

Montréal 



Biosphère
URBAN
Bio**kit**
MONTREAL



Government
of Canada

Gouvernement
du Canada

Canada 

Four Seasons of Fun for the Whole Family!



A walk on Mount Royal.

URBAN ECOSYSTEMS AT YOUR DOORSTEP



Are you familiar with the animals and plants near your home? How much do you know about the biodiversity in your neighbourhood? To help you explore your surroundings, the Biosphère, Environment Museum, and the Ville de Montréal are pleased to present this urban activity.

Environment Canada's Biosphère encourages citizens to take action and get involved in environmental issues. In addition to presenting exhibits and special events, the Biosphère develops educational and awareness-raising products for a diverse clientele across Canada and is a recognized clearinghouse for environmental information.

Montréal plays a significant role in preserving and promoting biodiversity. At the international level, the city is a member of the Global Partnership on Cities and Biodiversity. The United Nations Secretariat of the Convention on Biological Diversity has been based in Montréal since 1996.

www.ec.gc.ca/biosphere
www.ville.montreal.qc.ca/english

Reconnect with your environment... and build your EcoProfile

www.ec.gc.ca/biotrousses-biokits



How the BioKit Works

1. Choose a nearby park. Print the annex specific to your chosen park (if applicable).
2. Gather up your equipment: GPS unit (optional), magnifying glass, binoculars, camera, pocket-size mirror, pencil and clipboard.
3. Step out your front door and consider your surroundings in order to answer the questions on the two following pages.
4. Walk to the park you chose in step one. Once there, continue observing the environment around you (follow along with the questions in the following sections of the BioKit).
5. Upon your return, discuss your outing with friends and family. Share the results of your diagnosis and of your park annex on the BioKits website.

When words are highlighted this way, a link to a website is available on the BioKits website and in the PDF version of this document.

The Urban Environment

As you step out the door and make your way to the park, check off the numbered items in the drawing as you notice them. What role do they play in your surroundings? (See the examples below.)

By 2020, 90 percent of Canada's population is expected to live in cities. All of these cities were built in the wilderness and are still surrounded by nature, though this may not always be obvious. Are your surroundings welcoming to you and to nature?



1 Trees, plants and flowers =

improve air quality and provide shelter for wildlife

2 Insects and animals = show

that our urban environment is healthy

3 An urban water source = can ensure life, health

and safety

4 A health clinic = protects the well-being of people and the community

5 Green transportation = helps reduce greenhouse gases

6 A neighbourhood business = boosts the local economy and contributes to its diversity

7 Objects connected with recycling = show responsible consumer behaviour

8 A community garden = provides a local food supply and opportunities for socializing

9 A public bench = provides a spot to relax and connect with others

10 A public gathering spot = nurtures a sense of belonging

11 An activity area for young people = allows for balanced development

12 A cultural location = enriches the community

13 An historic building = gives the city character and attracts tourists

14 Urban art = creates beauty and a place for reflecting

15 Name a local place you would take your friends to visit = a source of community pride!

Biodiversity on your doorstep!

An alleyway is an ideal place to observe biodiversity in the city. Is yours green or grey? If your alleyway has several of the following elements, it is green!

- ☐ Concrete removed to put in plants
- ☐ Trees forming a canopy over the alleyway
- ☐ Flower planters made from recycled materials
- ☐ Climbing vines on the walls
- ☐ A community compost site
- ☐ Murals decorating the area
- ☐ Barrels of collected rainwater for watering the plants



Common hop



No alleyway? No problem!

You can observe the biodiversity in one of these places:

- Your yard
- The sidewalk in front of your house
- The balconies along your street
- A public space
- A schoolyard



On the sidewalk, open your eyes!

Some plants have probably made themselves at home in the cracks and tiny spaces of the urban jungle.

Can you find these three species?



