



CANADIAN WILDLIFE FEDERATION
FÉDÉRATION CANADIENNE DE LA FAUNE

WILD EDUCATION

www.WildEducation.org



our home and native plants

2009

Learning About Wildlife
Educator's Guide

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Curriculum Links Table

Visit the *WILD Education* website at WildEducation.org

Grades	K–3	4–6	7–8	9–12
Science and Technology	Plants and changes. Plant structures and adaptations. Understanding and care of the natural world. Growth and change in animals. Air and water in the environment. Daily and seasonal cycles.	Plant diversity. Ecosystems. Diversity of native plants. Plants and communities. Diversity of living things. Plant structure and function. Habitats and communities. Weather. Photosynthesis. Identifying specimen with keys.	Basics of life. Adaptation and succession. Plant growth. Interactions within ecosystems. Effects of humans on ecosystems. Identifying specimen with keys.	Environment. Diversity of living things. Sustainability of ecosystems. Botany. Ecology. Resource management. Wildlife biology. Biodiversity. Stewardship. Human impacts on the environment.
Geography	Canadian geography. Discovering the various provinces and territories.	Canada's regions.	Natural resources.	Causality. Environmental impacts. Physical variations across Canada (such as soil types, landscapes).
Arts	Visual representations (such as drawing, painting, crafts, graphic arts, web design).			
Language	Persuasive writing. Non-fiction reading and writing. Media presentations (video, photos, advertisements).			Journaling. Creative writing.
Practical and Applied Arts	Preserving leaves.		Horticulture.	

Celebrate Native Plants

Imagine a world without plants. You can't—or at least, you certainly wouldn't want to. The fact is, you can't have a landscape without plants. Even in the polar desert on Ellesmere Island, amazingly hardy lichens grow amongst the dry, frigid rocks and gravel. Plants and plant communities are in a very real sense the living skin that covers the bare-bones skeletal frame of the earth—the rocks and the varying overlays of soil.

Indeed, if you conjure up your favourite memory of a Canadian rural, urban or remote landscape, it's almost guaranteed to have native plants in it. Perhaps you'll recall:

- a wind-shaped jack pine on the rocky promontory of a northern lake in the Canadian Shield;
- a hillside of short-grass prairie on the southern slope of a small coulee (creek or river valley); with wild roses and wolf willow blowing in the wind;
- the dense growth of big bluestem and other tall prairie grasses;
- a splash of red against a green backdrop of sweet gale, where a patch of Cardinal flower grows along the bank of a Maritime river;
- the thick, green majesty of boreal forests that sweep across Canada;
- the open canopy of a Garry oak savannah on an island off the coast of Vancouver Island or the deep forest of majestic red and yellow cedars and Douglas firs in British Columbia; or
- the flame of colour where purple saxifrage has caught the sun on an alpine or Arctic tundra, where all the plants live out their lives within centimetres of the ground, and only centimetres deep above bedrock or permafrost.

What Are Native Plants?

Did you know that Canada has about 3,200 identified native plant species? In this unit, native plants are defined as plants that existed—and flourished—in Canada before the arrival of the first European immigrants. They are wild species that occur in Canada naturally. The [Committee](#) on the Status of Endangered Wildlife in Canada (COSEWIC) also includes wild species that have expanded their range into Canada without human intervention from a region where they naturally occurred, have produced viable populations and have persisted in Canada for at least 50 years.

Why Are Native Plants Important?

The most amazing aspect of native plants is that they are an established part of nature's community and are well adapted to their native habitat. They have existed in their habitats for a long time and can flourish under the environmental conditions in which they grow. That means they are already adapted to their specific locales — to the soil conditions, to precipitation levels and to summer and winter temperatures. It also means that local living organisms are adapted to their presence. Native plants provide food, shelter and places for varieties of wild creatures to breed and survive, and they determine the kind of birds, insects and other organisms and even other plants that can live within a community.

It's sad to say that our activities can wreak havoc on native plants. When we clear land to build our homes and businesses, we remove native plants from their habitats. This loss means that some plants and animals may lose their natural home, their habitat.

Join the Canadian Wildlife Federation and its partners to pay homage to Canada's native plants, and do your part to help conserve them. In this educational unit, you will find classroom resources and activities to assist learners in developing awareness, knowledge and skills about native plants, engage in activities to inspire commitment to result in informed decisions and constructive action concerning native plants for a healthy planet.

Don't stop here. CWF, through its *WILD Education* website at WildEducation.org, offers a host of teaching materials, electronic resources and links [about](#) native plants.

Resource Sheet 1: Native Plants Are Wildlife, Too

Images of charismatic wild creatures such as bear, beaver and moose often come to mind when we speak of “wildlife.” But native plants are wildlife, too.

Plants and Ecozones

Our vast country has many varieties of native plant communities. They have evolved by adapting to a combination of conditions, such as:

- climate (temperature, rainfall, wind);
- geographic land features (mountains, plains, rocks, river valleys);
- geology (granite shield, limestone plains);
- predominant soil types (sand, clay, loam, silt) and depths;
- day length; and
- amount and annual distribution of available moisture.

In Canada, we have codified 15 different areas known as “terrestrial ecozones” and five areas called “maritime ecozones.” Each one is a combination of climate, geography, geology and the plant and animal communities that have adapted to them. Take a look at the [ecozone map](#) and identify the ecozone in which you live.

Each zone is subdivided again into “ecoregions.” There are 200 in Canada. Within each, you will find different types of plant communities, including:

- forests (over 60 per cent tree canopy cover);
- woodlands (20 to 60 per cent canopy cover);
- savannah (grasslands with about 10 percent tree canopy cover);
- prairie;
- meadow;
- alvar plain (shallow soils on flat limestone bedrock); and,
- wetlands (marshes, swamps, bogs, fens and ponds).

Many plants have evolved to live across several ecozones. Some are so specialized they only inhabit one zone (or at least just one in Canada).

- For example, this is the case with plants whose northernmost range just reaches into Canada from the United States in southwestern Ontario’s [Carolinian](#) ecoregion.
- Although the Carolinian forest occupies only one per cent of Canada’s landmass, it has more species of flora and fauna than any other region.

Not All Plants Are Native

Not all plants found in Canada are native. Many species that flourish along roadsides or in other disturbed and developed areas were brought by European settlers accidentally or on purpose.

- These are often called alien, exotic, introduced or non-indigenous. They include:
 - Queen Anne’s Lace (which is related to the domestic carrot ... just smell the root);
 - the attractive spring roadside flower called Dame’s Rocket;
 - the autumn bloomer, chicory; and
 - the common lilac bush.
- Some of these non-native species have integrated into their local habitats and fit in well with their native neighbours. Others are considered “invasive species” that can crowd out native plants. Read more about this problem in Resource Sheet 2.

Indigenous People and Plants

- The cultures of indigenous peoples such as the Haida, Cree, Anishinabe or Inuit include the use of native plants. For example, the Anishinabe used spruce and cedar wood to fashion canoe frames, which they then covered with bark from the white birch trees, laced on with spruce tree roots and with seams and cracks made waterproof with a mixture of spruce gum and bear grease. Light and strong, maneuverable enough to navigate fast-flowing waters, and easily carried over portages, these craft were adapted to the regions in which they lived. Indigenous peoples also used many plants and plant extracts for medicinal purposes, or for food, such as wild rice. For example, chewing the inner bark of willow bushes helped cure head, joint and muscle aches, as the plant contains the same active ingredient found in aspirin.
- Living in a harsh climate and landscape where plants are tiny, with very short growing seasons, the Inuit of the eastern Arctic depended mainly on sea mammals like seal, walrus and whale for such essentials as shelter, clothing and food. They harvested plants including

blueberries, lingonberries and edible roots such as licorice root (bear root), when available. They also used the flowers of cotton grass as wicks for their oil lamp or qulliq, traditionally the main source of essential heat and light through the cold, dark Arctic winter.

