Lessons in a Backpack

United Nations Educational, Scientific and Cultural Organization

LONG POINT BIOSPHERE REGION

Green Deserts

Be the change you want to see.

Description of Lesson

Norfolk County is a prime example of an area that attracted early European settlers. This treaty land called Between the Lakes treaty #3 of the Mississauga's of First Credit First Nations is nestled in the Carolinian life zone. This land was stewarded by First Nations for time immemorial suffered the effects of the European colonization. Today, active restoration is underway through collective efforts between local NGOs and First Nations. Let's explore ways of re-establishing balance and biodiversity.

For more information regarding treaty #3 reference: https://moccasinidentifier.com/education-kit/

At a Glance

Grade Level: 9

Learning Environment: Classroom and outdoors

Prep Time: 15 minutes

Length of Lesson: 4 Hours +

Key Vocabulary: Biodiversity, species at risk, ecosystem services, volunteerism

Staffing: 1 educator

Materials: Tablet, gardening tools

Grouping: Whole class

Connect with the Long Point Biosphere

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LONG POINT BIOSPHERE REGION

Lesson Outline

TIME	ACTIVITY	LOCATION	MATERIALS
30 minutes	Your Neck of the Woods	Classroom	Laptop, tablet
30 minutes	Letter of Interest – Volunteer Credit	Classroom	
3 hours	Be The Change	Classroom/ schoolyard	Garden tools/native plants
4 hours	Ecosystem Service		
	Co-op credit / extension exercise		

Curriculum Expectations Grade 9

Science

Grade 9 Academic (SNC1D)

A. Scientific investigation skills and career exploration

A2 Career exploration

A2.1 Identify and describe a variety of careers related to the fields of science under study (e.g., astrophysicist, geophysicist, conservation officer, park warden, fire protection engineer, hydrologist, electrician) and the education and training necessary for these careers

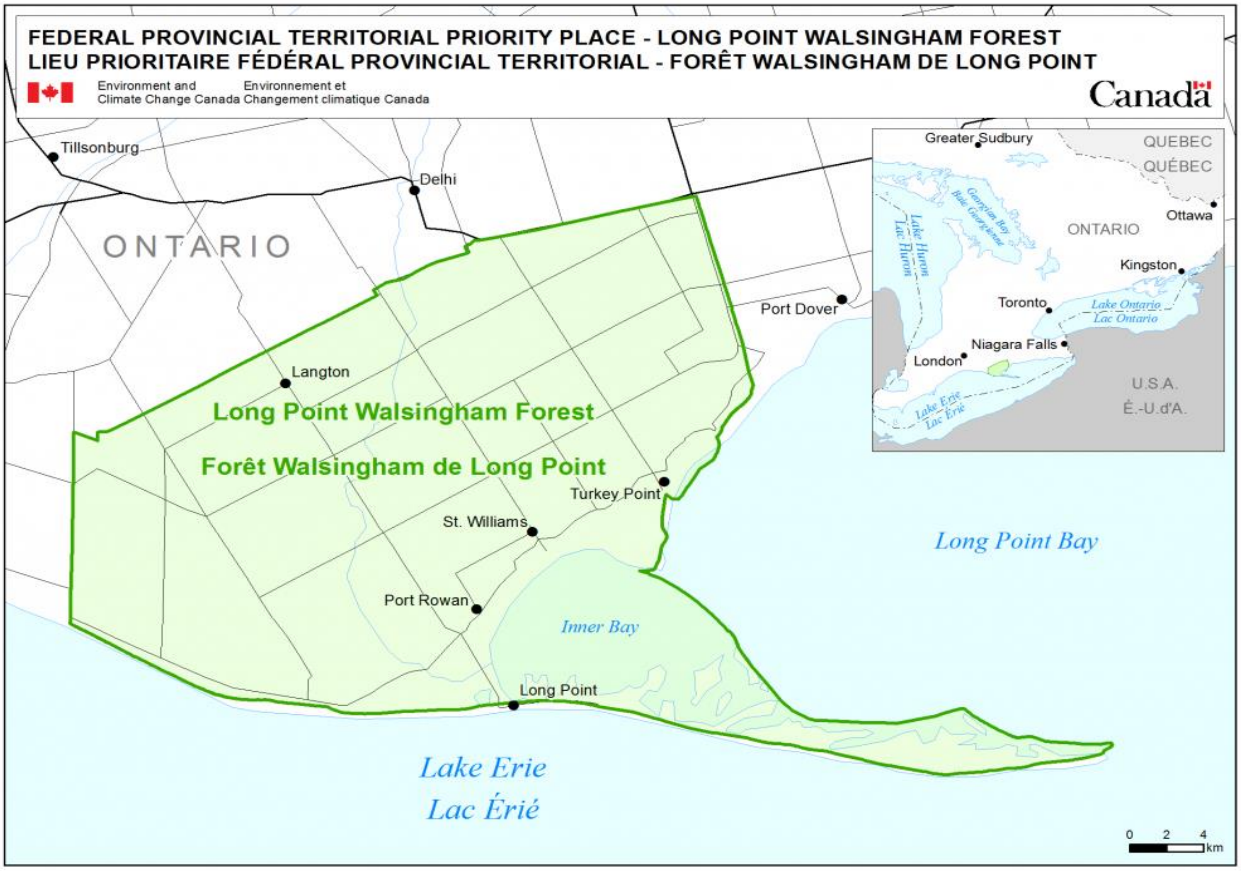
A2.2 Identify scientists, including Canadians (e.g., David Suzuki, Howard Alper, Roberta Bondar, Kenneth Hill), who have contributed to the fields of science under study

