

# GASPED

GASP Education Committee  
Update & Resources

The Value of Nature

## Inside this issue

The value of trees  
p. 2 and 3

Wetlands - the  
Swiss army knife of  
ecosystems p. 4

Ontario's  
Greenbelt p. 5

Nature-based  
Solutions p. 6

Regenerative  
Agriculture &  
Agroecology p. 7

Ecological  
Imperialism p. 8



### Message from Lorraine & Carole

GASP has been fighting to preserve nature in Ontario. We see the assaults on nature with proposed highways and MZO's - what is being taken away from the people of Ontario? What is our natural heritage worth? This issue of GASP ED tackles these questions. What is the monetary value of nature? Developers see nature as land to exploit for profit. Environmentalists see the incredible service that nature provides for us and appreciate that what we do to nature, we do to ourselves.

**"The natural world supports the planet's economic activity and accounts for roughly US\$130 trillion.**

**Nature is "the most under-evaluated public good."**

*Christine Lagarde, European Central Bank President at the One Planet Summit on biodiversity hosted by French President Emmanuel Macron.*



**The problem with capitalism is that a tree is only valuable when it's cut**  
**Only if the world's "natural capital" is maintained will the earth avoid tipping-points and irreversible damage. [Read more here](#)**

## Diana Beresford Kroeger - "Trees are the Planet's Lifeline"

Trees are the most important living organisms on earth, chemically affecting our environment more than anything else, and playing a vital role that sustains all life. Trees are literally the lifeline of the planet and the key to reversing climate change.

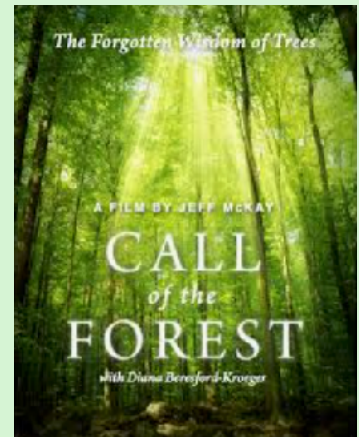
The ***Call of the Forest*** film is a call for massive, global reforestation to reverse climate change. If we could look back in time we would see forests blanketing the continents. But as human society has developed we have lost upwards of ninety five percent of the world's forests and we continue to lose more than one hundred and forty square kilometres of forest per day. **Only 5% of the world's old growth native**

**forests currently remain today.**

***Call of the Forest*** sounds the alarm by calling for immediate action on a global scale, but at its heart, it is a story of triumph, proposing a simple strategy for each of us to combat climate change by planting native trees in our own yards and neighbourhoods.

Encourage your friends and neighbours to **plant native** trees.

- Protect the trees in your neighbourhood.
- Protect the native forests in your community by getting involved and writing letters to your government representatives.



Diana Beresford Kroeger, botanist and medical researcher, suggests sitting under a willow tree for 15 minutes for a good dose of salicylic acid and 22 types of airborne molecules including lactones that have a resting, analgesic and anti-inflammatory effect on the body,

You can stream this beautiful documentary on TVO's website - <https://www.tvo.org/video/documentaries/call-of-the-forest-the-forgotten-wisdom-of-trees>

### Why Trees are Important in an Urban Setting: Seven Reasons - Source

#1- **Improved air quality:** Halifax Regional Municipality's urban forest removes almost 1,500 tonnes of air-borne pollutants yearly. Leaf surfaces are able to trap and absorb noxious gases and particulates. This can go a long way towards reducing smog.

#2 - **Energy moderation:** When properly planted and selected, trees can provide energy savings year-round. In the summer, trees provide shade and shelter from the

heat. In the winter, when the leaves have fallen, the tree allows sunlight to pass through, while providing added protection from the cool winter winds.

#3 - **Temperature management:** Trees in urban settings buffer extremes in temperature. Shade provided by the trees prevents the infrastructure from absorbing heat, and trees transpire large quantities of water on a daily basis, which cools the ambient air. Cont'd on page 3

## It pays to have trees

*Money doesn't grow on trees but it pays to have them around*

The excellent video **“Tree of all Trades”** sponsored by the Halifax Regional Municipality (HRM) highlights the benefits that trees contribute to a healthy urban environment. In fact, the HRM estimates **that for every dollar spent on trees, the HRM receives an \$8 dollar return on investment.** Trees work hard for urban dwellers - here are three key jobs they perform for us:

- **Air purifier:** Trees trap airborne pollution with their leaves and take in CO<sub>2</sub> through photosynthesis. If you like to breathe, thank a tree!
- **Air Conditioner:** On a hot day, trees release H<sub>2</sub>O (water) into the atmosphere, thereby cooling it. In

urban areas which create and reflect heat, trees can be life-savers by offering relief on a sweltering day.