Plants and Animals

Did you know that plants are not just passive partners waiting to be eaten in their relationships with animals? Here are some examples of their adaptations for survival:

- Red squirrels feed largely on seeds from the cones of conifer trees such as white spruce and red pine. In response, white spruce produces cones in two- to six-year cycles, where a year of particularly heavy cone production may be preceded and followed by several years of limited production. This behaviour (known as mast seeding) has evolved over many generations of trees as an adaptation to ensure survival. By producing light crops, the trees limit the size of the squirrel population such that in the mast year many more seeds will escape being eaten and have a chance to grow.
- Similarly, snowshoe hare populations go through multi-year cycles. Their population can grow to as high as 3,000 hares per square kilometre and then crash to about 10 per cent of that. Hares eat the bark and twigs of various willows, aspen, birch and spruce but as their population and pressure on these plants increase, the plants respond back by flooding their tissues with toxins that reduce the hare's ability to digest and absorb nutrients. The more they eat, the less they can absorb, until they die from malnutrition. Thus the plants are replenished and the cycle continues.

Some plants even turn the tables on the animal kingdom, eating instead of being eaten.

- Bog plants such as sundews, pitcher plants, butterworts and bladderworts have adapted to a very low nutrient environment by evolving ways to trap and digest insects and microscopic animals like the water fleas, copepods, scuds and roundworms. Their 'prey' provide nutrients that are absent or scarce in the soil. These plants lure the insects with combinations of colour and odour.
- Bladderworts employ a kind of suction trap, sucking water and microscopic creatures swimming in it into especially developed bladders, where the "meat" is digested with enzymes suited to the job.
- Sundews and butterworts use sticky secretions to create a kind of "flypaper" that traps mosquitoes, flying aphids, midges and springtails, among others.
- The pitcher plant forms a water-filled trap of its leaves. What's amazing is that there are insects and other microscopic creatures who have adapted to live inside the pitcher plant—and nowhere else on Earth—to feed on trapped insects.

Native Plants Puzzles

Province or Territory	Flower	Tree
Newfoundland-Labrador	Pitcher Plant	Black Spruce
Prince Edward Island	Lady's Slipper	Red Oak
Nova Scotia	Mayflower	Red Spruce
New Brunswick	Purple Violet	Balsam Fir
Quebec	Blue Flag	Yellow Birch
Ontario	White Trillium	Eastern White Pine
Manitoba	Prairie Crocus	White Spruce
Saskatchewan	Western Red Lily	White Birch
Alberta	Wild Rose	Lodgepole Pine
British Columbia	Pacific Dogwood	Western Red Cedar
Yukon	Fireweed	Sub-alpine Fir
Northwest Territories	Mountain Avens	Tamarack
Nunavut	Purple Saxifraga	No tree designated

Grades: 3 and up

Subjects: Science and Geography

Learning Outcomes:

Students will be able to:

- Identify the provinces and territories of Canada
- Identify native flower and tree emblems of the provinces and territories of Canada
- Discover and learn the characteristics of the various native plant species found across Canada

Skills: Problem solving, matching, reading for specific purposes, co-operative learning

Duration: 20 to 30 minutes

Group Size: Any

Setting: Indoors

Materials: A wall map of Canada that shows all provinces and territories; Resource Sheet #1, print-out of the Native Plants cards (39 cards in total); strips of coloured paper for headbands; tape; scissors; 10 sets of Native Plant cards to form playing decks

Summary: Students learn about Canadian provinces and territories and the native plants that are indigenous to their areas.

Background: Through various means, certain flowers and trees have become emblems of provinces and territories. The chart above provides a handy summary.

Refer to Resource Sheet #1 for more information about native plants.

Procedure

For younger students:

1. Download and print the cards provided with this activity.
2. Have students make headbands by taping together long strips of paper.
3. Select a colour scheme for each set of headbands such as yellow paper for headbands with “provincial” and “territorial” cards; blue for “flowers” and green for “trees.” Then have them tape an appropriate card onto the front of it such that it can be worn on their head. Collect all completed head bands.
4. Tell students they will now match flowers and trees that are emblems of a province or a territory of Canada.
5. Select 13 students and give them each a yellow headband. Ask them to form a line along the front of the classroom, shoulder to shoulder. Tell them they each represent a province or territory. Let them see their headbands to determine which province or territory they will represent.
6. Ask remaining students to represent flowers, give them blue headbands **without** letting them know which flower they represent.
7. Have students who are representing flowers interview each “province” or “territory” by asking the question: “Am I found in your province (or territory)?”
8. Once students have each found their “partner,” ask the students representing a province (or territory) to announce the name of the flower that is found in their area.
9. Hold another round of this activity but replace all “flowers” with “trees.”
10. After students finish both rounds, make and circulate copies of the “Native Plant Puzzle” chart template provided in this activity. Ask them to match the names of flowers and trees associated with each province and territory.
11. Discuss the geography of Canada. Point out the various provinces and territories of Canada and their differences and similarities.
12. Have students in a large group discuss how the weather, climate, length of day and landscape could influence the presence of native plants in a particular area.

For older students:

1. Photocopy enough sheets of cards to create one full deck of all cards for teams. For example, divide 30 students into 10 teams of three students each and give each team a deck of cards. Each team may cut out the cards and assemble its own deck of cards.
2. Have students play a form of “fish” with their cards by forming a “set” of three cards. Each “set” consists of a provincial (or territorial) card and the “flower” and “tree” that are associated with the province (or territory).
3. Have students find out how the weather, climate and landscape influence the presence of the native plants in their respective province or territory.

Extensions:

1. Discuss the threats and stresses experienced by native plants. Have students create a radio, TV or magazine advertisement to help protect native plants. Older students could create a blog or podcast.
2. Have students discuss the impacts of the loss of native plants on the local ecosystem and what they can do to mitigate it.
3. Have students conduct different components of this activity on different days. Have students learn about Canadian geography on the first day and about native plants the next day. On the third day, they could match plants with a province or territory as an assessment of their learning.

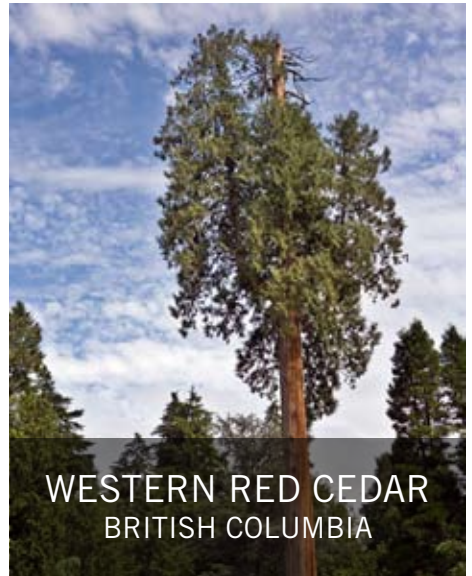
Evaluation:

1. Use the Native Plants Match-Up Puzzle template to evaluate learning with younger students.
2. Have older students identify factors that influence the presence of native plants.