Background

In 2018, the Government of Canada invested a historic $1.35 billion across Canada to support Canada in reaching its biodiversity goals. These goals are to protect a quarter of its lands and a quarter of its oceans by 2025, to create healthier habitats for species at risk, and to improve Canada's natural environment.

A portion of this funding supports conservation efforts in 11 priority places identified across Canada. Priority places are areas with significant biodiversity, concentrations of species at risk, and opportunities to advance conservation efforts. Norfolk County's Walsingham Forest happens to be identified as a priority place.

The federal and provincial/territorial governments have collaborated with partners to develop and implement a conservation action plan coordinating actions to address the greatest threats to species at risk. Such actions include habitat stewardship, habitat restoration, and education and outreach.

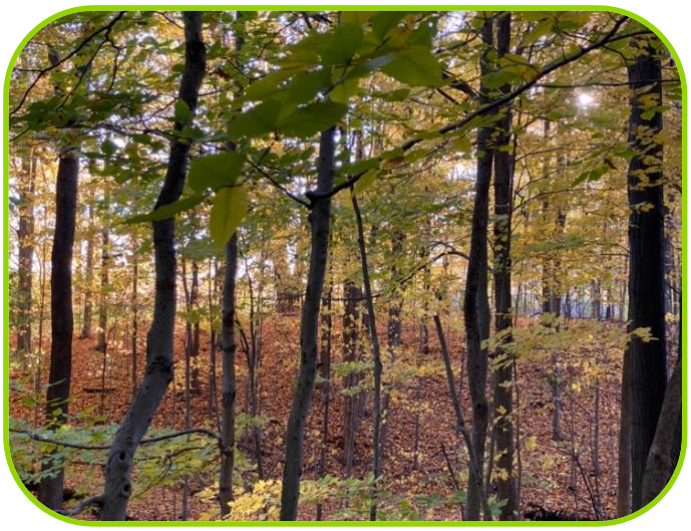


Background Continued

Walsingham Forest is home to many species of plants, birds, mammals, reptiles, amphibians, and insects which are components of its vast biodiversity. Everything in place lives in symbiosis.

What is biodiversity?

Biodiversity is all the different kinds of life you'll find in one area. It is the variety of animals, plants, fungi, and even microorganisms like bacteria in our natural world. Different species and organisms work together in our ecosystem, like a web, to enhance, balance and support life. Biodiversity supports everything in nature that we need to survive - food, clean water, medicine and shelter.



Bio = life Diversity = variety Biodiversity = the variety of life on Earth.

What is symbiosis?

Symbiosis is the phenomenon by which two or more organisms maintain a relationship with each other to be mutually beneficial for each to thrive.

Only with biodiversity do we achieve healthy symbiosis.

A little glimpse into the past! In the late 1700's many families settled in southern Ontario because they wanted to have a peaceful existence farming. Many acres of forested area were harvested to clear the land for planting crops and farming the land. Since most of the Norfolk County area sits on sand plains, the land was very prone to erosion. Once the land was cleared, the wind and water shifted and transformed the land into a desert where nothing could grow. This was devastating for many families as they had invested all their time and resources trying to cultivate crops in a place that ended up becoming a dust bowl.

