THE GREAT TRAIL of CANADA

BIOKIT

Trans Canada Trail
Sentier Transcanadien

Four seasons of fun for the whole family!

A TRAIL TO EXPLORE

The Great Trail of Canada is the longest network of recreational multi-use trails in the world, and stretches over 27,000 kilometres. The Trail connects landscapes and waterways from the Atlantic to the Pacific and Arctic oceans, and links 15,000 communities across the country. As such, it provides countless possibilities to explore Canada's biodiversity.

This BioKit will help the whole family explore the Trail, take notice of the nature all around them and get involved in environmental issues. It can be used all year round, so let's get started!

RECONNECT WITH YOUR ENVIRONMENT...

How the BioKit works

1. Choose a section of The Great Trail of Canada near your home. You may also use the **Explore the Map** tool on the Trail website.
2. Take your material: smartphone, magnifying glass, binoculars, pencil and clipboard.
3. Head towards the chosen section with an adult. Once there, begin your outing and complete the BioKit actvities on the following pages.
4. On your return, discuss your outing with other people and note the results of your diagnosis and of your appendix. Feel free to share them and tag @TheGreatTrail on Facebook and Twitter!

Are you ready to explore the longest network of trails in the world?

"When browsing the BioKit, you'll have to face several challenges to uncover the unique aspects of the nature surrounding you. I'll accompany you for a bit, since it's my profession and even the greatest explorer needs pointers!"

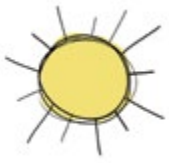
Name of section visited: _____

Date: _____ **GPS coordinates (optional):** _____

Departure time: _____ **Return time:** _____

WEATHER

Temperature: _____



☐ Sunny

☐ Partly cloudy

☐ Cloudy

☐ Rainy

☐ Snowy

☐ Windy

Modern explorers leave no trace!

Use the seven principles of the **Leave No Trace** program as a guideline to help reduce the impact of your outdoor activities on the Trail environment.

1 Plan ahead and prepare.

2 Travel and camp on durable surfaces.

3 Dispose of waste properly.

4 Leave what you find.

5 Minimize campfire impacts.

6 Respect wildlife.

7 Be considerate of others.

You know you're on the Trail when you see this logo!

"You're finally on the Trail!
By the way, what is a trail?"

A trail is much more than just an access lane!
It can be used to:

- Get back to nature
- Travel to work or school
- Explore communities
- Get back into shape
- Learn about our history

And why are you on the Trail?

_____

A TRAIL FOR BIODIVERSITY

Plants and animals also have their own trails that they use for finding food, finding a mate, and getting around. They circulate on what are known as biological corridors. These vegetation strips are very important for maintaining biodiversity. If you were an animal, could you easily travel along the The Great Trail of Canada? If so, you may also be on a biological corridor.

Come face to face with the signs! Found all along the Trail, Interpretive Panels provide information on the surrounding wildlife and plants. Keep your eyes open!

Finding your benchmarks

> When you go off on an adventure, it's important to ask yourself where you came from, where you are and where you're headed!

Where are your coming from?

Could you indicate in which direction your house is found?

_____

Where are you?

What is derived from nature? _____

What was modified by humankind? _____

What was this section of the Trail in the past? _____

Where are you headed?

Finding north enables explorers to find their way and use a map properly. But how can you manage without a compass?

Here are three methods!

A watch with hands

Holding your watch flat, point the hour hand towards the sun. South is located between the hour hand and 12 o'clock, and north is in the opposite direction.

With the help of a shadow

Using a stone or any other object, mark the location where the shadow of a pole or branch planted in the ground ends. Wait fifteen minutes and then place a second stone where the shadow now ends. Connect both stones with a line. The first stone indicates the west and the second the east.

In relation to the sun

The sun rises in the east, is located south at noon and sets in the west.

Did you know... When you turn out your lights at night, you help migrating birds. Some use the stars to navigate at night. Unfortunately, city lights sometimes cause them to lose their way and they use up their energy going in the wrong direction.