Common plantain

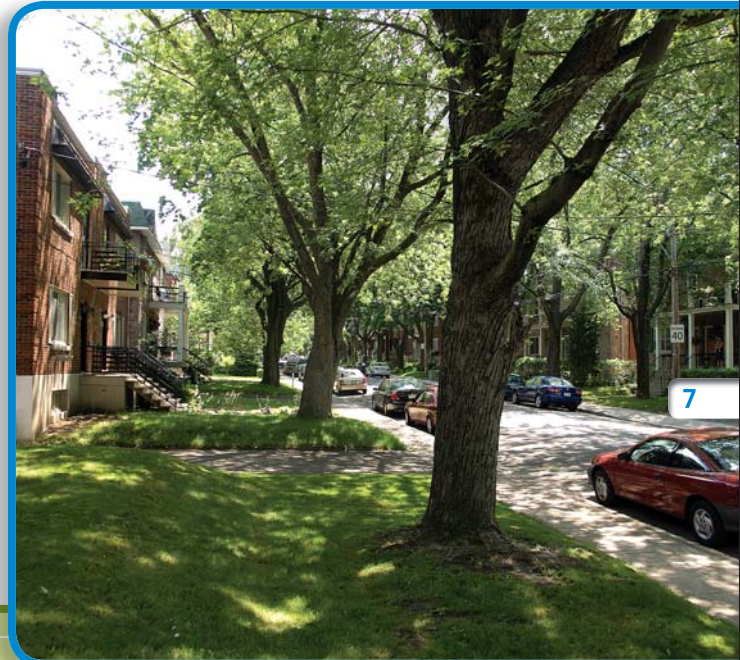
Note: MBG = Montréal Botanical Garden



Pineappleweed



Common knotgrass



Draw or photograph the bark and leaves of the trees in your front yard. You can try to identify them when you get back home.

The trees lining Montréal's streets are among the thousands that are turning the city green. Numerous species have been planted, but about a dozen or so are more common in all neighbourhoods.

It's a Go!

Between your home and the park, did you observe green spaces?



Are animals able to travel from one green space to another? _____
If so, you may be standing in a wildlife corridor.

Wildlife corridors: In cities, parks, treed walkways, green alleys, flowerboxes, balcony planters and gardens can serve as urban wildlife corridors. These environments provide pathways to connect animals and plants with food, shelter and breeding areas.

Park visited: _____

Date: _____

Departure time: _____

Return time: _____

GPS coordinates: _____
(optional)

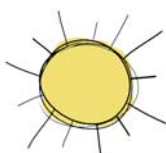
8

WEATHER

Temperature: _____ °C

Eco-friendly tips for urban nature explorers:

- Do not pick **plants** (including flowers, ferns, etc.) during your outing.
- Obey any signs asking you to stay on **pathways**.
- **Leave nature** the way you found it.
- Observe **wild animals** from a distance and don't feed them.
- Put your **trash** in waste containers or take it home with you.



☐ Sunny



☐ Partly cloudy



☐ Cloudy



☐ Rainy



☐ Snowy



☐ Windy

9

*In Montréal, wood heating is the main cause of winter smog!
A by-law now bans the addition of new wood stoves in its territory.
If you have an old model, it is possible to change it for a more recent
and much less polluting model.*

Park Visit



Find out more
See "Healthy Communities"
on page 29

TAKE A BREATHER!

Take a deep breath and look around you.

What is your first impression?

Talk about what you see with the people you are with.



Photo: Chantal Lepire



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.

Take a look at the tree trunks around you.

Do you see any lichens? _____

Do you see different types of lichen? _____

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

*Did you know...
The American Goldfinch
is the avian emblem of Montréal.*



Photo: Antonio Rizi

CRICK, CRACK, TWEET!

The sounds in our environment affect our well-being.

Close your eyes and listen. Write down the sounds you hear:

From nature:

From human activity:

Circle the sounds you'd prefer to hear less often.



Photo: MBG, Gilles Murray

*Did you know...
The crabapple
is the floral emblem
of Montréal.*

A Certain Something in the Air

Catch the Scent!

