

NATURAL VALUES:

Linking the Environment to the Economy

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NATURAL CAPITAL AND ECOLOGICAL GOODS & SERVICES

Natural Values: Linking the Environment to the Economy was developed to improve the environmental and economic understanding of natural systems. In Canada, policy, legislation and regulation efforts must accelerate to protect Canada's important resources. To view other installments in this series, visit www.ducks.ca/consERVE/wetland_values/consERVE.html



CANADA'S NATURAL RESOURCES, OUR environmental and ecosystem resources, land and water have often been referred to as **natural capital**. Canada's natural capital is as crucial to the viability of our economy and wealth as our human and manufactured capital (e.g. machinery, real estate) are. Natural capital yields **ecological goods and services** over time, such as lumber, water for human health and livelihood, air and water quality, food production (crops and fisheries) and raw materials for manufacturing. Natural capital is almost

always overlooked in the calculation of Canada's assets, even though the goods and services it provides are vital to the sustained health and survival of our population and economy.



Environmental Values

NATURAL CAPITAL PROVIDES US WITH everything, from the air that we breathe to many of the medicines that we use.



Examples of Natural Capital and Ecological Goods & Services¹

Natural Capital	Ecological Goods & Services Provided
Forests	Air quality, carbon storage and sequestration, soil formation, waste treatment, biological control, cultural, stormwater control, recreation, raw material (timber), genetic resources
Grasslands, rangelands	Water regulation, erosion control, soil formation, waste treatment, pollination, carbon storage and sequestration, biological control, food production
Wetlands	Water supply and treatment, disturbance regulation, food production, recreation, cultural, habitat/refuge
Lakes, rivers, riparian areas	Water supply and treatment, food production, recreation
Croplands	Food production, habitat/refuge, scenic
Undeveloped lands	Scenic, carbon storage and sequestration, tourism

Economic Values

AS WITH OTHER FORMS OF CAPITAL, THE VALUE OF NATURAL capital can be depreciated. Each time we lose another hectare of natural land, we are depreciating our asset base and losing the goods and services that they once provided. Destruction and degradation of natural capital occurs continually. We may only recognize the loss of important ecosystems once they are gone – a loss that is often irreversible.

Converting our natural landscapes may be economically inefficient in the long term. By destroying natural capital, we are forced to find substitutes for the services they once provided. The substitutes for natural capital can be much more expensive to duplicate and operate than those provided by nature. Also, there are many goods and services only natural capital can provide. There are no substitutes that humans can create.

The loss of natural capital and ecological goods and services can result in:

- 1 Poorer water quality and increased water treatment costs
- 2 Increased health care costs associated with decreased human health
- 3 Increased insurance costs (flooding, crop failure)
- 4 Loss of land suitable for agriculture
- 5 Decreased property values due to the loss of natural land and the associated aesthetic appeal
- 6 Irrigation water shortage
- 7 Water hauling and deeper wells
- 8 Decreased fish stocks
- 9 Tourism losses



Valuing natural capital is straightforward when the good or service has a market value (e.g. fish, timber). However, in many cases, the goods or services of interest do not have a market value. In these situations their value can be calculated using a non-market valuation technique that calculates the cost society would incur if the good or service were lost.

Average Annual Global Value of Ecosystem Services²

Biome	Total Value/Hectare (1994 US\$/ha/yr)
Marine	577
Forest	969
Grass/rangelands	232
Wetlands	14,785
Lakes/rivers	8,498
Cropland	92

Values presented are estimates based on a synthesis of previous studies, in which a number of valuation methods were used.

DUC Recommends That:

- **Canadians** educate themselves on the importance of natural capital and the ecological goods and services they provide; become active with an organization that conserves natural areas.
- **Educators** recognize and incorporate the environmental and economic values of natural capital into their science, social studies, geography and economics courses.
- **Non-governmental organizations** fund and deliver programs that conserve and restore natural areas.
- **Government** provide data on the amount and attributes of natural capital and changes to it over time, supplying decision-makers with a value upon which to base land-use decisions; offer stewardship incentives for those who conserve natural areas; develop policies and legislation to protect our natural areas.

The wealth of a nation is directly connected to the quantity and quality of its capital. The more capital a country has, the higher its productivity, competitiveness and incomes are likely to be.

– Government of Canada, 2005

Important Links

- www.ducks.ca/conservewetland_values/conservewetland.html
- www.ducks.ca/aboutduc/news/archives/2004/041115.html

What's Next? Fact Sheet 2: Freshwater

Endnotes

- 1 Olewiler, N. 2004. *The Value of Natural Capital in Settled Areas of Canada*. Published by Ducks Unlimited Canada and the Nature Conservancy of Canada. 36 pp.
- 2 Costanza, R. et al. 1997. *The value of the world's ecosystem services and natural capital*. Nature 387, 253-260.



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