BRITISH COLUMBIA



PACIFIC DOGWOOD
BRITISH COLUMBIA

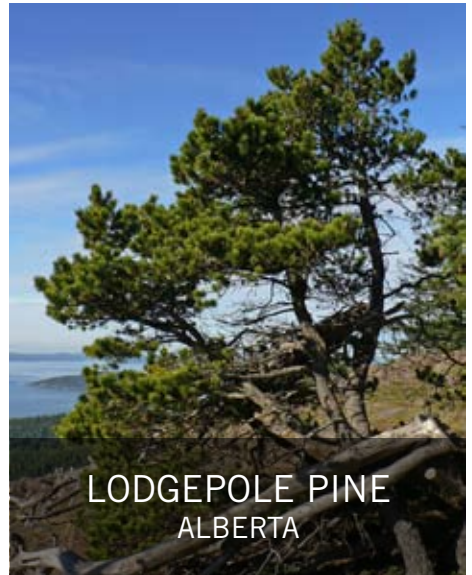


WESTERN RED CEDAR
BRITISH COLUMBIA

ALBERTA

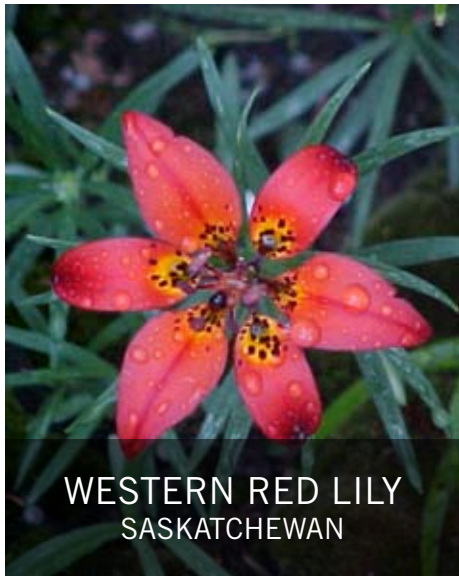


WILD ROSE
ALBERTA



LOGSPOLE PINE
ALBERTA

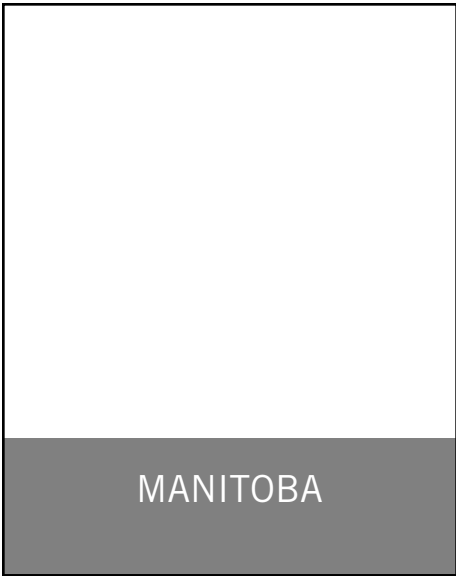
SASKATCHEWAN



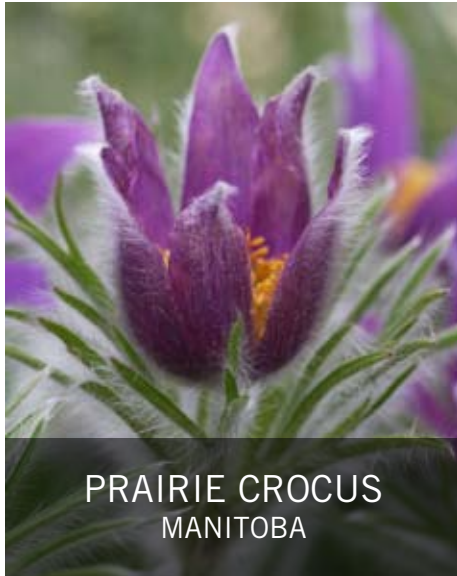
WESTERN RED LILY
SASKATCHEWAN



WHITE BIRCH
SASKATCHEWAN



MANITOBA



PRAIRIE CROCUS
MANITOBA



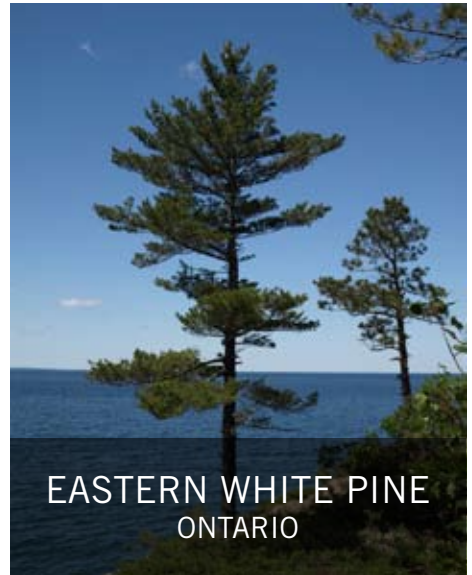
WHITE SPRUCE
MANITOBA



ONTARIO



WHITE TRILLIUM
ONTARIO



EASTERN WHITE PINE
ONTARIO



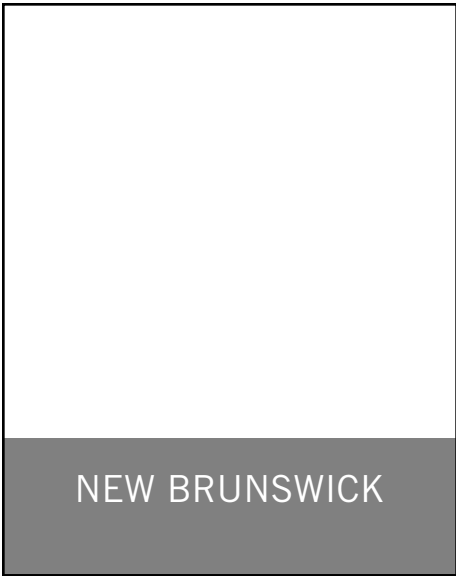
QUEBEC



BLUE FLAG
QUEBEC



YELLOW BIRCH
QUEBEC



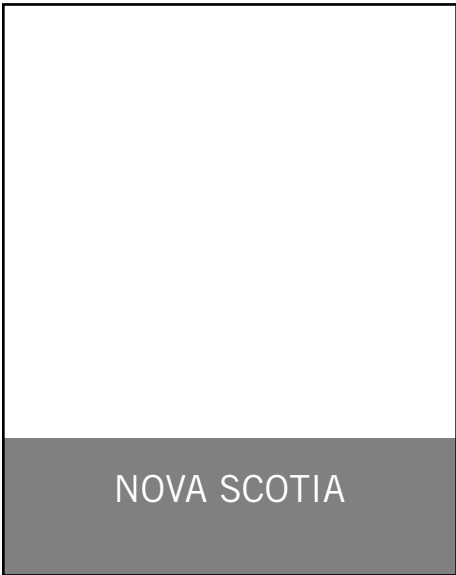
NEW BRUNSWICK



PURPLE VIOLET
NEW BRUNSWICK



BALSAM FIR
NEW BRUNSWICK



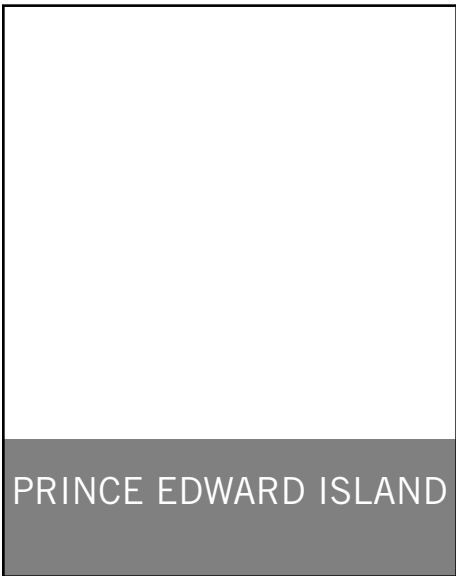
NOVA SCOTIA



MAYFLOWER
NOVA SCOTIA



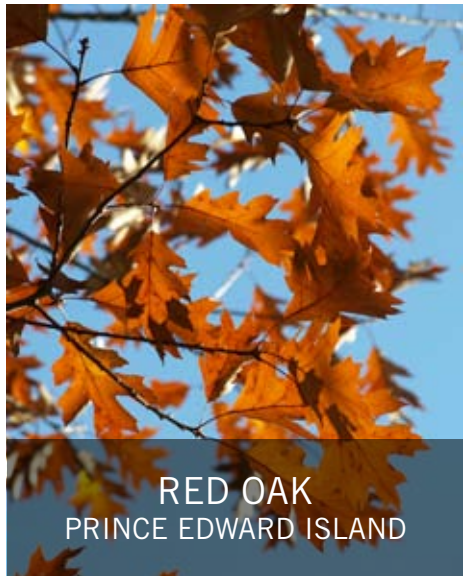
RED SPRUCE
NOVA SCOTIA



PRINCE EDWARD ISLAND



LADY'S SLIPPER
PRINCE EDWARD ISLAND



RED OAK
PRINCE EDWARD ISLAND

NEWFOUNDLAND
& LABRADOR



PITCHER PLANT
NEWFOUNDLAND & LABRADOR



BLACK SPRUCE
NEWFOUNDLAND & LABRADOR

YUKON

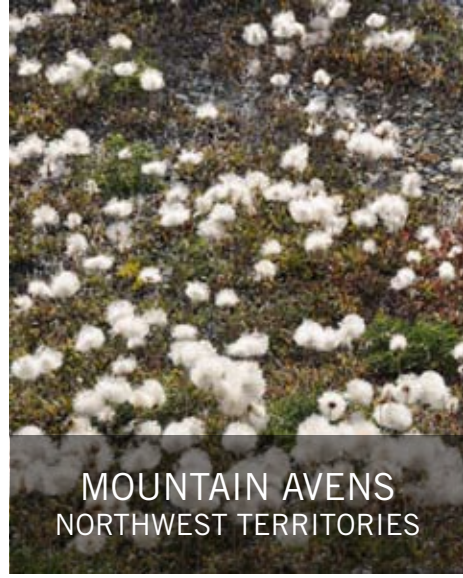


FIREWEED
YUKON

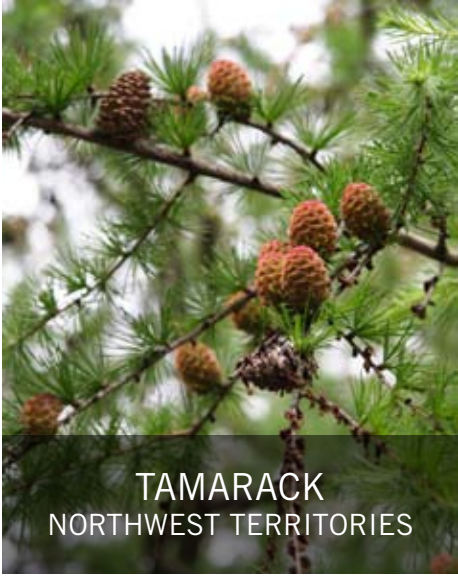


SUB-ALPINE FIR
YUKON

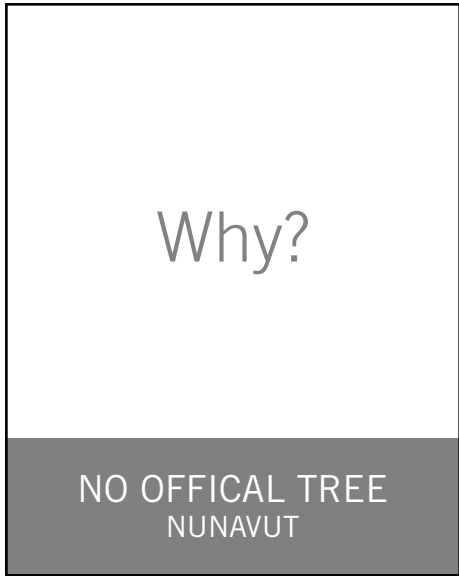
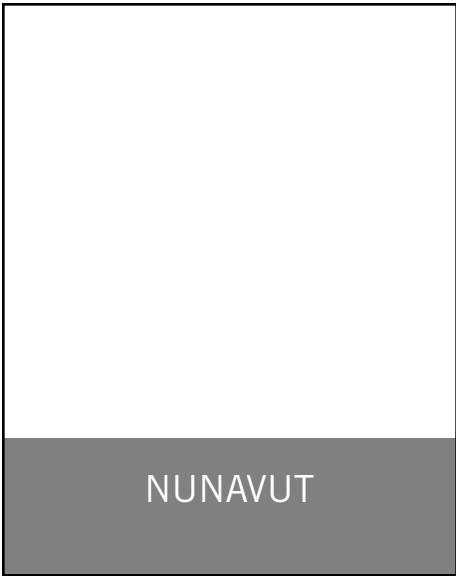
NORTHWEST
TERRITORIES



MOUNTAIN AVENS
NORTHWEST TERRITORIES



TAMARACK
NORTHWEST TERRITORIES



Native Plants Puzzle Match Up

Certain native plants are often used as symbols of a province or territory in Canada. Draw a line to connect the flower and the tree with the correct province or territory.

Native Flower	Province or Territory	Native Tree
Wild Rose	Newfoundland-Labrador	Red Spruce
Purple Saxifraga	Prince Edward Island	Red Oak
Blue Flag	Nova Scotia	Eastern White Pine
Prairie Crocus	New Brunswick	Balsam Fir
Mountain Avens	Quebec	Sub-alpine Fir
Western Red Lily	Ontario	Lodgepole Pine
Pitcher Plant	Manitoba	White Spruce
Lady's Slipper	Saskatchewan	White Birch
Mayflower	Alberta	Tamarack
Purple Violet	British Columbia	Western Red Cedar
Pacific Dogwood	Yukon	Yellow Birch
White Trillium	Northwest Territories	No tree designated
Fireweed	Nunavut	Black Spruce

Resource Sheet 2: Benefits and Threats

Our reliance on the plant world, including, very significantly, native plants, is basic. Without plants we would lack even the fundamental building blocks of life, such as food and clean water. We couldn't do as essential a thing as breathe without plants to clean the air by removing carbon dioxide and producing oxygen.

Benefits of Plants

Photosynthesis

- Plants are the only major organisms that can use the energy of sunlight to manufacture food (in the form of sugars) from water and carbon dioxide.
- The process is known as photosynthesis. It is key to life on Earth.
- Photosynthesis takes place in the plant's leaves, whose green colour signals the presence of chlorophyll, the chemical that powers the process. Plants have chlorophyll; animals don't.
- Water drawn up from the earth through the plant's roots is combined with air drawn in through tiny pores in the leaves, called stomata.