Background Continued

Recognizing the emergency! For many people the land that they had cleared and built their farms on had become uninhabitable. The same happened to all the species of plants, birds, mammals, reptiles, amphibians, and insects of the area. They had never been considered when the settlers cleared the area and destroyed their habitat. The extreme loss of species due to the clearing of the land and habitat loss is still felt until this day. There was so much learned from the mistakes that were made. Today, there are many non-profit organizations that play a role in the recovery of the lands, creating healthy ecosystems that support the area's biodiversity,providing us with ecosystem services.

What are ecosystem Services? Air, water, and food are the first and most important ecosystem services. So, when we lose a species in our ecosystem, it changes the way the system works. If it changes too much, we start to see that it affects us in the end. No clean water and no clean air could mean the difference between life and death, because these two things are essential to life.

Everything is a fine balance! Over 100 years of work has gone into the Long Point Biosphere area and there is still more work that continues to be done in restoration and conservation. Nongovernmental organisations (NGOs) continue to work hard at preserving and restoring habitat. These efforts being made to change the loss of biodiversity are never small endeavors.

Your Neck of the Woods

Part A. Amazing things right here in Norfolk!

Be in the know about how great our area is. Norfolk is a great example when it comes to the outstanding work being done to restore and protect habitat. Take the five different working group names below and use them to do a draw. Divide the class into five groups and have each group draw a working group name from a hat or bucket.

Open Country Working Group

Road Ecology Working Group

Invasive Species Working Group

Agriculture Runoff Working Group

Forests and Treed Swamps Group

Now that students are in five different groups, and have drawn the working group that they will focus on, have them navigate to the Walsingham Forests Priority Place website longpointwalsinghamforest.ca

Students must investigate what NGOs are part of the working group and create a list of the NGOs.

The priorities of each student working group:

- find contact information for at least 2 of the NGOs they find most interesting
- indicate the number of acres or hectares the NGOs have restored or protected
- describe what species at risk the NGOs are actively protecting by restoring and protecting habitat
- present a 5-minute synopsis of all the information they gathered to the class

Letter of Interest

Part B. Write a Letter of Interest

For students to achieve their credit for volunteering with an NGO, they must secure a position as a volunteer and complete their volunteer hours. To secure this position they must have knowledge of the organization and the decision makers that determine who would be suitable as a volunteer. Students will need to position themselves by demonstrating their desire to work as volunteer, and a great way to demonstrate this is through a letter of interest.

A letter of interest is a document declaring the interest or commitment of one party to do business/work/volunteer with another. The letter of interest in this case would declare the commitment of the student to do volunteer work for the non-profit. Terms such as the time of year, the kind of work, and the number of hours the student is available for volunteering would be expressed in their letter of interest.

In their letter of interest, the students should be sure to include information on the type of volunteer work they are seeking and on how their skills and experience make them an excellent candidate for such roles. Their goal is to make themselves known by the volunteer coordinator or person that brings forth correspondence to the board of directors. The board of directors will review the correspondence at their board meeting and decide if the student is a good candidate to add to the list of volunteers.

The students should also include why they feel they would be a great asset for the organization. They should provide any relevant references they may have that would support them in this endeavor, especially if they already know someone connected with the organization.

And finally…they must reach out to the NGO by email with their letter of intent to volunteer.

Good luck to all the volunteers!

Be The Change

Part C. Adopting Change for a healthy tomorrow.

Norfolk County is in the Carolinian Zone and is rich in biodiversity. The Carolinian Zone has more species of rare plants and animals than anywhere else in Canada. It is home to one-third of Canada's at-risk plants and animals and home to a quarter of Canada's human population. The population of this area is projected to continue to grow substantially, and the impact of this

population growth will create greater challenges on nature to maintain biodiversity and health of its ecosystems.

As a resident in this remarkable area, your actions can have a significant impact on the health of its ecosystem. Your garden is just one of many spaces you can access to help restore lost habitat, yet it could be what helps to tip the scale in creating a healthy future for our area.

Creating a healthy future for our area, and the wildlife that call it home, is a win-win situation. Have fun making your schoolyard garden part of the solution. Your class can grow life-sustaining habitats and resilient landscapes, one schoolyard at a time. Perhaps you could venture into a garden project at home too! Together we can all grow gardens that will be places to host native species. For your reference, a list of native species can be found on page 9.

There are many benefits to establishing native plant gardens.

The value of the seed itself is incredible. Wildflower gardens serve as high-quality pollinator forage habitat, providing native blooms all season. They are drought resistant and low maintenance. Planned out properly they can bloom from spring to fall.