The atmosphere is an ocean of gases that we live in and breathe in all the time. Describe the odours you can smell in the air:

☐ Fruity? ☐ Floral? ☐ Diesel? ☐ Other: _____

What direction is the wind blowing from?

What did you do to find out?

The atmosphere plays an important role in how our planet functions. It protects us from the sun's rays and regulates our climate, making our survival possible.

Eco-friendly tips for clean air: 12

- **Walk**, use your bicycle, the Bixi self-serve bicycles, car-pooling services or public transit.
- When you're in a car in Montréal, **avoid idling** the engine when you're waiting. It's a municipal by-law!

SEE ANY CLOUDS IN THE SKY? HOW ARE THEY SHAPED AND WHAT DOES THEIR SHAPE TELL YOU?



☐ **Cirrus**: Located high in the sky, cirrus clouds sometimes indicate that rain is coming.



☐ **Cumulus**: Located low in the sky, these clouds often appear in good weather. In the hot, humid days of summer, they can transform into cumulonimbus clouds.



☐ **Stratus**: Usually sitting fairly low in the sky, stratus clouds often cause "grey" days and can herald storms or drizzle.



☐ **Cumulonimbus**: These are large grey clouds, taller than they are wide; in summer, they are a sign of stormy weather.

Urban Biodiversity



Find out more
See "Air Issues"
on page 29

SHAPE GAZING

Generally speaking, the more species there are, the healthier the environment.
How many different shapes of trees can you find?



☐



☐



☐



☐



☐ **Shrub**

☐ **Other**

Are the trees healthy? Look at the leaves.
Are they spotted, insect-eaten or yellow?

Montréal is teeming with natural and restored habitats. Both are useful because they offer shelter and breeding areas for plants and animals (including humans), and form the urban ecosystem.



Photo: Frédéric Desbiens

Blue Montréal

Water is usually an element that supports biodiversity. How convenient, since the island of Montréal is surrounded by it!



What types of fish can you catch nearby?

Check out Montréal's biodiversity map.



Fishing at parc des Rapides!

GRAB YOUR FISHING POLES!

The Fête de la pêche (fishing festival) takes place in mid-June. During this event, you have a unique opportunity to fish without a licence.

Various activities are organized each year to allow you to discover the biodiversity of aquatic environments.

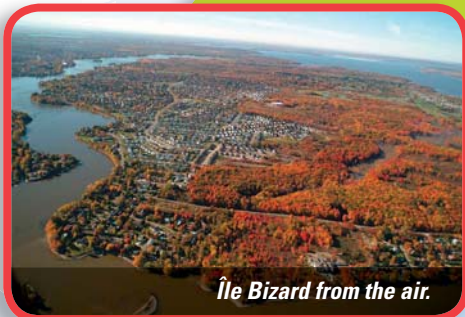
14

Relics of history

This map shows you the former streams that once ran through the island of Montréal. Do you live near a former stream?

Most of these small streams have disappeared or been redirected during the urbanization of the island. A section of the Little Saint-Pierre River, channelled at the beginning of the 19th century, can still be seen under the Pointe-à-Callière museum.

Did you know... the island of Montréal is surrounded by water... and islands! About 325 islands form the archipelago of Montréal, and 83 of them are part of the city.



Île Bizard from the air.



Pointe-à-Callière Museum

15

Hide and Seek!

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.



If you see a bird or a squirrel pass by with a twig, a string or something else (sometimes unusual) in its mouth or beak, follow it from a distance and with a little luck, it might lead you right to its nest. Take care and remember, do not disturb the occupants!

16

The Secret Life of Trees

Take a closer look. There could be a nest hiding in that hollow tree trunk! Look closely at treetops too. See any nests made by:

- squirrels,
- birds,
- wasps?

Or any cocoons built by insects?

Look for **animal tracks** in the snow or in the mud. Notice the different shape and arrangement of paw-prints or footprints and follow the trail.



Striped skunk

Some key things to look for:

- Does it have two feet or four?
- Are the footsteps close together (maybe indicating a smaller animal) or far apart (a bigger animal)?
- How many toes are there?
- How are they oriented?