The Trail, from another viewpoint

Little brown bat

Bats situate themselves by emitting high-pitched cries that humans cannot hear: ultrasounds. These cries bounce off the various surrounding objects. The bat perceives this echo and can easily locate in mid-air the insects it feeds on. This is called echolocation.

> "Skillful adventurers must use all of their senses to fully explore the Trail!"

Test your senses with these activities and, at the same time, compare them with the senses of different Canadian animals.

HEARING

Hold your breath and identify the sounds around you.

Sounds of other Trail users:

Sounds of nature:

TOUCH

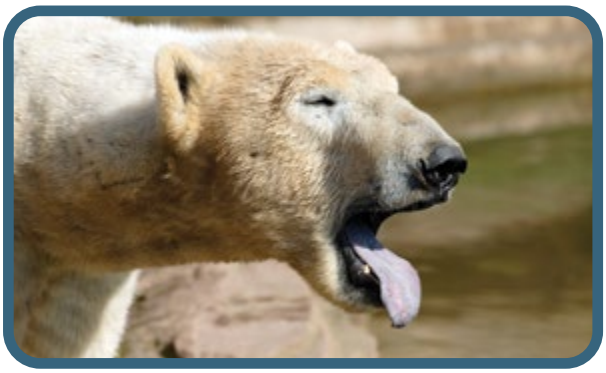
Using your hands, locate the object in nature that is…the smoothest, the roughest, the spikiest. And if you were to tickle someone, what would you choose?

Try echolocation!

1. Blindfold a person in your group to be the "bat".
2. The rest of the group will be the "insects".
3. The "bat" repeatedly calls out "Beep, beep".
4. The "insects" must responnd "Buzz, buzz".
5. The "bat" tries to catch an "insect".

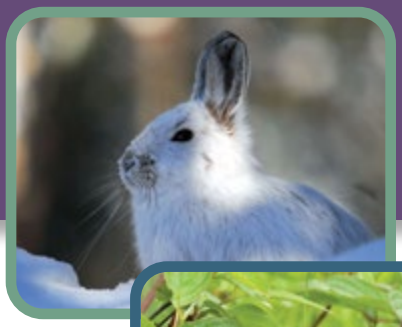
SMELL

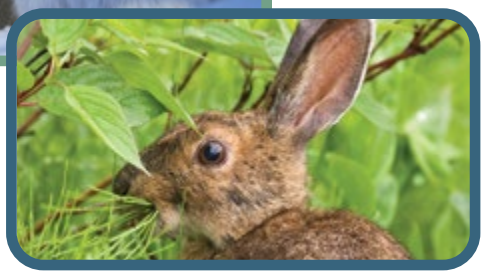
Have your companions try to guess a natural element on the Trail simply by its odour and by placing it under their nose. Be creative: choose a blade of grass, some moss, a damp leaf or even your snack!



A polar bear's sense of smell is very developed: it can easily detect the presence of a seal more than a kilometre away!

The Trail
all year





Colour code

Among animals, bright colours are used to seduce or signal danger, where as discrete colours help for camouflage and concealment or to hunt a prey.

If you were an animal, what colour would you be?

_____

> “No matter the season, the Trail will unveil all of its colours and shapes to you! Use your eagle eyes to find the following natural elements.”

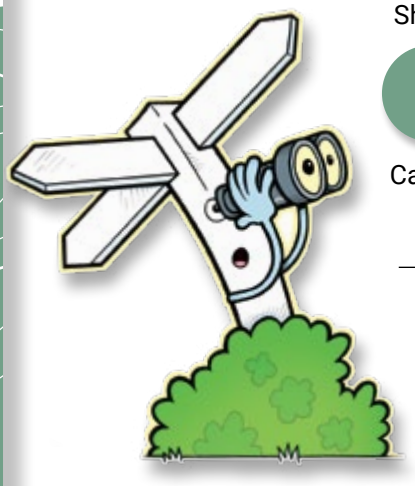
Colours

Which colour is the least common?

