural, human and social).

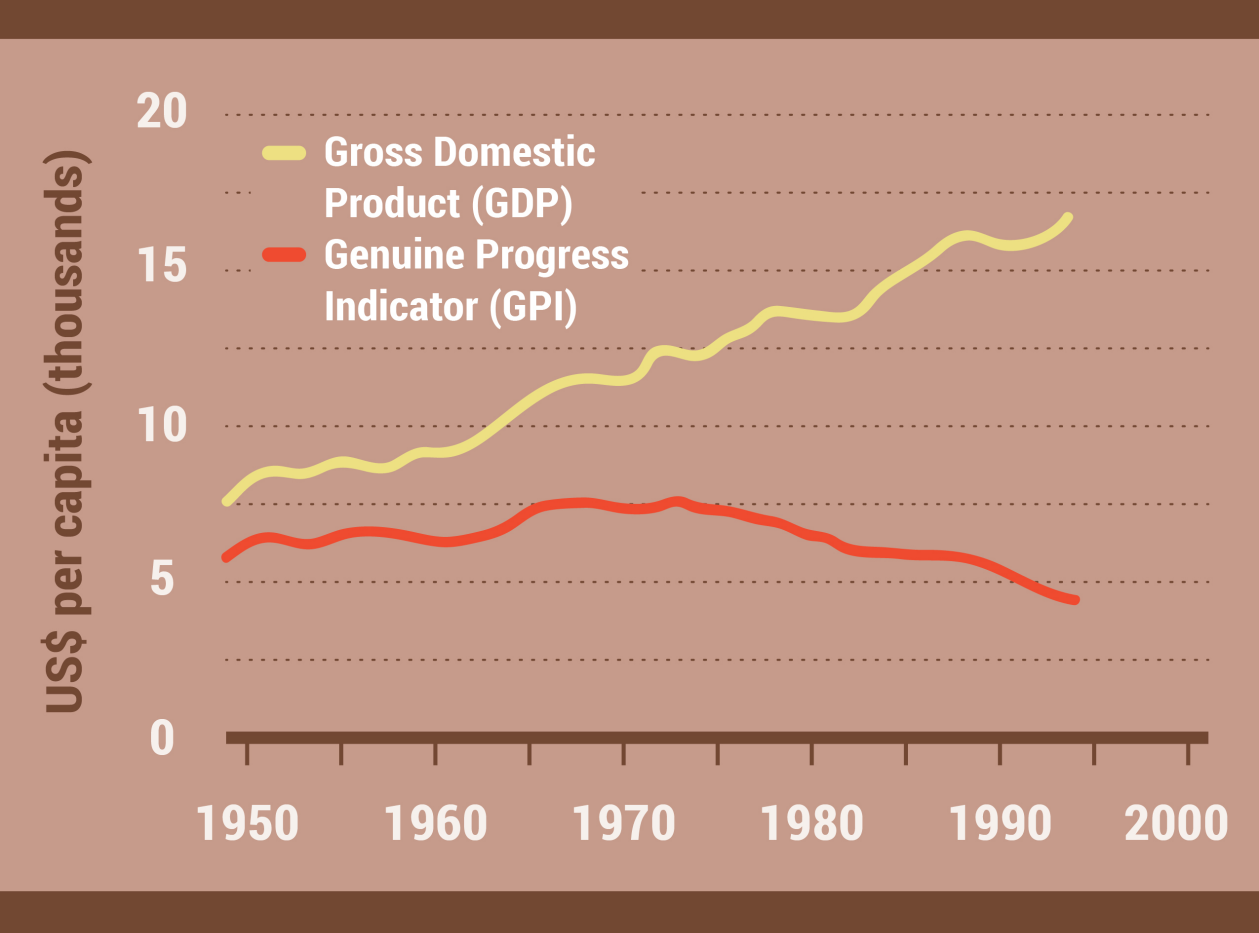
Calls to update the GDP have been coming from many countries and many sectors.

The Genuine Progress Indicator provides a viable option for an upgrade to the GDP.

It starts with the GDP and then adjusts for contributions to their increases or decreases to progress via 22 social, economic and environmental indicators.



Calculations for the GPI in a number of countries have found that while GDP has been steadily increasing, the GPI has been steadily declining since the 1970's



NATURAL CAPITAL and why it matters

Natural capital is the land, air, water, living organisms and all formations of the Earth's biosphere that provide us with ecosystem goods and services imperative for human survival and well-being.