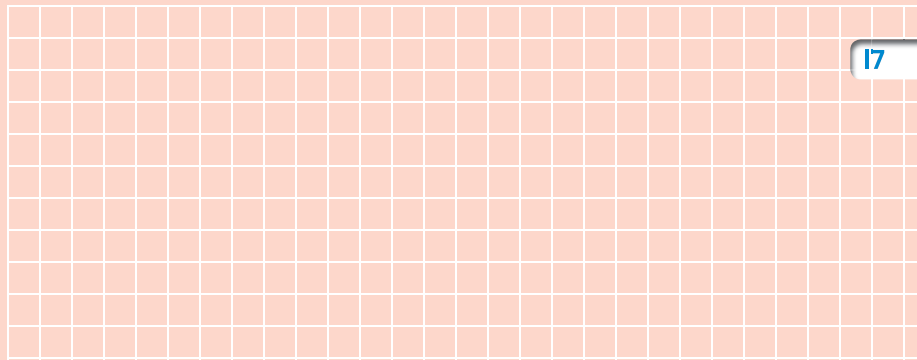
American Crow

Winter Comes and Life Goes On

Follow that Trail! Check whether animals left any clues like leftover food, scratch marks, dung or tracks as they passed by trees. What can you see?

Sketch

a picture of the tracks you find so you can identify them when you get back home.



17

Did you know that the red squirrel makes its own maple syrup? It bites the bark to get to the woody tissue and lets the sap flow. Once the water evaporates, it returns to harvest the "syrup"!



Gardening!

Montréal has many initiatives that encourage vegetable gardening in the city. In addition to community gardens, there are loads of other initiatives in place.

More than **15 public markets** offer fresh regional products. Are you familiar with the one closest to you? Find it using the [green map](#).

Photo: Linda Turgeon

A BALCONY GARDEN? WHY NOT?

The Alternatives organization has developed a perfect technique for gardening in the city where soil is rare: container gardening. Equipped with a 5-day reserve of water, the containers can be placed wherever you want and can produce an impressive harvest!

*Want to get your hands dirty?
Visit the site: www.rooftopgardens.ca*

During the summer,

you can check out containers in operation on the McGill University campus right in front of Burnside Hall and behind the Cégep du Vieux Montréal. In addition to greening a concrete space, the produce from McGill's garden is given to Santropol roulant, a meals-on-wheels organization that distributes the food through a community kitchen.



Photo: Gaëlle Javvier



Photo: Gaëlle Javvier

Eco-friendly tips gardening:

- Use **compost** to fertilize your containers and garden instead of synthetic chemical fertilizers. Montréal offers free compost to its citizens. Find out more from [your borough!](#)

Montréal, melon capital?

From the late 19th century until the Second World War, the city produced the "Montréal melon". With its impressive size and lovely taste, this variety was highly sought after. In Boston and New York, a single slice of the delicious fruit at a restaurant cost as much as a steak! ***Read the full story on the BioKits website!***



Mammals, Reptiles and Friends!

HOW MANY DIFFERENT TYPES OF ANIMALS CAN YOU SEE?

Include pets, street animals, farm animals and wild animals:



Amphibians



Mammals



Fish



Reptiles



Birds

Others

Raccoon



Eco-friendly tips for urban biodiversity:

- Create **urban gardens**: flower beds, balcony planters, and so on. Grow native species.
- Use **chemicals** sparingly. Plants and animals are very sensitive to them.
- Find out about **threatened species** in the Montréal region, then you will be better able to help protect them.

20

Find out more
See "Urban Biodiversity Issues" on page 29

Insects Are Animals Too!

Scientists have identified up to a million species of insects so far, but estimate that there may be as many as 30 million. Insects differ from other animals by their three pairs of legs. With or without your magnifying glass, scour the ground or search among the flowers for insects. Who knows, you might discover a new species!