_____

And the most common?

_____



Shapes:

Can you see other shapes?

_____

Did you know...

The coat colour of the North American hare changes with the seasons so it can hide from its predators. From brown in the summertime, it becomes entirely white come winter.

On a trail!

Keep your eyes open near muddy of snow-covered areas of the Trail. No matter the season, you'll probably find some tracks made by animals or by Trail users.

What footprints did you see on the Trail?

_____

Small , medium and large explorers!

“As a panel, I discover the world my way: at trail intersections. But what would I see if I explored it in the skin...”

...of a bird?

Stand upright on a raised area such as a rock, a bench, a hill and fly away! As a bird:

Where do you build your nest?

_____

What do you eat?

_____

... a tree?

First, find a place to take root! Then spread out your arms to make branches. Now you’re a big tree:

What plants or animals seek shelter on your trunk or branches?

_____

_____

Are the other trees similar to you? Why?

_____

_____

... an ant?

Find a little patch of grass along the trail. Now, get down on all fours! Explore this site in great detail as though you were an ant:

How many plant species do you see?

_____

Are there any other tiny creatures around?

_____

A healthy ecosystem:

- **cleans the air and water**
- **produces oxygen**
- **traps carbon dioxide gas**
- **controls insects and animal pests naturally**
- **encourages pollination**
- **helps control flooding and erosion**
- **produces fertile soil**
- **plays an important role in the economy, health and food safety**

These are services that the public would otherwise pay for.

Source of life

If you don't see any water at first glance, it must certainly be right underneath your feet! The ground acts like a huge sponge by collecting rainwater. If possible, try to plunge your finger in the ground to feel its buried dampness!

Wetlands are among sites that welcome the most incredible biodiversity. They also act as huge filters by removing over 90% of the pollutants found in water.

What do you see next to water?

- ☐ Birds
- ☐ Insects
- ☐ Fish
- ☐ Amphibians
- ☐ Mammals
- ☐ Algae
- ☐ Mosses
- ☐ Bushes
- ☐ Trees
- ☐ Ferns

Fill up!

To remain well-hydrated during an outing on the Trail, it's important not to run out of water! If your water bottle is empty, where is the closest location to fill it up with drinking water?

"During your adventure, you'll probably come across some water in a variety of forms such as a waterfall, a lake, a pond. Take a moment to stop and observe, since where there's water, there's life!"

SECOND RIVER TO THE RIGHT

Water was long the best option to explore Canada. Why is that? In the past, travelling on rivers or lakes was the only way to cover long distances within the country.

If you took the next watercourse in a canoe, where could you go?

Long live diversity!

IF YOU WERE AN EXPLORER, WHAT NEW FACULTY WOULD YOU INVENT TO EASILY EXPLORE:

Rocky Mountains? _____ Underwater life?_____

The Arctic? _____ Forest? _____

Attempt to locate a plant or animal that has adapted to its environment in a unique way. What did you find?

_____

"The tremendous diversity and adaptation capacity of species allow life to exist in all parts of the country, and by means that are sometimes quite astounding!"

HERE ARE A FEW ORIGINAL SPECIES YOU MAY SEE ALONG THE TRAIL

The Canada lynx has very large feet covered with coarse hair that enable it to travel over thick snow, like snowshoes.

Skunk cabbage is one of the only known plants able to produce heat. By bringing its temperature to more than 20°C over that of the ambient air, it manages to melt the snow in spring for early blooming!

Photo: © Environment Canada

The wood frog can easily survive even if its body temperature drops below the freezing point: its blood contains 100 times more sugar than that of humans, preventing it from freezing!

Cacti in Canada? You bet! Four species have adapted to the country's conditions. Brittle pricklypear is found from British Columbia to Ontario and is one of the cacti that grows the furthest north.