Here are two additional options your class could get involved in:

- In the Zone provides the tools needed for anyone to gradually transform outdoor spaces into healthy habitats for native wildlife. https://inthezonegardens.ca/
- receive advice from wildlife and gardening experts on how to cultivate habitat for warblers, frogs, owls, butterflies, bees and more. https://davidsuzuki.org/take-action/act-locally/butterflyway/

Native Species List

Here is a list of native species taken from the Norfolk Seed Strategies overview:

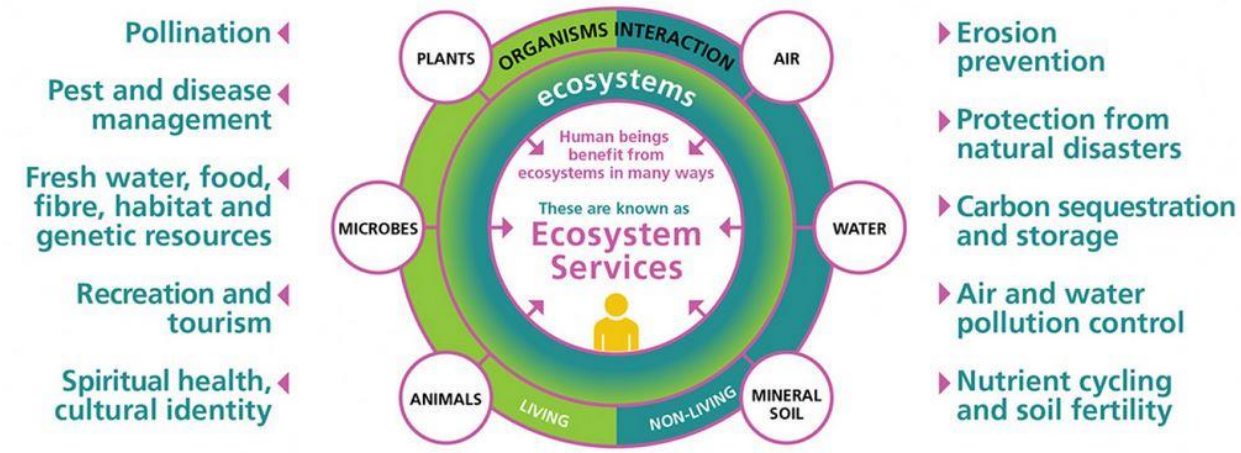
- Blue Lupine (Lupinus perennis)
- Butterfly Milkweed (Asclepias tuberosa)
- Round Leaved Shadbush (Amelanchier sanguinea)
- Witch Hazel (Hammamelis virginiana)
- Venus' Looking Glass (Triodans perfoliata)
- Whorled Milkweed (Asclepias verticillata)
- Rock Elm (Ulmus thomasii)
- Intermediate Pinweed (Lechea intermedia)
- Sand Violet (Viola sagittata)
- Early Saxifrage (Micranthes virginica)
- Prairie Chord Grass (Spartina pectinata)
- River Bulrush (Bulbenoscoens fluviatalis)
- Blue Eyed Grass (Sisyrinchium montanum)
- Wild Crab Apple (Malus coronaria)
- Carolina Wood Vetch (Viccia caroliniana)
- Leatherwood (Dirca palustris)
- Wood Phlox (Phlox divaricata)
- Hills's Oak (Quercus ellipoidalis)
- Wood Betony (Pedicularis canadensis)
- Dwarf Blazing Star (Liatirs cylindracea)
- Running Tick Trefoil (Desmodium rotundofolium)
- Hairy Bushclover (Lespedeza hirta)
- Panicled Tick Trefoil (Desmodium paniculatum)
- Kalm's St. John's Wort (Hypericum kalmii)
- Shining Sumac (Rhus copallina)
- Poke Milkweed (Asclepias exaltata)
- Early Buttercup (Ranunculus fasicularis)
- Green Milkweed (Asclepias virid)

Ecosystem services.

Ecosystems are providers of goods and services that can not be provided any other way.

Extention lesson plans:

- What is the value of an ecosystem
- Human Activity and the Environment: Measuring Ecosystem service in Canada



Ecosystem Services diagram publish by Rob Underhill on August 26,2020

The Long Point Biosphere Region would like to thank the following for making this project possible

Ontario Trillium Foundation
Fondation Trillium de l'Ontario

An agency of the Government of Ontario
Un organisme du gouvernement de l'Ontario