Ducks Unlimited Canada
CANADA'S CONSERVATION COMPANY

NATURAL VALUES:
Linking the Environment to the Economy

6 Wetlands

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

Wetlands are one of Earth's most productive ecosystems; they are also one of the Earth's most threatened ecosystems. In Canada, we are fortunate to have about 25% of the world's remaining wetlands. However, our wetlands are disappearing at an alarming rate. Up to 70% of wetlands have been lost in settled areas of Canada. Wetlands continue to be lost because society does not understand their true environmental and economic value. Wetlands filter and recharge our freshwater, store greenhouse gases, help prevent flooding and provide habitat for numerous species. We also benefit economically from wetlands – in 2003, the value of wetlands to Canadians was estimated at $20 billion annually.[1] Wetlands are more beneficial to Canadians, both environmentally and economically, if they are left intact rather than drained or destroyed.

Up to 70% of wetlands have been lost in settled areas of Canada.

Environmental Values

- Wetlands are **natural filters that improve water quality**. They help neutralize a number of different contaminants. Wetlands remove nutrients like phosphorus and nitrogen from water that flows into lakes, streams, rivers and groundwater.
- **Wetlands recharge our groundwater.** If wetlands are destroyed (drained, converted to another land use), groundwater levels will be reduced. Wetlands overlying porous soil may release up to 153,186 litres/hectare/day into groundwater.
- Wetlands **help control floods** by storing large amounts of water. Conversely, when wetlands are destroyed, the probability of a rainfall event causing flooding and floodwater damage increases significantly.
- Wetlands have the potential to **remove and store greenhouse gases** from the Earth's atmosphere.
- Wetlands **provide habitat for over 600 species of wildlife** – including more than one-third of Canada's species at risk.

Natural wetlands remove or retain contaminants from the environment [2]

		% Retention
Nitrogen	- Nitrate	up to 87
	- Ammonium	up to 95
Phosphorus		up to 94
Sediment		up to 98
Coliforms (Constructed Wetlands)		up to 99
Pesticides		<1 day - several months*

*Time for residues to decrease by 50%

Economic Values

When wetlands are drained or degraded, there is a financial cost incurred by society to replace the ecological goods and services these wetlands provided, such as:

1. Increased water treatment costs
2. Increased illness and health care costs
3. Irrigation water shortage
4. Water hauling and deeper wells required
5. Increased insurance costs due to flooding
6. Decreased property value due to degraded aesthetic qualities
7. Decreased swimming/fishing opportunities
8. Decreased revenues from tourism activities associated with healthy ecosystems

Wetlands are a significant type of natural capital, rich in productivity and diversity…Wetlands also provide many essential ecosystem services…As well, they indirectly support a range of economic activities such as fishing, farming and recreational activities.

– National Round Table on the Environment and the Economy, 2003[3]

The Value of Wetlands in Canada

In 2003, the value of wetlands to Canadians was estimated at $20 billion annually.[1]

The value of the carbon storage services provided by the wetlands in Canada's boreal forest wetlands has been estimated at $349 billion while other ecological goods and services such as biodiversity, flood control and water filtering have been valued at another $80.4 billion.[4]

A number of studies have put the annual value of all the goods and services generated by one hectare of wetlands (fish, shellfish, waterfowl, mammal and reptile habitat; water supply; erosion, wind, wave barrier; storm and flood control; and recreational opportunities) at between $5,792 and $24,330. If the approximately 40,000 hectares of Lower Fraser Valley wetlands were valued at the lowest estimate, its annual value would be $231.7 million.[5]

In 2004, migratory bird hunting contributed $91.7 million to the Canadian economy.[6]

Coastal wetlands provide life support for oysters valued at between $54- $6,337/acre/year.[5]

DUC Recommends That:

- ***Canadians*** educate themselves on the ecological goods and services provided by wetlands. Become active with a watershed group or conservation organization that supports wetland conservation.
- ***Educators*** incorporate the value of wetlands into science, social studies, geography and economics courses.
- ***Non-governmental organizations*** fund and deliver programs that conserve and restore wetlands.
- ***Governments*** develop and implement "no loss of wetlands" policy and legislation. Governments should also fund research to determine the environmental and economic value of wetlands for water, soil, air and biodiversity.

What's Next? Fact Sheet 7: Grasslands

Important Links

- www.ducks.ca/conserve/wetland_values/conserve.html
- www.ducks.ca/aboutduc/news/archives/2004/041115.html
- www.wetkit.net/modules/1/
- www.epa.gov/owow/
- www.green-streets.ca/

Endnotes

1 Campbell, L. and C. D. A. Rubec. 2003. *Wetland Stewardship: New Directions.* Final report of the conference on Canadian Wetlands Stewardship. Report No. 03-3. 16 pp.

2 Gabor, T. S., A. K. North, L. C. M. Ross, H. R. Murkin, J. S. Anderson and M. Raven. 2004. *Natural Values – The Importance of Wetland and Upland Conservation Practice in Watershed Management: Function and Values for Water Quality and Quantity.* Ducks Unlimited Canada unpublished report. 55 pp.

3 NRTEE. 2003. *The State Of The Debate On The Environment And The Economy: Environment and Sustainable Development Indicators for Canada*. NRTEE, Ottawa, Ontario.

4 Anielski, M. and S. Wilson. 2005. *Counting Canada's Natural Capital: Assessing the Real Value of Canada's Boreal Ecosystems.* Published by the Canadian Boreal Initiative and The Pembina Institute. 78 pp.

5 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.

6 Government of Canada. 2005. *Regulations Amending the Migratory Birds Regulations*. Canada Gazette Vol. 139, No. 52.

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