Photo: © Harold Sellers

The secret life of cities

Take a close look at the cracks on the ground. You may come across the broad-leaved plantain, a species commonly found in major Canadian cities.

"The Trail will lead you through the heart of the country's major cities. A unique biodiversity can be found here if you know where to look for it. This is the perfect mission for an urban explorer!"

With their agile hands and their ability to eat anything, raccoons have adapted to live in the city. Under bridges, you can see all kinds of nests.

PROWLING FOR LICHENS

Air pollution can worsen health problems like asthma. Did you know that the type and amount of lichens growing on tree trunks can tell us about the air quality? Most lichens are sensitive to air quality and deteriorate when air pollution levels are high.

So, what did you see?

Plants _____

Animals _____

Take a look at the the tree trunks around you.

Do you see any lichen? _____

Do you see different types of lichens? _____

Lichen: composed of a fungus and an alga livingin symbiosis (a relationship that benefits both). Lichen forms a clump, sometimes coloured, on tree trunks and rocks.

City streets are often tree-lined. Draw the leaves and bark of your favourite one. You can try to identify it upon your return.

Intrusive travellers

Introduced to Canada, by accident or on purpose, these plants and animals represent a major threat to biodiversity and are very hard to control.

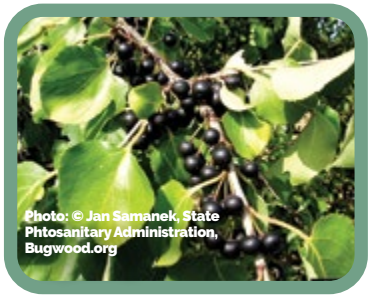
European green crab

Found on Canada's east and west coast since the 1950's, the European green crab causes significant damage to mollusc and crustacean populations. It also hunts the common crab, an indigenous species.

"Here are several examples of exotic invasive species found in Canada. Have you seen them?"

Emerald ash borer

Detected in Quebec and Ontario in 2002, this insect has already caused the death of millions of ash trees in America. Its larvae bore galleries under the bark, which prevent the sap from circulating, causing the death of the tree.



European buckthorn

This large bush found in eastern Canada grows very densely, inhibiting the growth of all other plants. Even when you cut it, its branches will grow back again from the stump without a problem.

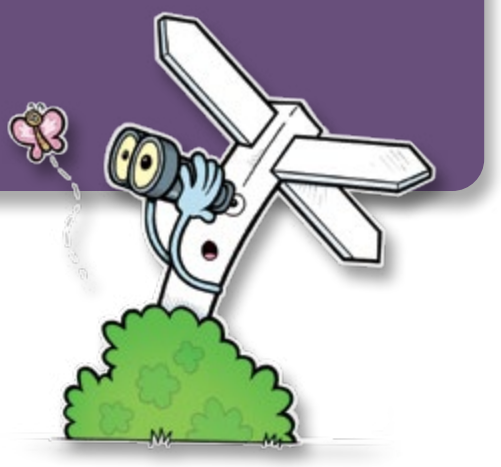
Leafy spurge

Found mainly in the Prairies, the leafy spurge is a ruthless enemy of biodiversity. Its roots even produce a substance that inhibits the growth of other nearby plants! In addition, its sap may irritate human skin and can poison livestock.

ADVICE ON FIGHTING AGAINST INVASIVE ALIEN SPECIES

- **Don't transport firewood from one region to another. It may contain invasive insects.**
- **Keep your garden in bloom with local species.**
- **Clean your outdoor equipment regularly to prevent dispersal of plant seeds.**
- **Be aware of the invasive species in your region.**
- **Don't bring back any fruits, vegetables, plants or animals from your trips abroad.**

United we stand



> Canada has more than 500 species at risk. Why? To find out, pretend you are a flower that only grows beside the Trail!

What happens to you if...