- The stomata also play a vital role in returning both oxygen and water to the atmosphere. Photosynthesis is a chemical reaction in which the energy of sunlight is used to combine water and carbon dioxide into sugar, a more complex compound that provides energy for growth. In the process, oxygen and some water are released back into the environment.
- Through the process of photosynthesis, plants provide two essential things we need to survive: oxygen and food. Without them, we would never have existed.

Food

- We access plant energy (which is a converted form of solar energy) in two main ways. We eat the plant's body parts directly, such as:
 - leaves (lettuce, spinach, cabbage);
 - stems (asparagus, rhubarb);
 - roots (carrots, beets);
 - seeds (wheat, rice, corn, almonds, sunflowers);
 - the flesh around the seeds (apples, peaches, all berries, tomatoes, olives); and
 - tubers, underground energy-storing growths connected to the roots (potatoes, peanuts)
- We also eat plants indirectly when we eat the flesh (beef, mutton, pork, chicken) of animals (cows, sheep, pigs, poultry) that have themselves grown big by grazing on plants.

- Did you know that all the plants we eat were originally bred from wild plants that were native to some part of the world? We have always relied, and will continue to rely, on native plant species as the genetic bank from which we develop and refine all our food crops.
- It's not just humans who depend on plants for food. All animals (such as insects, mammals, birds, reptiles, amphibians) as well as other organisms such as fungi depend on plants.

Oxygen

- Did you know it takes about 10,000 mid-sized leaves to produce the oxygen to sustain the average person during an average lifetime? Did you know that most of these leaves are on wild plants, particularly the vast boreal forests and tropical rain forests (two of our largest native plant ecosystems) often spoken of as the "lungs of the earth"?
- A mature and healthy deciduous tree can have as many as 200,000 leaves, and meets the oxygen needs of about 20 people (or an equivalent mix of other animals) during its growing season. Of course, all plants produce oxygen, not just trees. We are dependent on a healthy plant world for the very air we breathe.

Carbon sink

- Did you know that the process of photosynthesis also takes carbon dioxide out of the atmosphere, changes it into food, and ultimately into the physical material (or biomass) of the plant?
- It acts as a "carbon sink" and can remove significant amounts of an important greenhouse gas, temporarily (until the plant dies and its body decomposes) "sequestering" that carbon dioxide where it cannot promote climate change.
- Plants also respire and produce carbon dioxide. At night, for example, plants are net producers of carbon dioxide.
- Overall, plants can be considered "carbon neutral" as they take in carbon dioxide during their lives and release it as their bodies break down. But by then, of course, new plants are growing.

- For example, a NASA-funded study suggests that the United States has experienced a 14 per cent increase in overall plant growth from 1950 to 1993, due in part to higher humidity and eight per cent more precipitation, as well as the return to native plant cover (mainly forests) of land once cleared for agriculture.

