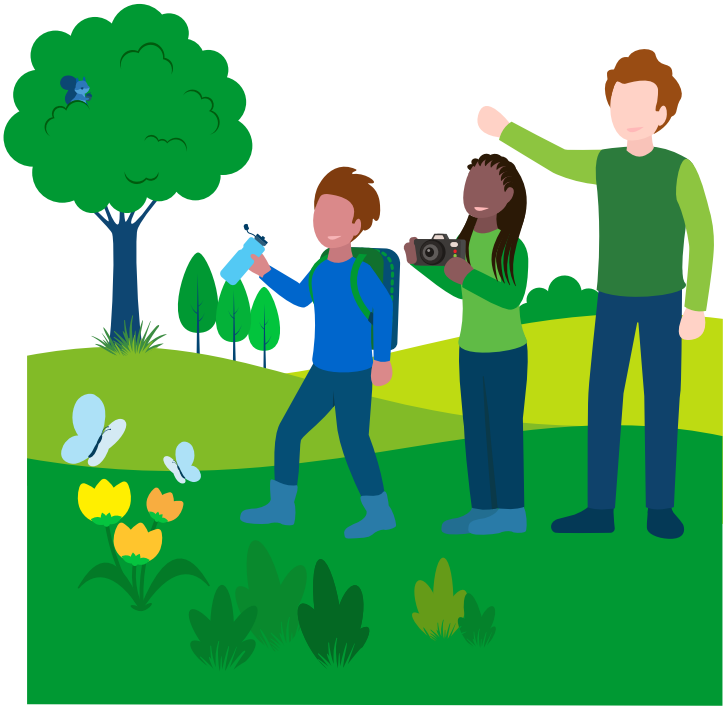
Greenbelt Biodiversity
Plant Inventory Guide

ecoschools écoécoles CANADA

Click on any heading below to go to the corresponding page. Once on the page, click on the heading to come back to this table of contents.



About the Ontario Greenbelt

The Ontario Greenbelt is one of the most biodiverse areas in Canada, which means that its unique natural systems sustain many living organisms. The Greenbelt includes the long, curving spine of the Niagara Escarpment which shelters cliff-dwelling creatures and rare wetland animals; the thick band of the Oak Ridges Moraine which secures the headwaters of many rivers and aquatic habitats; and the complex quilt of the Carolinian forest zone along the edge of Lake Ontario.[1]

Along with diverse organisms and ecosystems, up to 15 million people will live within the Greenbelt by the year 2051. Due to its proximity to expanding populations and large urban centres, the Greenbelt is an area of high ecological value and at high-risk of being degraded or lost. Schools in the Greenbelt area can help maintain the region's health by collecting information about ecology. For this action, you are invited to compile an inventory of plant species on your school grounds, which will help identify threats to biodiversity and take actions to strengthen environmental resilience. After completing a plant inventory, you may then select and plant native species on your school grounds to support the health of Greenbelt ecosystems.

[1] Biodiversity in Ontario's Greenbelt. David Suzuki Foundation and Ontario Nature. 2011.

Greenbelt Biodiversity
Plant Inventory Guide

ecoschools écoécoles CANADA

Getting Started

The following guide provides an overview of action objectives, learning goals, and steps to effectively conduct a biodiversity inventory.

Action Objectives

- Identify and count as many different plant species on your school grounds as possible, including the population of each identified species.
- Strengthen local ecological health by planting appropriate native species on school grounds.

Learning Goals

- Understand and describe the value of biodiversity for human and natural systems.
- Understand the meaning of ecological terms and use them appropriately in writing and speech.
- Identify, describe, and take action in response to human activities that may interfere with ecological health.
- Recognize and identify observable patterns in nature (such as identifying features of plant species, or patterns in species distribution across habitats).
- Self-organize to work collaboratively with peers.

Materials

- ☐ Field Observation Template
- ☐ Plant Inventory Worksheet
- ☐ Writing tools
- ☐ Field guides (hard copy and/or digital)
- ☐ Cameras (optional)
- ☐ Binoculars (optional)
- ☐ Magnifying glasses (optional)

Considerations before you get started

The provided resources are based on the ecology of Ontario's Greenbelt. The same processes can be completed using information from a different region.