- **Stormwater Manager:** Trees help to prevent flooding and erosion because the root system around trees absorbs water during a deluge and helps to stabilize the soil around the tree.

And the video gave a monetary value provided by the 52 million trees in the Halifax Regional Municipality:

**Air Purification: \$ 9.6 million**  
**Air Cooling: \$ 12.4 million**  
**Stormwater Management: \$ 2.1 million**

The video also emphasized that the **benefits provided by trees increase exponentially with size.** As a tree grows, the benefits grow faster so it's **important to nurture mature trees.** Secondly trees that are closer to people offer greater benefits. A perfect location for a tree is between a sidewalk and a road. The tree will reduce air and noise pollution from traffic.

## Cont'd from pg 2 - Why Trees are Important in an Urban Setting: Seven Reasons



**#4 - Property values and aesthetics:** Not only do trees make the city a nicer place, they also increase property values. In some cases, it is estimated that property values may increase by up to 25% in a well-treed neighbourhood.

**#5 - Noise pollution:** Trees can buffer city noise, reducing

overall noise pollution. Planting a row of trees between residential properties and a highway is an effective way of reducing noise.

**#6 - Storm-water reduction:** Urban forest canopy directs rainwater from streets, into the ground. This enables water filtration through the soil, resulting in cleaner water and less water damage to city infrastructure.

**#7- Wildlife habitat:** Many different organisms that rely on our urban forest for life. Everything from microorganisms to birds and deer rely on trees for shelter and food.

**Physical and psychological well-being:** Trees enhance well-being. Treesd neighbourhoods have reduced crime.



**Wetlands are the Swiss army knife of ecosystems. They store carbon, hold flood water, recharge creeks during drought, stop storm surges and provide fire breaks.**

**We can't afford to lose them.** *Joy Baird*

Wetlands provide values that no other ecosystem can. They are rich in nutrients and teem with more life than most of us suspect. A wetland is defined as an area of land that is covered with water for part of the day or year.

Not all wetlands are the same. They include : ponds, marshes, swamps, and peat bogs, each with it's own characteristics. They act like giant sponges, soaking up rain and snow melt, releasing water in drier seasons. This can reduce flooding and ease the worst effects of drought.

Ponds are well defined basins containing stagnant water, fringed with several types of vegetation. Marshes are periodically inundated by standing or slow moving water. A swamp is a wooded marsh where still or gently flowing water covers



much of the surface. Peat bogs have many layers of moss and drain poorly.

### **Benefits of Wetlands**

It's easy to think of wetlands as wastelands with little or no value, but their benefits are diverse and numerous. They include:

- filtering the waters of lakes, rivers and streams,
- reducing pollution and improving water quality,
- Providing homes for fish, birds

and other animals and protecting them from extinction,

- soil stabilization as vegetated wetlands along the shores can protect from erosion caused by waves during storms, and
- flood mitigation by absorbing water.
- wetlands are powerful carbon sinks

Unfortunately southern Ontario has **lost 72% of its wetlands**. Many of the remaining ones are under serious threat from developers and new Ford government initiatives to make them easier to destroy.

Currently, GASP's are working hard to fight these changes and will be arguing that protection and enhancement are the best way to manage our wetlands.

Intact wetlands help to maintain water flow patterns and reduce some of the impacts of extreme weather events.

**Even a wetland as small as 2 hectares can retain water runoff from an area 70 times its size, buffering against flooding.**

Source: <http://docs.assets.eco.on.ca/reports/environmental-protection/2018/Back-to-Basics-Volume4.pdf>