Oh and it is also the basis for all human economic activity.

Humans have been provided with an endowment of natural capital and while the sustainable way to access that capital would be to live off the interest and ensure that capital remains for future generations, there is a general consensus that we are drawing down on our natural capital at a significant rate and undermining our generations' and future generations' long term endowment.

For example, since European settlement in Canada

our Carolina Forest has been depleated by

90%

Amazon Rainforest

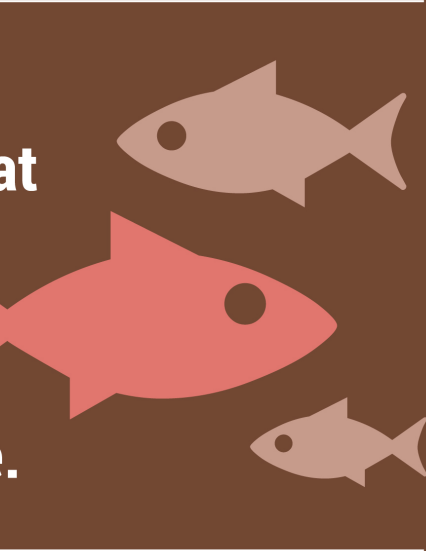
18%

The scale of this depletion is especially dramatic when compared against the Amazon rainforest, which although vastly larger, was depleted by 18% in the same time period.

Natural Capital Valuation in Practice

In the 1990's, the City of New York paid landowners in its watershed more than $1 billion to change their farm management practices to prevent animal waste and fertilizer from washing into the waterways. In doing so, the City avoided spending $6-8 billion on a new water filtration plant and $300-500 million annually to run it.

In Vietnam, an investment of $1.1 million in mangroves that protect coastal regions from flooding, saved the country $7.3 million annually in dike maintenance.



In 1996 Costa Rica began paying landowners $42 per hectare per year to preserve forest. At the time, Cost Rica had the highest deforestation rate in the world, now it is among the lowest.

Norway is paying Indonesia $1 billion to preserve rainforest for carbon storage and sequestration to limit the impacts of climate change.

The Gund Institute for Ecological Economics estimated the annual net worth of the biosphere at what they considered a conservative average amount of:

$33 trillion

a figure greater than the annual gross national products (GNP) of

all the world's economies combined.

If these costs were accounted for in standard measures of economic well-being, like GDP, policymakers and society would be less inclined to allow corporations to exploit natural resources.

A report from the Ontario Ministry of Natural Resources valued the ecosystem services of Southern Ontario's natural capital at $84 billion/year.

Open water in urban/suburban river $236,392 by hectare/year

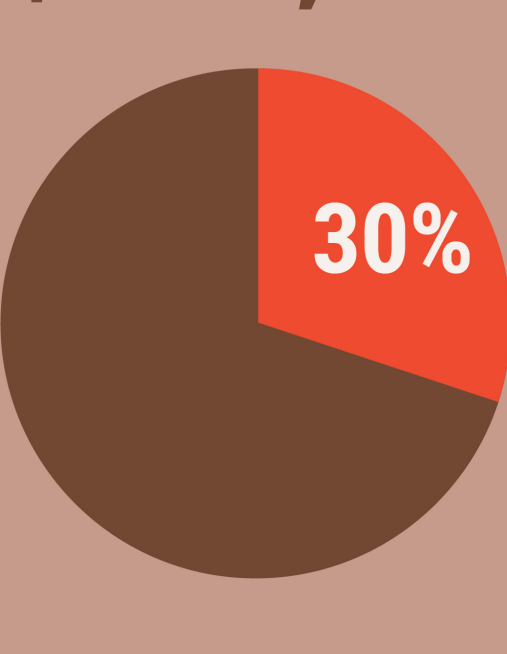
Wetlands in urban/suburban area $161,420 by hectare/year

A study for the Flamborough Burlington area was designed to develop a cost-benefit analysis of the proposed Escarpment Highway, by assessing the financial value of the natural capital and the effect on ecosystem services throughout the region.

The study resulted in an assessed value of $912 million/year. This cost benefit analysis created awareness about the significance of natural capital, ecosystem services and the importance of comprehensive accounting, while encouraging dialogue among stakeholders.