This activity takes place outside, on school grounds. Ensure you establish a safety protocol for outdoor activities.

This project is broken into 4 parts that can be spread over several days. The format and sequence of parts may be altered to best suit the learning goals of a particular group.

The provided learning goals and instructions are generic to K-12 education. They can be tailored to suit the curricular expectations of any grade. For example:
- Focus on a couple species and practice simple counting skills in Primary grades.
- Implement a more scientifically rigorous model of data collection for Intermediate or Senior grades.

The hardest part of a plant inventory is correctly identifying the species. The activity can be simplified. For example:
- Students find and count specific, pre-determined species from an inventory list, rather than conducting an open-ended survey first.
- Minimize the species lists and inventories to focus on specific plants, such as trees.

Greenbelt Biodiversity
Plant Inventory Guide

ecoschools écoécoles CANADA

Part 1: Prep Work

1. Design an engaging project "launch" that initiates thinking about biodiversity and species identification. For example:
   - Brief scavenger hunt
   - Nature walk and observation
   - Species identification matching game
   - Outdoor nature-art activity
2. Provide an overview of the plant species inventory project. Describe the purpose and component activities.
3. Define key concepts and terms including (but not limited to):
   - Biodiversity
   - Ecology
   - Taxonomy
   - Species
   - Inventory
   - Habitat
   - Population
   - Invasive Species
   - Native Species
   - Species-at-Risk
4. Using field guides and citizen science apps as support, compile a list of general clues that will help them differentiate species in the field. Examples of student suggestions may include:
   - Colour
   - Size
   - Shape
   - Texture
5. Look up details about local species-at-risk and/or invasive species to give students an idea of what to look for during their field work.

Part 2: Biodiversity Data Collection

1. Divide the school grounds into separate zones. Zones can be delineated on a map, by visible landmarks, or using physical markers like ropes or tape.
2. Split into teams of 2 or 3 people, and assign a team to make observations in each zone.
3. Have teams systematically walk around their zone and record all the different plant species they observe using either the Field Observation Template or the Plant Inventory Worksheet.
4. Students can record plant species based on pre-existing knowledge, by using field guides, or plant-identification apps. Students may choose to also include notes on habitat, draw sketches, or take photos, if cameras are available.
5. Ensure each team counts the total population of each plant species, and records the numbers on the Field Observation Template.

Part 3: Biodiversity Data Review

1. As a class, record the names and total numbers of all observed plant species onto the one final Plant Inventory Worksheet.
2. Consider conducting further research to determine which plants are considered species-at-risk and which are invasive species.
3. **Record final inventories on the EcoSchool Certification Application (Question #9-11)**

Part 4: Get Planting

1. As a class, review the types of habitats that are present on your school grounds.
2. Combine knowledge of the types of habitats that exist on your school grounds, data from the field, and additional research to select native plants to grow on your school grounds.
3. Consider identifying plants that are considered species-at-risk, may build a good habitat for other creatures, or would strengthen local ecological health.
4. Research how to order seeds or seedlings, when to plant, and how to care for them. Then, make a plan to plant!
5. After a plan is made, materials are collected, and the season is right, begin planting on your school grounds.

Tip!

Repeat the Greenbelt Biodiversity Inventory each year to see if your actions improve biodiversity on school grounds.

Resources

- Field Observation Template (EcoSchools Canada) - English / French
- Plant Inventory Worksheet (EcoSchools Canada) - English / French
- Species at Risk in Ontario (Government of Ontario) - English / French
- Backyard Habitats (Nature Ontario) - English
- Invasive Species in Ontario (Invading Species Awareness Program) - English
- Biodiversity in Ontario's Greenbelt (Greenbelt Foundation) - English
- In a Changing Climate Series (Greenbelt Foundation) - English
- CanPlant - English
- Use citizen science apps such as: iNaturalist, Seek, Leafsnap, and EDDMapS Ontario
- You may also find hard-copy field guides through your local nature conservancy and library