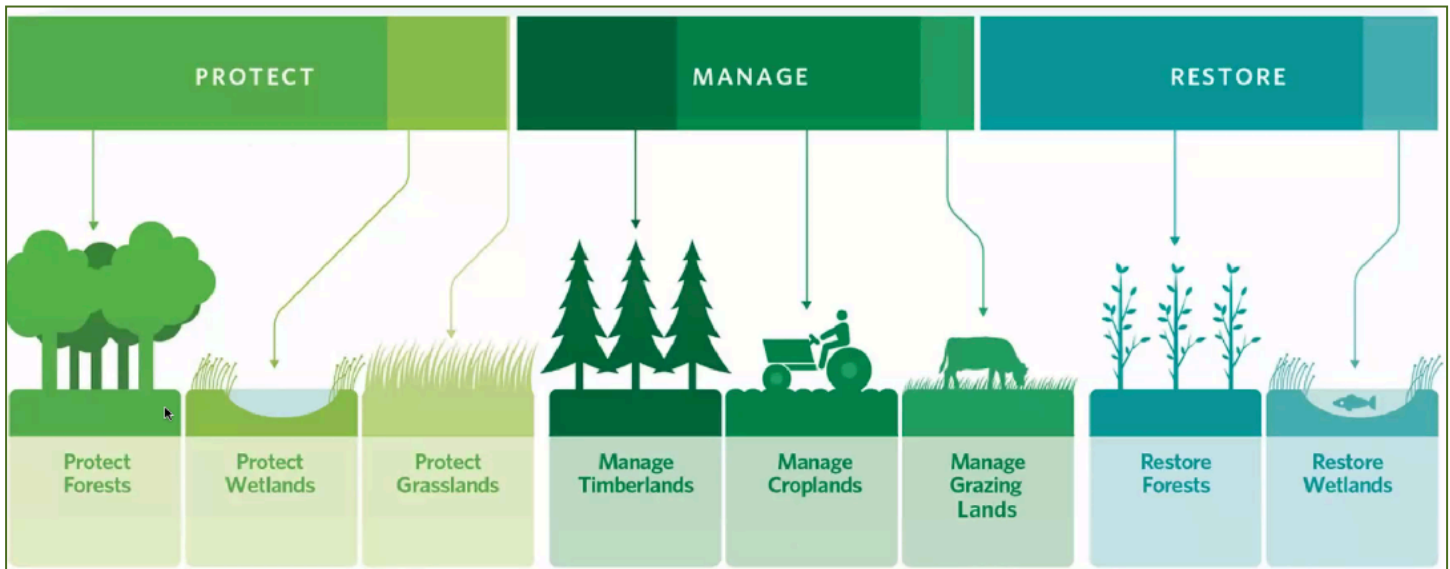
### Ontario's Greenbelt

The Greenbelt — the world's largest permanently protected green space — is a 7,200-square-kilometre area that borders the Greater Golden Horseshoe region around Lake Ontario. It was created by the previous Liberal government in 2005 to protect agricultural and environmentally sensitive lands. Premier Doug Ford generated controversy during the 2018 election campaign when he initially pledged to open parts of the area to build housing — a promise he backtracked on after facing intense criticism. After the 2020 budget was announced, Ontario Greenbelt Council chair and former Toronto mayor David Crombie resigned over measures in the omnibus bill that Crombie said would gut environmental protections in the province. He contended Schedule 6 of the bill would strip power from local conservation authorities and expand ministerial authority on zoning and other potentially sensitive environmental issues. The bill was passed despite opposition. The Ontario Greenbelt Alliance (OGA) says: “Ontario Greenbelt has 2 million acres of protected farmland and green spaces which gives us clean water, healthy local food and **\$2.6 billion per year in ecological services.**”

The Ford government is planning Highway 413, which would pave over farm, forests, wetlands and a portion of the Greenbelt and cost taxpayers billions. GASP is urging the Ontario government to cancel the project and the costly urban sprawl that will result. We can't afford to lose the Greenbelt benefits during a Climate Emergency!



## Canada Sees Natural Climate Solutions (NCS) as Critical to Exceeding 2030 Climate Targets and Tackling Climate Change



Source: Nature United - <https://www.natureunited.ca/what-we-do/our-priorities/innovating-for-climate-change/>

In the November 2020 Fall Economic Update, the Canadian Government announced its 10-year fiscal commitments to Natural Climate Solutions:

- \$3.16 billion to meet the government's goal of planting 2 billion trees
- Up to \$631 million to conserve and restore grasslands, wetlands, and peatlands
- \$98.4 million to establish a new Natural Climate Solutions for Agriculture Fund

The Pembina Institute praised this action to: "help communities plant trees, restore degraded natural ecosystems that store carbon, and leverage farmers' potential to significantly contribute to climate mitigation. <https://www.pembina.org/media-release/fall-economic-statement-2020>

The Narwhal gave a webinar on NCS in February. The GASP Education team learned that nature has an amazing capacity for renewal and for pulling carbon out of the atmosphere. As Canada's population grows, our wetlands, woodlands and grasslands are shrinking under land-use and climate-change pressures.

We need to counteract this trend by improving wetlands, building grasslands and protecting species.

ALUS (Alternative Land Use Services) Canada helps farmers and ranchers produce ecosystem services on their land. These include cleaner air, cleaner water, flood mitigation, carbon sequestration, species at risk habitat and support for native bees and pollinators. ALUS helps farmers convert marginal farmland on their property into grasslands or wetlands - "rewilding" the land.

75% of prairie grasslands have disappeared to development. Only 1% of grasslands are protected. Roots of prairie grasses go 2-3 meters underground and store a lot of carbon. Grasslands also promote biodiversity. Farmers are urged to restore grasslands.

**Carbon is a simple way to understand the Climate Crisis. The whole ecosystem stores carbon. We need to restore the ecosystem to bring nature to its full potential so it can protect us.**

**"If we take care of nature, nature will take care of us."**

## Regenerative agriculture brings soil back to life

Many GASP members have enjoyed watching “***The Biggest Little Farm***” on Netflix during the Pandemic.