Honey bee

Pollinating Insects:

These insects carry pollen from flower to flower. Bees, wasps, butterflies, beetles and flies are among these beneficial insects.

We owe them credit for over 70 percent of the food we harvest.

These days, pollinating insects are threatened by:

- the loss of habitat,
- the use of pesticides,
- competition with other species (often alien),
- monoculture,
- diseases and parasites,
- light pollution.

Spiders and millipedes may not be insects, but they still belong to our environmental family!



☐ Butterflies and caterpillars



☐ Ladybugs and beetles



☐ Bees, wasps and ants



☐ Flies and mosquitoes



☐ Dragonflies and damselflies

☐ Others

21

Vulnerable species

Montréal provides shelter to a number of vulnerable species. How do they cope? Put yourself in their shoes to learn about the challenges they face.

TRANSFORM YOURSELF INTO... A PEREGRINE FALCON!

First, you have to find a home.

You usually like to build your nest on bluffs.

But where can you go in the city?

In the city, this bird of prey readily trades its cliff for a skyscraper, a bridge, or any other tall structure.



Peregrine Falcon
Photo: Gordon Court

22

Your nest made, you incubate your eggs to take a break, but horror of horrors! The eggs have become more fragile than glass and often break under your weight. How do you protect your offspring?

In the 1960s and early 1970s, DDT was being used as an insecticide. This substance was incredibly harmful to Peregrine Falcons because it severely weakened the shells of their eggs.

Following the gradual decline in DDT use beginning in 1969 as well as multiple species reintroduction programs, the Peregrine Falcon is now making a comeback.

Use the falcon cam!

A webcam follows the adventures of a Peregrine Falcon couple nesting on the Université de Montréal's tower:

www.ornithologie.ca/faucons



Photo: Eve Belisle



TRANSFORM YOURSELF INTO... A WILD LEEK!

You're looking for a place to germinate and take root. You prefer the maple stands in southern Quebec.

Do you see any nearby?

If you have been able to put down roots, you will have to wait 7 to 10 years before you produce seeds. You can multiply every 2 to 3 years thanks to the division of your bulb.

Unfortunately, you are often harvested when your bulb is barely big enough to divide itself, which complicates life for you...

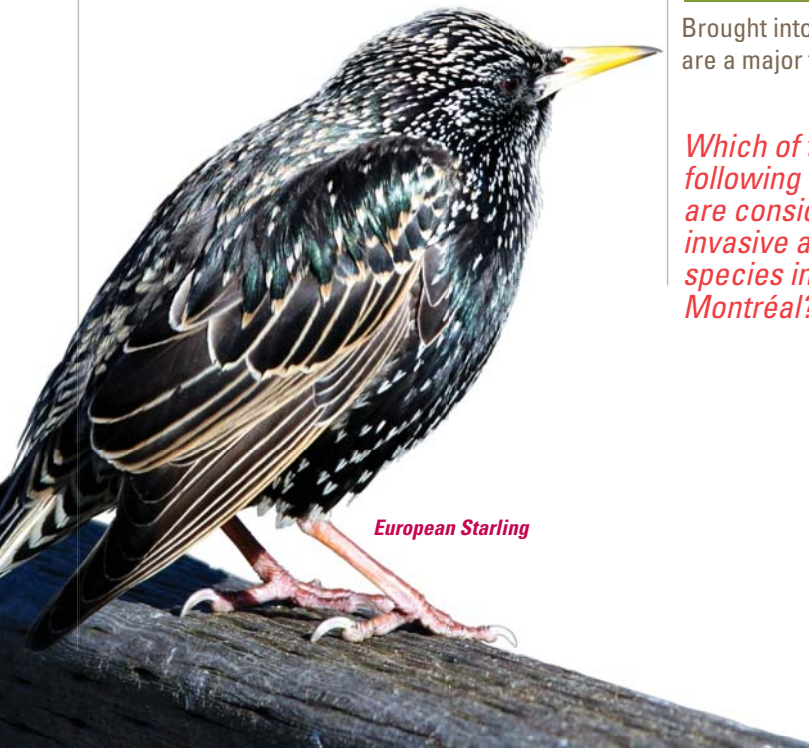
23

Urbanization, the expansion of agricultural land, and overharvesting are the main causes of the wild leek's decline. The Montréal Biôme has been running the SEM'AIL program since 1999 to reintroduce this species in specific areas, including in several large parks in the Ville de Montréal.