Water

- Did you know that almost two-thirds of the moisture in the air is given off by plants? Only one per cent of all water a plant absorbs through its roots is used in photosynthesis. The rest is “breathed” out into the atmosphere through the stomata in the leaves, in a process called transpiration.
- A single corn plant, for example, will transpire over 200 litres of water over its one-season lifetime. By contrast, the vast oceans, which cover two-thirds of the earth, only provide one-third of atmospheric moisture, with some additional moisture coming from lakes and rivers.
- Plants help clean our water. For example, plants that grow along the shoreline bind the soil with their roots and keep the soil from being washed by rain and melting snow into our streams, rivers and lakes. Aquatic and terrestrial plants filter nutrients and pollutants out of the water as they draw it up through their root systems.

Soil

- Plants are an integral part of the soil system. Roots penetrate and aerate the soil; plant matter also feeds the fungi, worms and many microorganisms that make up a soil ecosystem and breaks down after death to become the essential fibrous organic matter that gives the soil a good consistency and porosity.
- Pure sand is a difficult soil for most plants to grow in as water drains away too quickly. With pure clay the reverse is true—water does not flow through or away and plants can literally drown. Clay also constrains root development; it’s hard for the roots to penetrate.
- A mixture of sand, clay and humus (decomposed organic matter such as plant bodies and leaves) makes the perfect soil mix. It allows moisture and air to penetrate and flow through its sponge-like consistency and supports microorganisms that enrich the soil and contribute to biodiversity.
- A healthy deciduous tree might grow and shed 3,600 pounds of leaves during its 60-year lifespan, returning about 70 per cent of their nutrients to the soil. If not harvested for wood or burned in a fire, it will eventually die, return to the soil and become organic matter. This is known as the cycle of life.

- Plant cover also stops wind erosion. Wind erosion occurs when dry, exposed soil is picked up by fast moving air to become dust. This condition is evident in Canada’s polar deserts. Despite common and fast-blowing winds, the tundra is not dusty. It is covered by a dense, complex mat of tiny, interwoven plants. Around human settlements, however, where construction and road building have removed much of the plant cover, the sandy soil dries quickly and is blown around the communities, causing breathing problems, irritating skin and machinery, and even drifting across roads in particularly windy spots.

Habitat

- Native plants and animals have evolved together and they fit together like a complex puzzle. Every change in the presence and health of one plant species will affect corresponding changes in other species in an endless chain, many of whose links remain undiscovered.

▸ Example of Wild Lupine and the Karner Blue Butterfly

Consider the wild lupine and the karner blue butterfly (*Lycaeides melissa samuelis*). Habitat changes affecting the wild lupine have led to the disappearance of this butterfly from Ontario. The wild lupine is the only food source for the butterfly’s larvae. This plant thrives in sunny areas of sandy soil like southern Ontario’s black oak savannahs. It was once very common, but with the suppression of the fires that helped maintain the savannah habitat, much of its habitat has been lost to plant succession, including the invasion of aliens such as the honeysuckle. Other areas have been cleared for farming and then reforested with pine plantations when the soil was found to be too sandy for agriculture. The result is that the karner blue butterfly, whose larvae cannot survive without the wild lupine, is now extirpated from its range in Ontario. The spread of lupine back into some parts of its former range is being encouraged in the hope of reintroducing the butterfly.

Our Health and Material Lives

- Plants have been used for thousands of years to treat human ailments. Worldwide over 400,000 species of plants have been used by indigenous people for medicinal reasons and hundreds were used in Canada by the First Nations in traditional medicines.
- The anti-cancer drug called Taxol is an important example of recently discovered values of native plants. In the 1960s taxol was extracted from the bark of the Pacific yew and is now used in many medical contexts.

Find out more about research that involves the search for naturally occurring biological materials found in plants for medical applications by visiting nrcan-rncan.gc.ca.

- Lumber, milled from harvested trees, is still a major component in the various construction materials from which we build our homes.
- Paper, manufactured from tree fibre, is an essential part of our modern society.

Aesthetic Pleasure

- As humans and creatures of the natural world, we respond to plant and other life and to the ecosystems that surround us. Our reaction to being out in a healthy natural environment is to turn our face to the sun, breathe deeply and inhale the scent of the flowering plants.
- There's a spiritual and emotional depth to our response to nature. It is integral to our mental and physical health and is perhaps the reason why people hike or flock to parks every year.

Threats to Native Plants

Lacking Connections with Nature

- No species is an island. We are all linked. Every time a species disappears from a region — or worse, from the world — something important is lost, and we are all diminished.
- We may think that the plants we have domesticated and bred ourselves, such as the apples, wheat, sugar beets and cinnamon that go into baking an apple pie, are more important to us than, for example, wildflowers. But we ought to be mindful that all living things in nature are inter-connected. Each species of native plant is an integral part of an ecosystem and is likely important to us in ways we may never fully understand.
- Most native plants in Canada have managed to co-exist with us despite our many disruptive practices. But those practices and their consequences have threatened a significant number of them with drastic decline, and possible extinction.
 - Of the approximately 3,200 native plants that have been identified in Canada, over 200 have been found at risk by COSEWIC. Another 800 have been identified as sufficiently at risk to give COSEWIC a reason to be concerned about their future and investigate their status.

Following Disruptive Practices

We create problems when we do such things as the following:

- **Introduce Invasive Alien Species.** We threaten non native plant survival when we introduce invasive alien species and diseases. Many non native plants arrived in Canada accidentally (such as through packing materials) but others were introduced on purpose (such as for medicine). Some of these alien species are invasive and have spread to the extent that they threaten Canada's native species of plants.
 - For example, COSEWIC cites the invasive alien, garlic mustard (*Alliaria petiolata*), as a threat to the endangered wood poppy (*Stylophorum diphyllum*) in Ontario, and in Alberta and Saskatchewan, slender mouse-ear cress (*Halimolobos virgata*) is threatened by the invading crested wheatgrass (*Agropyron pectiniforme*).
 - Among the shrubs and small trees, European buckthorn (*Rhamnus cathartica*) has been found to be a particularly aggressive invader in parts of British Columbia, Saskatchewan, Ontario, Quebec, Nova Scotia and Prince Edward Island, choking out pretty well everything that gets in its way.
- **Destroy Habitat.** Plant habitat is destroyed when we build subdivisions, roads, factories and malls, or by logging and clearing land for agriculture or digging it up to extract minerals or for industrial or manufacturing purposes.
- **Degrade Sensitive Areas.** Allowing livestock to overgraze, trample plants and muddy streams often degrades plants' habitat.
- **Polluting Air and Water.** Permitting waste products to pollute watercourses and the air, and produce greenhouse gases in such volume that we affect the very climate pose threats to plant survival.
- **Use Pesticides.** The use of pesticides (herbicides and insecticides) that might be aimed at one or two unwanted species can affect many species and are often washed into streams and other watercourses.
- **Harvest Wild Plants.** Digging up native plants in the wild reduces the species chances of survival. The growing popularity of alternative medicinal plants can threaten plants in the wild or lead to overharvesting. Horticultural collecting can also pose threats.
- **Using Road Salt.** Road salt is toxic and often finds its way into roadsides and may harm plants that grow there.

- **Constructing Practices.** Construction of roads and structures often destroys native plants and covers their habitat with concrete or other hard surfaces.
- **Trampling Native Plant Habitat.** Disturbing plants while engaging in activities such as hiking, camping and disturbance created by riding off-road all-terrain vehicles can leave a huge ecological imprint.
- **Clearcut Forests.** Clear cutting practices often contribute to the loss of sensitive plant habitat.
- **Suppress Fires.** Ecological communities, such as the boreal forest and grasslands, often depend on fire to maintain their health.
- **Change the Climate.** Warmer temperatures associated with climate change are drying up and changing the ranges of plants.
- **Reduce Pollinators.** Pollinators are disappearing at alarming rates through the effects of factors such as the use of pesticides, the introduction of invasive and exotic species, and the fragmentation and destruction of habitat. Most plants cannot reproduce in the absence of pollination.

Native Plants and Their Environment

Grades: 3 and up

Subjects: Science, Social Studies, Language Arts, Geography

Learning Outcomes: Students will be able to:

- Describe the importance and value of native plants
- Identify actions that people can take to conserve native plants and their environment
- Describe the importance of conserving native plants
- Identify and describe local native plants and their role within the ecosystem
- Describe an approach to restore an area to its natural state

Skills: Communication, observation, researching, reading

Duration: Several hours, ongoing basis (weeks to a year plan)

Group size: Any

Setting: Indoors and Outdoors

Materials: Seeds or native stock for native perennials, basic gardening tools, watering cans, sunny space in the school yard

Summary: Students discover the impacts of native plants within the ecosystem (flora and fauna) by returning a portion of their school yard to its native state.