You will remember the lessons that the Chesters learned. When they bought the farm, they discovered the soil was dead - dried out and compact. They brought it back to life in several ways:

### #1 Plants build soil

They seeded cover crops and installed a “state of the art” compost system and added animal manure.

### #2 Diversity - Increase the number of crops

The Chesters planted 200+ crops across pastures, orchards and their vegetable garden but this is extreme.

Research has shown that increasing the number of crops from 2 to 4 can help. Planting prairie grasses along the edge of the farm can help retain moisture.

### The Problem with Industrial Agriculture (*Source*)

Industrial farms create the highest soil carbon losses. Industrial agriculture is a major contributor to climate change, emitting **17-32 per cent of greenhouse gas emissions**, in the form of carbon dioxide, methane and nitrous oxide. There are in turn many effects of climate change on agriculture, including the loss of biodiversity and lowered yields. In 2012, the US Midwest experienced its worst drought in 30 years and farmers lost 30 per cent of their corn and soybean harvest. Industrial monoculture systems are not resilient, but are vulnerable to climate change.

Globally, agriculture uses 12 per cent of the land base **but 70 per cent of all water withdrawn**. We do not have enough water to maintain our current consumption levels. The beef industry uses 15,000 litres of water per kg while cereals use 1,500 l/kg and fruits, 1,000 l/kg.

The bottom line is that industrial agriculture is simply not feeding the world. To produce only 30 per cent of the food we eat, it uses 70-80 per cent of arable land, 70 per cent of the water, and 80 per cent of the fossil fuels used in agriculture.

Industrial agriculture actually produces more biofuel and fodder than food.

### To Save the World

- Stop the destruction of ecosystems and biodiversity loss
- Ban ploughing/tillage & planting monocultures
- Stop the use of fertilizers and pesticides which kill the soil

### Agroecology - Nature's gentle way of farming

Agroecology is the application of the science of ecology to agricultural systems.

Agroecology does not require a lot of inputs (pesticides and fertilizer). It uses nature's resources such as cover crops to feed the soil.

### It also involves no-tillage

The negative effects of tillage can include soil compaction; loss of organic matter; degradation of soil aggregates; death or disruption of soil microbes and other organisms including mycorrhizae, and earthworms; and soil erosion where topsoil is washed or blown away.

MAN - DESPITE HIS ARTISTIC PRETENSIONS,  
HIS SOPHISTICATION, AND HIS MANY  
ACCOMPLISHMENTS - OWES HIS EXISTENCE  
TO A SIX-INCH LAYER OF TOPSOIL  
AND THE FACT THAT IT

*rains.*

— Paul Harvey

## Ecological Imperialism - By the numbers

*Donna Hall-Clark*

Humans have appropriated or altered 70% of the world's lands with mines, roads, industrial farms, cities and airports.

We have engineered more than 75% of the world's longest rivers.

We have filled the oceans with plastics and slaughtered coral reefs, destroyed 85% of wetlands, and eliminated 40 % of the world's original forests.

We have extirpated most of the world's large mammals

One million species of animals & plants are on the brink of extinction.

### ***Life On Our Planet* - Netflix documentary is a poignant wake-up call**

*30% of planet's wilderness has disappeared over past 83 years but the film gives us hope*

**This is now our planet, run by humankind for humankind.**

**There is little left for the rest of the living world.**

” David Attenborough, *A Life On Our Planet*

Sir David Attenborough was born in 1926. He has been a nature-lover all his life. In 1937, when David was 11, he began to explore the world around him. He describes the planet at this time as a garden of Eden. Just in his lifetime:

- the world population has tripled
- CO<sub>2</sub> in the atmosphere has increased by 67%
- the planet has lost over half of our wilderness. Deforestation is continuing at a rapid rate caused by our need for palm oil and other products. Half of the world's rainforests have been cleared. We can't do this forever - it's unsustainable. No ecosystem is secure. What will the planet be like for the next generation?

	World Population	CO2 in parts/million	% of planet's wilderness left
1937	2.3 Billion	280	66%
2020	7.8 Billion	415	35%

Our impact on the planet is global. We have overfished 30% of fish stocks to critical levels. We have reduced fresh water populations of animals by over 80%. Half of fertile land on earth is farmland. Humans are 1/3 of mammals on the planet. There is little left for the wild world. But ***there are plenty of solutions.***

We need to move towards regenerative and sustainable agriculture that improves crop yields while reducing emissions as well as water and pesticide use. We must stop deforestation and reverse this trend, to reforest natural habitats and restore our natural carbon sinks in the process. We can use natural forces (e.g., solar, wind, geothermal, tidal) to power our society and divest from fossil fuels. We have to implement “no-fish” (or “no-take”) zones to restore marine life, which would still leave plenty of fish for consumption. We can slow human population growth by working to eradicate poverty and improve access to education and healthcare.