Eco-friendly tips for the wild leek:

- **Become a wild leek guardian!** Tell your friends and family about the golden rules of respectful harvesting. Harvesting in many areas is forbidden, including in Montréal's network of large parks!

Find the Invader



European Starling

INVASIVE ALIEN SPECIES:

Brought into Canada accidentally or on purpose, these plant and animal species are a major threat to biodiversity and are very difficult to control.

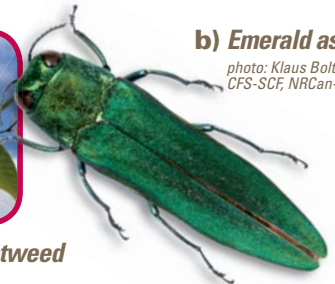
Which of the following species are considered invasive alien species in Montréal?



a) Japanese knotweed



c) Common buckthorn
MBG, Les Amis du Jardin
botanique de Montréal



b) Emerald ash borer

photo: Klaus Bolte,
CFS-SCF, NRCan-RINCan



d) Dandelion

Did you know that...

ragweed, although native to North America, is considered an invasive species? It also triggers allergic reactions in more than 10 percent of the population. Best get it off of your property before August when it releases its pollen!

The Réseau de surveillance de la qualité de l'air de Montréal monitors the concentration of airborne ragweed pollen.



Find out more
See "Urban Biodiversity
Issues" on page 29



Answer:

If you guessed that they are all alien species, you're right! However, only a) the Japanese knotweed and b) the common buckthorn are a threat to biodiversity in Montréal. The Emerald ash borer has been identified on the periphery of Montréal, but not yet on the island itself. The medicinal properties of dandelions are extremely beneficial to one's health and discerning gourmets, both human and feathered, show a keen interest in it.

Urban Landscapes

HEAD FOR THE HILLS!

Over time, humans have transformed the natural landscape. Look for some high ground in the park and divide what you see into groups.

Natural features:

hills, waterways, fields, forests and lakes

Structures and signs of human activity:

roads, power lines, buildings, industrial sites, church steeples, green roofs (totally or partially covered with vegetation)

Do you see any wildlife corridors (vegetation strips) that animals could use to move from place to place in the city?