The most valuable ecosystem service in the study was storm protection and flood control. This ecosystem service is valued at

$314,000,000 / year



and represents over 30% of the total estimated value; water supply is also greatly valued at $160 million/year.

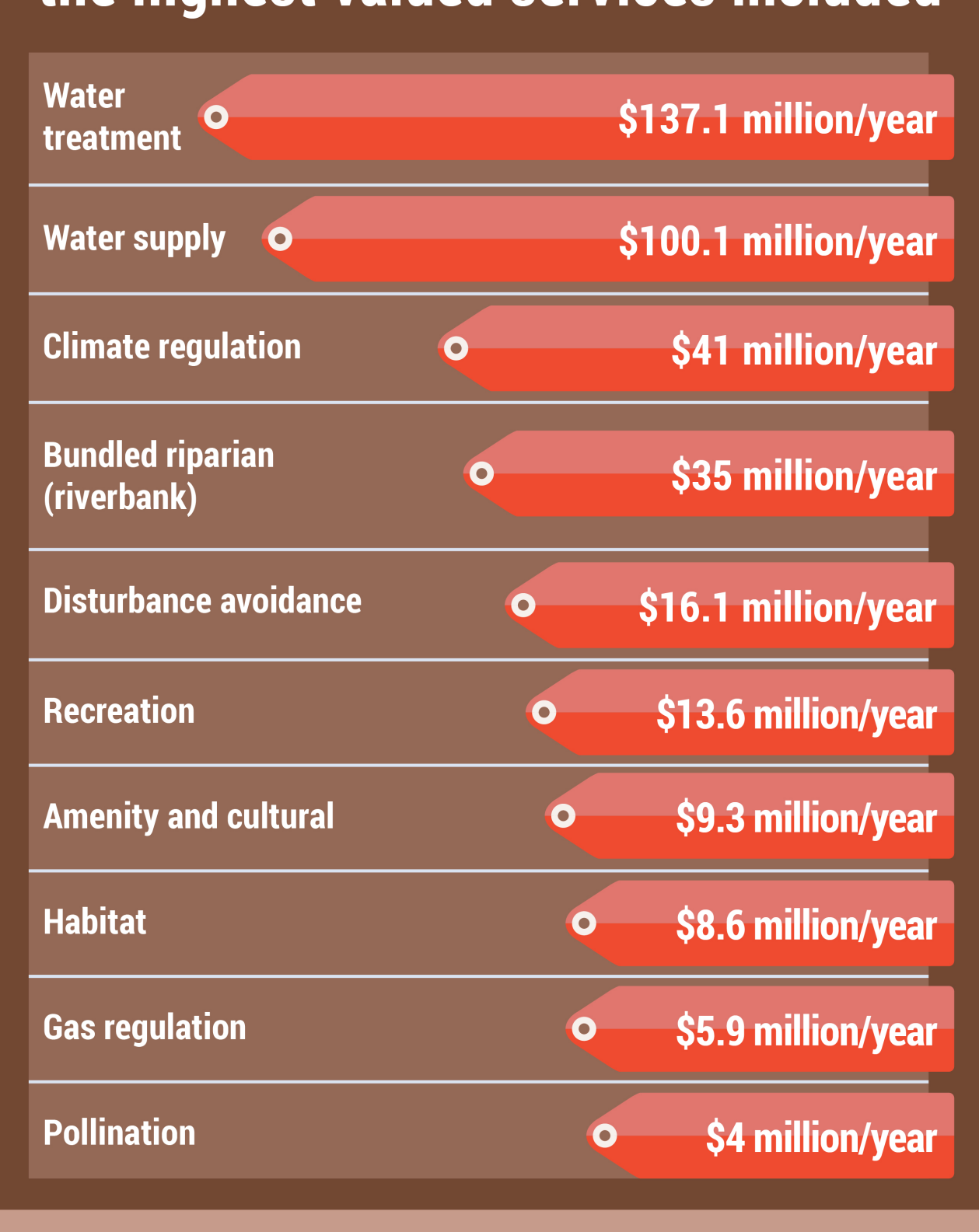
The Niagara Escarpment and the natural capital's proximity to the residents make the area suitable for quality recreation such as hiking and bird watching to name a few, setting the associated value at $150 million/year.