Background: Native plants play a vital role in the environment such as:

- Exchange of gases
- Nutrient cycling
- Water cycle
- Soil conservation
- Providing food and shelter (habitat elements) for wild creatures and other plants

Exchange of gases: Like people, plants breathe, too, but mostly through tiny pores in their leaves and young stems called stomata. The process by which respiration takes place is called diffusion. It occurs on a cellular level. It involves the exchange of oxygen and carbon dioxide. In plant cells, carbon dioxide must be available since it is used in photosynthesis, and thus oxygen is a waste product and must be removed. The basic mechanism of gas exchange is diffusion across a moist membrane; in this case the molecules move across cell membranes. The exchange of gases is an essential process in what is called energy metabolism and is a prerequisite to life.

Nutrient cycling: Plants need nutrients from the soil to grow, just like people need food. Soil nutrients mostly come from the breakdown of mineral-bearing rocks and from organic matter (the decomposition of plants and animals). The nutrients that plants get from the soil are stored in all plant tissues such as leaves, stems and flowers. When these tissues fall to the ground they start to break down, and together with other decomposing matter (such as dead insects and animals and animal feces), they are eventually re-incorporated into the soil by rainfall and earthworms. There, organic matter is further broken down and slowly transformed to become nutrients that are available to growing plants (and the cycle continues).

Wildlife habitat: Wildlife habitat is food, water, shelter and space all arranged just right for a species of wildlife.

Water cycle: The water cycle is also known as the hydrological cycle. It describes the continuous movement of water on, above and below the surface of the Earth. Throughout the cycle, water can change states (liquid, vapour, ice). The sun drives the water cycle by heating water in the oceans. Some water evaporates as vapour into the air. Rising air currents take the vapour up into the atmosphere, along with water from evapotranspiration (water transpired from plants and evaporated from the soil). The vapour rises into the air where cooler temperatures cause it to condense into clouds. Air currents move clouds around the globe; cloud particles collide, grow and fall out of the sky as precipitation such as rain or snow (and some can accumulate as ice caps or glaciers over thousands of years). Most precipitation falls back into the oceans or onto land, where much of it flows eventually into the ocean and the cycle renews itself.

Soil conservation: Soil conservation is the application of methods that safeguard the soil against erosion and deterioration (such as overuse, saltization, acidification and chemical contamination).

Procedure

For younger students:

1. Introduce students to the ideas that are provided in the Background section of this activity.
2. Introduce students to the idea of native plants and ask if they think that plants have had any effect on their surrounding environment.
3. Have students research which plants are native to the region in which they live. Invite them to consult CWF's native plant encyclopedia and the ecozone map located at **WildAboutGardening.org** for examples of native plants that can be found in their region.
4. Invite students to select a small area on their school grounds (that is not heavily used by people) to plant native flowering plants. Remind them to ask for permission to plant in their selected location. Ask them to record any observations of types of wild creatures close to the spot they selected for planting.
5. Make arrangements that will enable students to plant varieties of hardy, native flowering plants in their space. For example, involve parents and register their project as a WILD School project. (WILD School teachers recommend that using mature plants may work best with young students and prevent tiny feet from breaking seedlings).
6. Involve students in the regular care and maintenance of their plants (such as watering).
7. Have the students observe and keep track of observations associated with their native plants area. For example, once every week, have them record what types of insects or other animals have been living or using the planted space.
8. Have students make sketches and talk about the changes that are occurring in their little plant corner. For example: What insects or other wild creatures did they observe as their plants grew? Are they the same as the ones they observed before they planted their plants?
9. Have students make a wall mural in the school hallway or a large poster on a bulletin board of their sketches.

For older students:

1. Encourage the students to discover the various roles that native plants play within their environment. Here are a few questions to assist you:
 - a. How can one test to see if native plants consume or produce atmospheric gases?
 - b. How can one show that native plants play a role in nutrient cycling and the water cycle?
 - c. How does one know that native plants can play a role in providing habitat and soil conservation?
2. Discuss the importance of native plants within the environment including what threatens them. Link to local and regional concrete examples.
3. Involve students in finding an area within school premises where the land can be left to grow "wildly." Students can assist by watering this area.
4. Involve students in researching the species of native plants that will grow in this area. Have them identify if the plants are native or if they are invasive alien plant species.
5. Have students keep a record of the transformation of this area by noting the various species of insects and animals that utilize this space as habitat and also by observing the plant succession.

Extensions:

1. Have younger students create an illustrated journal of their observations.
2. Organize a debate among older students. Have the "pro" side argue in favour of conserving native plants. Have the "con" side argue against it.

Evaluation:

1. Young students identify five species of native plants that can grow in their area.
2. Older students write an essay that explains the importance of native plants in the environment.

Resource Sheet 3: Act Today to Conserve Native Plants For Tomorrow

We protect the spaces in which native plants grow by making sure that our behaviour is respectful. This means refraining from collecting or damaging native plants and ensuring that we leave no “trace” behind of our presence. We might also meet with family and school administrators to agree about how we will act toward native plants. We can call this activity “private stewardship” because individuals or groups take voluntary responsibility for protection. Often informal, this type of protection can be important and lasting.

On a more formal level, we have areas that are protected and in which native plants are protected. For example, Canada has agreed to the International Convention on Biological Diversity, which defines a protected area as a “geographically defined area that is designated or regulated and managed to achieve specific conservation objectives.” Official protection can be very effective over a long period because it is often backed by laws (such as the Canada National Parks Act) or agencies, such as the Committee on the Status of Endangered Wildlife in Canada.

Provincial and federal agencies, such as governments, are able to organize many smaller special areas into systems of protected areas, such as a provincial and territorial park system, National Wildlife Areas, sanctuaries and ecological reserves. Municipal governments that set aside parklands, greenbelts and conservation lands also perform important ecological functions and can enact bylaws that limit tree cutting and pesticide use on private lands. Country-wide systems, such as national parks and reserves, and the World Heritage Sites and International Union for Nature can offer similar protection that can span whole continents.

What Can You Do?

Native plants provide us with life-giving benefits. What can you do to conserve them? Here are some ideas for actions to keep native plants healthy and thriving in their natural environment:

Discover and Conserve Native Plants in Your Yard

- Get to know what’s growing naturally in your neighborhood.
- Surprisingly, many native plants can be found in even the most-tended yard. After all, it is a spot that’s already ideally suited for their growth.
- Get started by consulting the *Wild About Gardening* website at **WildAboutGardening.org** or field guides to wildflowers, trees and shrubs.
- Take an inventory of plants that grow in your yard. Chances are it’s already filled with specifically planted grasses, flowers and even trees.
- Don’t forget to pay attention to the edges of your yard or garden where native plants are more likely to occur.

Let a Corner Go Wild

- Pick a spot of your lawn, stop cutting it and let it grow.
- Watch the amazing number of plants that will grow and produce flowers (native and exotic). Plants that grow long enough to produce flowers are easier to identify (and this is the best time to do the inventory).
- Pay attention to the types of wild creatures that visit your wild patch. You might see more

critters such as insects, animals that eat insects (spiders, birds, voles, mice, shrews) and maybe some larger predators (such as hawks).

Reduce the Use of Pesticides

- Reduce or eliminate the use of pesticides and chemical fertilizers.
- Some studies suggest connections between pesticide exposure and increased risk to human health. Children are especially vulnerable as they are smaller and still developing and are more likely spend more time playing outside.
- Plants and animals in the ecosystem, including pets, can also be affected since they may live and eat where chemicals are applied.
- Chemical fertilizers generally do not build up the soil the way organics do. Over dependence on chemicals can degenerate the soil to a sterile environment devoid of creatures that make natural soils healthy, living and diverse ecosystems.