A part of the Trail is closed to build homes? _____

A great many of you are picked to make bouquets? _____

A new plant takes up all the space and puts you in the shade? _____

Contaminated water makes you sick? _____

The temperature in your region becomes too high for you? _____

Strength in diversity

Species diversity allows an ecosystem to better resist disruptions, such as disease or natural disaster. This is why every species, big or small, is important.

Is there a species at risk in your region?

_____

If the answer is yes, which one?

_____

Main causes of biodiversity loss

- **Habitat loss**
- **Overharvesting of natural resources**
- **Pollution**
- **Introduction of invasive exotic species**
- **Climate change**

IF THERE'S A WILL, THERE'S A WAY!

Different measures have improved the status of these species at risk in recent years:

Whooping crane

Peregrine falcon

Swift fox

Eastern bluebird

Don't miss it

"Your adventure is coming to an end... but many other wonders await you on the Trail. What will your next destination be?"

THE GREAT TRAIL OF CANADA STATS

Connects **Canada** from coast to coast to coast

Over **27 000** kilometres on land and water

80% of Canadians live just 30 minutes away from a Trail section

Over **15,000** communities connected by the Trail

Over **400** Trail sections across Canada

Almost **500** local groups involved

My diagnosis

"Now that you have gathered an abundance of observations, use them to reach your own diagnosis about the health of your Trail section by filling in the chart."

Check the boxes that apply	Excellent!	Not bad but...	Things must improve!
General impression of the Trail	☐	☐	☐
Diversity of Trail users	☐	☐	☐
Presence of a wildlife corridor	☐	☐	☐
Surrounding sounds	☐	☐	☐
Smells present	☐	☐	☐
Biodiversity: plants and trees	☐	☐	☐
Biodiversity: animals	☐	☐	☐
Air quality	☐	☐	☐
Presence of water	☐	☐	☐
Invasive species control	☐	☐	☐

Recommendation

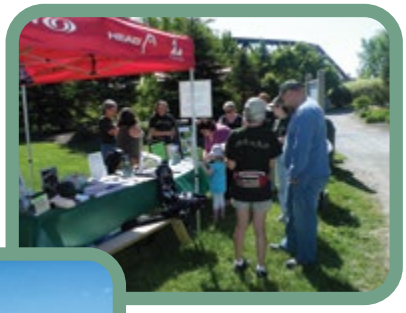
Enjoy your environment and help preserve the threatened species in your area.

Choose one thing you would like to improve and think up a feasible solution.

Many heads are better than one! Talk to people about your concerns; they might join your improvement efforts.

Encourage biodiversity

"After your great expedition, it's now your turn to encourage biodiversity! Whether on the Trail or at home, there are plenty of actions you can take."

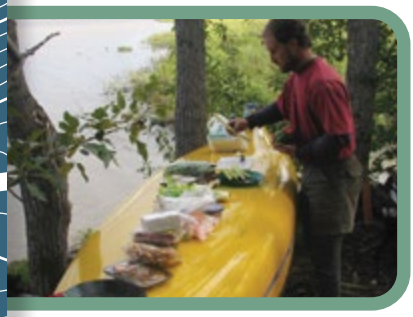


Maintain a yard that welcomes biodiversity.

Remove invasive alien plants.

Compost oudoors or indoors using vermicomposting.

Find out about the activities held on the Trail by the local organization responsible for it.



Learn about and practice the seven principles of Leave No Trace.

Create a supportive environment for fauna with indigenous plants.

It is estimated that millions of birds fall prey to cats each year in Canada. To help make your neighbourhood more bird-friendly:

- **Consider keeping your cat indoors, particularly from dawn until dusk;**
- **Set up safe bird houses and feeders that are not easily accessible to cats;**
- **Promptly report any stray or feral cats;**
- **Turn off any excess lighting at night.**

Think back on your outing

Draw the route that you covered on the Trail.

Note your discoveries: a magnificent bridge, specific bird, unknown flower, etc.

You have explored a section of the Trail on the lookout for its small wonders.
As a reminder of your experience and in order to share it, it's time tocreate a map of your outing.