Wetlands (valued at $658 million/year) serve an essential role to residents by performing such services as reducing flood risks, purifying the water and assimilating waste.

The Credit Valley Watershed is located within one of the most densely populated areas in Ontario housing 750,000 residents and experiencing continuous population growth.

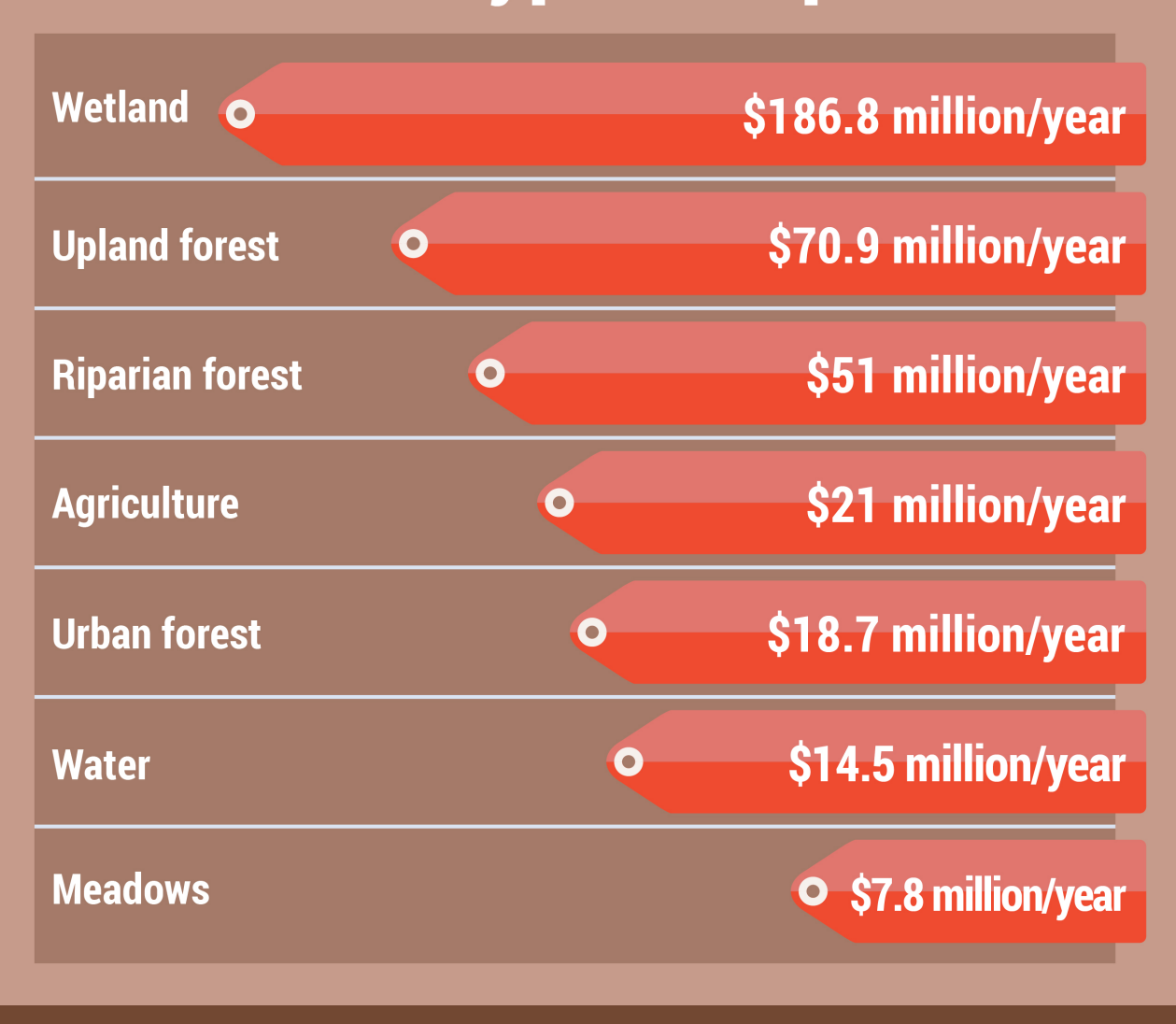
The total value of the watershed was estimated at $371 million per year or $490 / year / resident (2007 dollars)