Remove Invasive Alien Competitors

- Get to know invasive aliens, pull or dig them out and give native species a chance to grow.
- Here’s a list of highly invasive species prepared by the Canadian Botanical Conservation Network (see rbg.ca/cbcn) from their Invasive Plant List to get you started:
 - Garlic mustard, Hedge garlic (*Allaria petiolata*)

- Oriental bittersweet, Asiatic bittersweet (*Celastrus orbiculatus*)
- Dog-strangling vine, Black swallowwort (*Cynanchum nigrum*)
- Autumn olive (*Elaeagnus umbellata*)
- Leafy spurge, Wolf's milk, Faitours grass (*Euphorbia esula*)
- European frog-bit (*Hydrocharis morsus-ranae*)
- Purple loosestrife, Swamp loosestrife (*Lythrum salicaria*)
- Eurasian water milfoil, Spiked water milfoil (*Myriophyllum spicatum*)
- Japanese knotweed, Mexican bamboo (*Polygonum cuspidatum*)
- European buckthorn, Common buckthorn (*Rhamnus cathartica*)
- Glossy buckthorn, Black buckthorn (*Rhamnus frangula*)

Plant Native Species in Your Garden

- Consider adding native plants to your current garden. CWF's website **WildAboutGardening.org** is a great resource for gardeners. Also, see the "Gardening Gab" section where you can post questions and share information with other wildlife gardeners.
- This site includes information to help you enhance your garden with species of native plants suitable to your climate and soil conditions.
- Most native plants, such as highbush cranberry (*Viburnum trilobum*), provide food sources for wild animals that have evolved and adapted together.

Register Your Backyard

- Visit **WildAboutGardening.org** to enrol in CWF's Backyard Habitat Program. Then, certify your backyard and join hundreds of Canadians who are already part of this conservation program.
- Many native species are available from reputable garden centres, some of which specialize in native plants.
- Consult the *Wild About Gardening* website for names of native plant suppliers in your area that grow plants from seeds.
- These experts can advise you on the types of plants best suited to your growing region.

Follow Ecological Restoration Practices on Your Property

- Consider returning large sections of your property to native species.
- Once established, a healthy native plant plot requires less water and fertilizer and basically maintains itself. It provides habitat for wild creatures, increases biodiversity and resists invasive alien species.
- This practice is also known as ecological restoration. The objective is to restore the diversity of species that were once present and remove the causes of original disturbances (such as invasive alien species and use of pesticides).

Develop Wildlife Spaces

- If you are planning a large "ecological restoration" on a property, pay attention to the concept of corridors of native plants that can join otherwise isolated patches of natural areas.
- Well-planned corridors can enhance the areas they connect by increasing forage areas for wild critters, offering refuge spots from predators and encouraging connections between members of a species.

Spread Out in Your Community

- Everything you try out on a micro-level in a yard can be taken to a larger level by getting involved in (or starting) community projects involving your school, local parks or regional, provincial or national parks.
- Many local, regional and national organizations already exist to promote native plant gardening, ecological restoration of shorelines or of particular ecosystems (such as tallgrass prairie or Garry oak savannah) or species protection (such as the Canadian Chestnut Council).

Create WILD School Projects

- Enrol in the WILD School program and register a school or youth group project. See **WildEducation.org** for details on how to join and ask for mini-grants to get you started.

Local Native Plants

Grades: Any

Subjects: Science, Language Arts, Arts, Social Studies

Learning Outcomes

Students will be able to:

- Identify local native plants and invasive plant species
- Describe the importance of native plants within the environment
- Learn how to keep records in the form of a journal (data collection and data analysis)

Skills: Communication, observation, reading, recording, research, sketching

Duration: 60 to 90 minutes, several hours

Setting: Indoors and Outdoors

Materials: Journal-type notebook

Summary: Students learn to identify the various local native plants through collection of information or specimen and research.

Background: Native plant species vary across Canada. Look on CWF's *Wild About Gardening* website at **WildAboutGardening.org** for native plants and the types that can be found in your region, as well as other information such as:

- a searchable encyclopedia of native plant species;
- a province-by-province listing of local sources for native plants and seeds; and
- tips for planning a successful wildlife garden.

This activity combines writing, specimen collection and sketches to record the various species of native plants. There are many methods to preserve plant specimens. Two suggested methods for this activity are the pressing method and the borax method.

• *Pressing method:*

- The plant material is placed between the pages of a book or newspapers, which is closed and weighted.
- Material preserved with this method can be arranged in framed displays.

• *Borax method:* This method involves burying the flowers in a mixture of borax and white cornmeal (in a ratio of 2:1) or borax and sand (2:1).

- About 10 days is the average time period required if cornmeal is used, and about 16 days of drying time if sand is used.
- Please note that the flowers can be burned if embedded too long.
- It is important to use the correct procedure when covering the flowers so that their form will be maintained.
- To cover a flower, put about two centimetres of the mixture at the bottom of the container. Cut the flower stem to about one centimetre and place the flower into the centre of the material at the bottom to hold the flower.
- Next, pour the mixture along the perimeter of the container, away from the flower, building up a continuous mound of about 2.5 centimetres.
- Then tap lightly on the container and the material will move to the flower, not altering the form of the petals (in other words, the mixture will not weigh down the petals as it would if it were poured on top of the flower).
- Continue adding the mixture and tapping on the container until the flower is completely covered.
- Lastly, add a couple of centimetres of the material above the top of the flower.

Use the Resource Sheets contained in this unit as reference materials.

Procedure:

For younger students:

1. Keep the activity simple.
2. Discuss the importance of native plants and their role within the ecosystem and environment. Refer to the Resource Sheets contained in this unit.
3. Have students gently collect plant or flower specimens that will help them identify the various species of plants found in the school yard. Students could also take digital photographs rather than live specimens.
4. Use any preferred preservation method (see the above Background section for suggestions) before or after the specimen has been identified.
5. Identify the specimen with the help of the plant encyclopedia found at **WildAboutGardening.org**. Are the specimen native or invasive plant species?

For older students:

1. Give each student a blank journal or use one journal for a small group of students.
2. Discuss the importance of native plants and their role within the environment and the local ecosystem.
3. Discuss with students the possible entries that could be made, such as:
 - Sketches of observed plant species located around the school yard area or around their home;
 - a map of the site where they drew the plants;
 - an inventory of animal signs and sightings; and
 - general observations of the sketched plants and their surroundings.
4. Ask students to research and identify their sketched plants. Ask them to find answers to questions such as: Are the plants native or invasive species? What are the species of native plants? All information relevant to the drawn plants should be noted in the students' journals.
5. Discuss with the students their findings.
Which species of plants were found locally?
Why did they find invasive plant species?

Extensions:

1. Have younger students display their specimens during Parents' Night.
2. Have older students compile their sketches and findings into articles for their school board newsletter. Submit their articles for potential on-line publication to **WildEducation.org**.

Evaluation:

1. Ask younger students to identify at least two invasive alien species and at least two native species.
2. Have older students to identify factors that contribute to instances of why invasive plant species were found in their area.

Resources and Links

There are many resources available through organizations and websites. Here are selections we recommend:

- Canadian Wildlife Federation at cwf-fcf.org
- WILD Education at WildEducation.org
- Wild About Gardening at WildAboutGardening.org
- Hinterland's Who's Who at hww.ca
- Atlas of Canada at atlas.gc.ca
- Biodiversity Convention Office of Environment Canada at cbin.ec.gc.ca
- Canadian Museum of Nature at nature.ca
- Canadian Wildlife Service of Environment Canada at cws-scf.ec.gc.ca
- Environment Canada at ec.gc.ca
- Committee on the Status of Endangered Wildlife in Canada at cosewic.gc.ca
- Parks Canada at pc.gc.ca
- Royal Botanical Gardens at rbg.ca
- Canadian Botanical Conservation Network at rbg.ca/cbcn
- Fisheries and Oceans Marine Protected Areas at dfo-mpo.gc.ca/oceans/marineareas-zonesmarines/mpa-zpm/index-eng.htm

Also visit the following sites for more information:

- North American Native Plant Society at nanps.org
- Native Plant Curriculum at swa.ca
- Boreal Forests at Lakehead University at borealforest.org/shrubs.htm
- Prairie National Wildlife Area (Environment Canada) mb.ec.gc.ca
- Introduction to Tall Grass Prairie in Southern Ontario (University of Waterloo) at fes.uwaterloo.ca
- Grasslands Conservation Council of British Columbia at bcgrasslands.org
- Tallgrass Prairie in Ontario at tallgrassontario.org
- Status of Wild Species in Canada at wildspecies.ca
- Invasive Plants of Canada: An Introduction (Canadian Botanical Conservation Network) at rbg.ca/cbcn/en/projects/invasives/invade1.html
- Why is Biodiversity Important (McGill University) at redpath-museum.mcgill.ca/Qbp/2.About%20Biodiversity/importance.html
- Canadian Biodiversity Website (McGill University) at canadianbiodiversity.mcgill.ca/english/index.htm
- Pesticides and Health Effects (City of Toronto) at www.toronto.ca

- The Canadian Chestnut Council (University of Guelph) at uoguelph.ca
- A Guide to Establishing Prairie and Meadow (Environment Canada) at on.ec.gc.ca
- Habitat Fragmentation and Wildlife Corridors at science.mcmaster.ca
- Habitat Conservation Trust Fund at hctf.ca
- Ontario Wildflowers at ontariowildflowers.com
- Nature Canada at nature.ca
- Nearshore 'By the Sea Guide' Species Lists (including Plants) at glf.dfo-mpo.gc.ca/os/bysea-enmer/species_especies_latin-e.php
- Unique Irish Moss in Basin Head Marine Protected Area at dfo-mpo.gc.ca/oceans/marineareas-zonesmarines/mpa-zpm/atlantic-atlantique/factsheets-feuillets/basinhead-eng.htm
- Unique Estuary and Salt Marsh Musquash Marine Protected Area at dfo-mpo.gc.ca/oceans/marineareas-zonesmarines/mpa-zpm/atlantic-atlantique/musquash-eng.htm
- Pattern Math Cards at Integrativescience.ca
- Information about invasive species from the Secretariat of the United Nations Convention on Biological Diversity at cbd.int/ibd/2009
- Ontario's vascular plants at mnr.gov.on.ca/en/Business/Biodiversity/2ColumnSubPage/STEL02_166918.htm

Partners and Sponsors

CWF gratefully acknowledges the following partners and sponsors for their help in preparing and financing National Wildlife Week educational materials. Please visit their websites for additional resources.

Contact Information

For more information about wildlife and protected areas in your region, contact our National Wildlife Week partners.

Provincial and Territorial Governments

Alberta Sustainable Resource Development Public Information, Education and Outreach Programs

Ground Floor, Great West Building
9920-108 St.
Edmonton, AB T5K 2M4
Tel.: 780-644-1742
Fax: 780-427-4407
Website: srd.gov.ab.ca

Wild BC

Habitat Conservation Trust Fund

Suite 100-333 Quebec St.
P.O. Box 9354, Stn. Prov. Govt.
Victoria, BC V8W 9M1
Tel.: 250-356-7111
Fax: 250-952-6684
E-Mail: WILD@gov.bc.ca
Website: hctf.ca/wild.htm

Manitoba Conservation

Wildlife and Ecosystem Protection Branch

P.O. Box 24, 200 Saulteaux Cres.
Winnipeg, MB R3J 3W3
Tel.: 204-945-6811
Fax: 204-945-3077
Website: manitoba.ca/conservation/wildlife

New Brunswick Department of Natural Resources Fish and Wildlife Branch

P.O. Box 6000
Fredericton, NB E3B 5H1
Tel.: 506-453-2440
Fax: 506-453-6699
Website: gnb.ca/0078/index-e.asp

Newfoundland and Labrador Salmonier Nature Park

P.O. Box 190
Holyrood, NL A0A 2R0
Tel.: 709-229-7888
Fax: 709-229-7078
E-Mail: BrendaPike@Mail.gov.nl.ca
Website: gov.nl.ca/snp

Northwest Territories Department of Environment and Natural Resources Wildlife Division

#600-5102-50th Ave.
Yellowknife, NT X1A 3S8
Tel.: 1-867-873-7765
Fax: 1-867-873-0293
E-Mail: Terrianne_Berens@gov.nt.ca
Website: nwtwildlife.com

Nova Scotia Department of Natural Resources Program Development Division

P.O. Box 698
Halifax, NS B3J 2T9
Tel.: 902-424-7708
Fax: 902-424-7735
Website: gov.ns.ca/natr

Nunavut Department of Environment Government of Nunavut

P.O. Box 1000 Station 1300
Iqaluit, NU X0A 0H0
Tel.: 1-866-222-9063 OR 1-867-975-7700
Fax: 1-867-975-7742
E-Mail: environment@gov.nu.ca
Website: gov.nu.ca/env

Ontario Ministry of Natural Resources

Ontario Natural Resources Information Centre

P.O. Box 7000, 300 Water St.
Peterborough, ON K9J 8M5
Tel.: English: 1-800-667-1940
Tel.: French: 1-800-667-1940
Fax: 705-755-1677
Website: mnr.gov.on.ca

Prince Edward Island Department of Environment, Energy and Forestry Forests, Fish and Wildlife Division

P.O. Box 2000, 183 Upton Road
Charlottetown, PE C1A 7N8
Tel.: 902-368-4683
Fax: 902-368-4713
Website: gov.pe.ca

Ressources Naturelles et Faune (Faune Québec) Centre d'Information

Edifice Marie-Guyart, R.-D.-C.
675, Boulevard René-Lévesque est
Québec, QC G1R 5V7
Tel.: 418-521-3830 OR
1-800-561-1616
Fax: 418-646-5974
E-Mail: info.sfp@fapaq.gouv.qc.ca
Website: mrnf.gouv.qc.ca

Saskatchewan Watershed Authority Park Plaza

2365 Albert Street
Suite 420
Regina, SK S4P 4K1
Tel.: 306-787-0726 (OFFICE)
Tel.: 306-787-5242 (EDUCATION SPECIALIST)
Fax: 306-787-0780
E-Mail: Lizabeth.Nicholls@swa.ca
Website: swa.ca

Yukon Department of Environment Conservation Education and/or Wildlife Viewing

P.O. Box 2703
Whitehorse, YT Y1A 2C6
Tel.: 1-867-667-3675 OR
1-867-667-8291
Fax: 1-867-393-6206
E-Mail: Remy.Rodden@gov.yk.ca
Website: environmentyukon.gov.yk.ca

Federal Agencies and Organizations

Atlas of Canada

Natural Resources Canada
615 Booth Street, Room 650
Ottawa, ON K1A 0E9
Fax: 613-947-2410
Website: atlas.gc.ca

Canadian Museum of Nature Canadian Centre for Biodiversity

P.O. Box 443, Stn. "D"
Ottawa, ON K1P 6P4
Tel.: 1-800-263-4433 OR
613-566-4795
Fax: 613-364-4022
E-Mail: abreau@mus-nature.ca
Website: nature.ca

Parks Canada

25 Eddy St., 6th Floor
Gatineau, QC K1A 0M5
General Inquiries: 1-888-773-8888
E-Mail: Information@pc.gc.ca
Website: pc.gc.ca

Royal Botanical Gardens

680 Plains Road West
Burlington, ON L7T 4H4
Tel: 905-527-1158
Fax: 905-577-0375
Website: rbg.ca

Scouts Canada

1345 Baseline Road
Ottawa, ON K2C 0A7
Tel.: 613-224-5131
Fax: 613-224-3571
E-Mail: Mailbox@scouts.ca
Website: scouts.ca

Environment Canada

Environment Canada Inquiry Centre

70 Crémazie St.
Gatineau, QC K1A 0H3
Tel.: 1-800- 668-6767
Fax: 819-994-1412
Tty: 819-994-0736
E-Mail: enviroinfo@ec.gc.ca
Website: ec.gc.ca

Biodiversity Convention Office

Ecosystem and Biodiversity Priorities Division
351 St. Joseph Blvd., 7th Floor
Gatineau, QC K1A 0H3
Tel.: 819-953-4374
Fax: 819-953-1765
E-Mail: enviroinfo@ec.gc.ca
Website: cbin.ec.gc.ca

Région du Québec

Service Canadien de la Faune

1141, Route de L'Église
Sainte-Foy, QC G1V 4H5
Tel.: 1-800-463-4311
Fax: 418-648-3859
E-Mail Quebec.scf@ec.gc.ca
Website: qc.ec.gc.ca/faune

Atlantic Region

Canadian Wildlife Service

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