The ecosystem services that provided the highest valued services included



Water treatment	$137.1 million/year
Water supply	$100.1 million/year
Climate regulation	$41 million/year
Bundled riparian (riverbank)	$35 million/year
Disturbance avoidance	$16.1 million/year
Recreation	$13.6 million/year
Amenity and cultural	$9.3 million/year
Habitat	$8.6 million/year
Gas regulation	$5.9 million/year
Pollination	$4 million/year

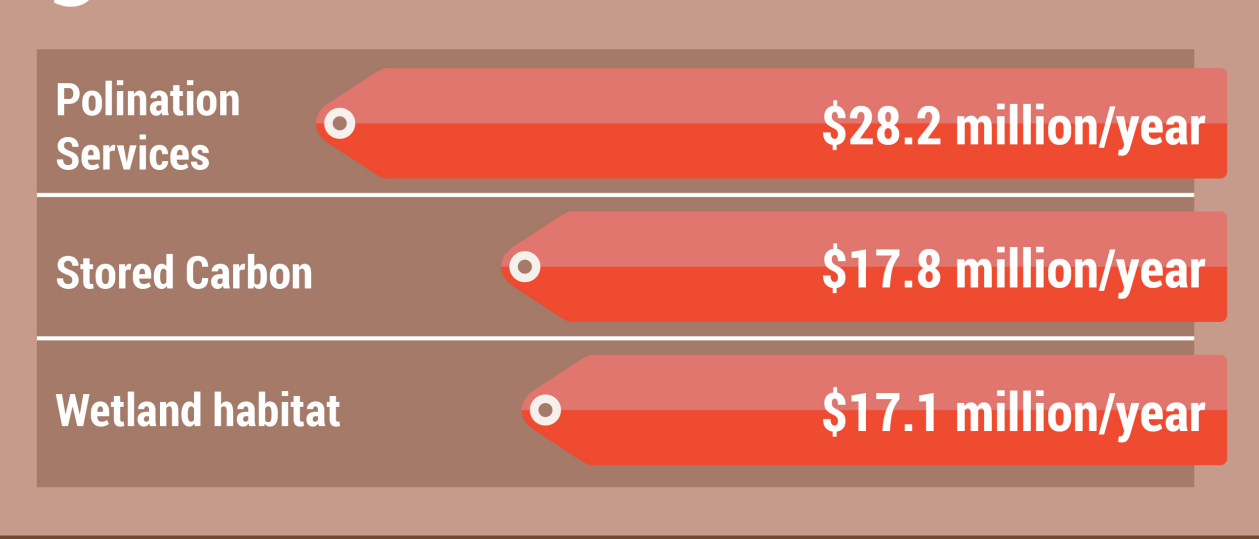
The value of natural capital by land cover type comprised of



Wetland	$186.8 million/year
Upland forest	$70.9 million/year
Riparian forest	$51 million/year
Agriculture	$21 million/year
Urban forest	$18.7 million/year
Water	$14.5 million/year
Meadows	$7.8 million/year

The Rouge River Park ecosystem consists of a diverse level of natural cover areas, agricultural and urban lands, as well as parking lots including the Toronto Zoo. This study uncovered the immense amount of non-market economic benefits the area provides to the Greater Toronto Area (GTA) residents at $115.6 million/annually.

Ecosystem services with the greatest valuation include



Polination Services	$28.2 million/year
Stored Carbon	$17.8 million/year
Wetland habitat	$17.1 million/year

The Town of Aurora mapped the Town's natural assets and estimated the value of Aurora's natural capital at approximately $7.4 million annually (this amount does not include the value of street and urban trees).

This value is attributed to protection of environmental features, reduction in greenhouse gas emissions and other ecological benefits. They are now factoring that natural value into their development decisions.

Our natural capital is limited.

We need to better understand actions and decisions that undermine nature's ability to provide us with the ecological services we need and depend on.

Since land only has recognized value when it is developed and turned over to commercial, industrial or residential uses, it is not surprising that this is often the outcome.

Sustainability considerations will only be able to be factored into cost-benefit analyses when a more holistic, longer-term view of the natural value implications is assessed.

We need to understand where and when it makes sense to make withdrawals from our natural capital and how and where it makes financial, social and environmental sense to save and build this capital.

Assessing the value of our natural capital is necessary to help us do that.

Clean Air Partnership

For more infomation visit cleanairpartnership.org and download the True Costs of Energy Report