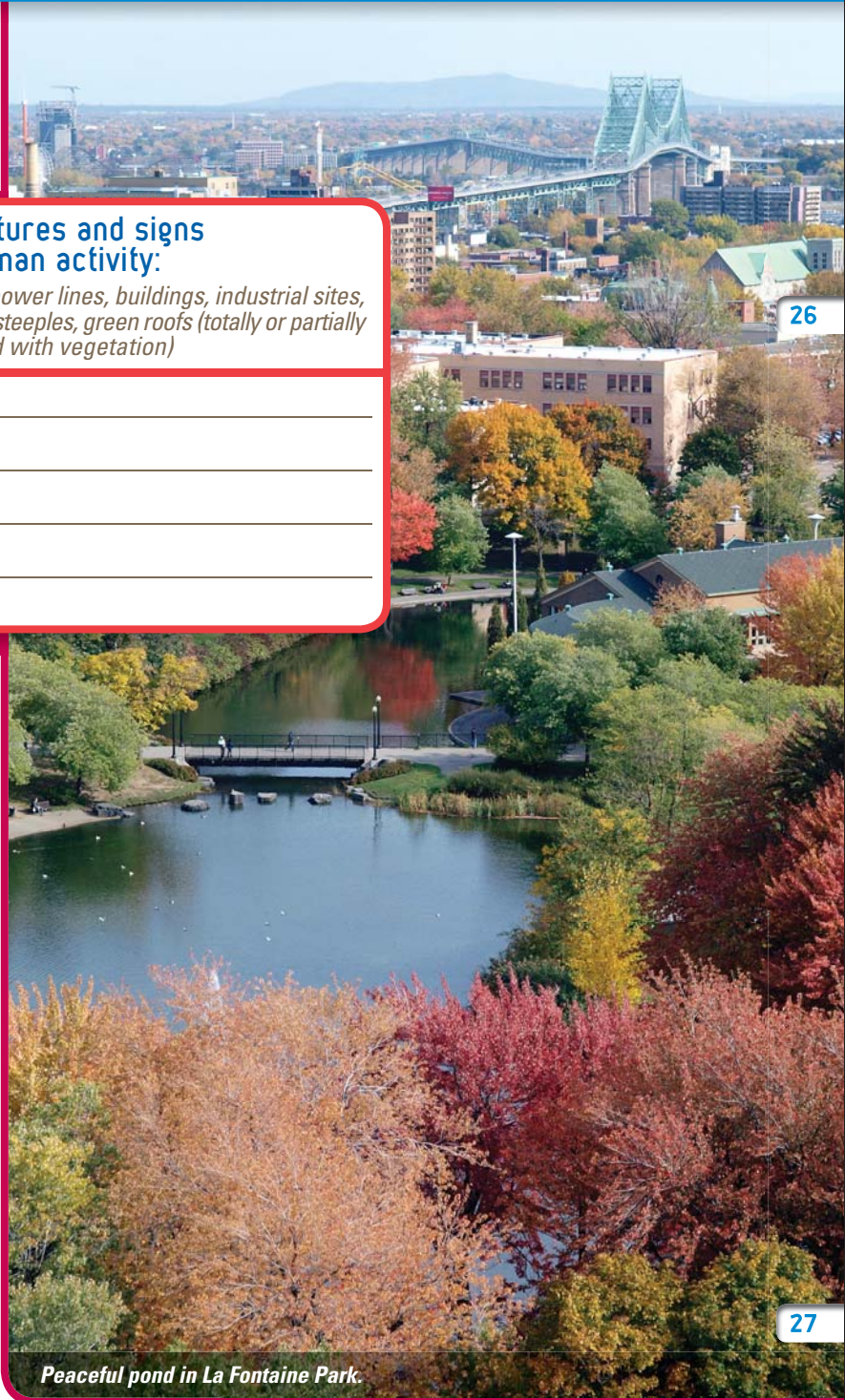
A DIFFERENT ANGLE!

Sometimes, just looking at something from a different angle can lead to surprising discoveries.

- Take out your pocket-size mirror and walk backwards. Does the landscape look any different?
- If you're the acrobatic type, walk on your hands and describe what you see.
- What is your favourite point of interest? Ask the others with you to guess.
- Imagine what the landscape around you looked like in your grandparents' day.
- What will it look like in the future?

WATER, WATER, ANYWHERE?

Life depends on water. Look around you. Do you see a waterway, pond or lake? Do you notice any new varieties of plants or animals? If you wait long enough and pay careful attention, you might get a glimpse of the more skittish species that live in the water.



Peaceful pond in La Fontaine Park.



Fun with the coat of arms

Biodiversity is everywhere, even on the Ville de Montréal's coat of arms!

Take a close look around the park you're visiting! Maybe you'll be able to find some of the natural elements that are there: the iris, thistle, shamrock, rose, sugar maple, and beaver.



Photo: MBG, Raméo Meloche

Iris*



Photo: MBG, Gilles Murray

Thistle



Photo: MBG, Gilles Murray

Rose



Photo: MBG, Normand Fleury

Shamrock



Sugar maple

What do you think the elements of the coat of arms represent?

The answer at the bottom of the page.



Beaver

28



Find out more

AIR ISSUES:

Ville de Montréal - Air (French only)
Réseau de surveillance de la qualité de l'air (French only)
Clean Air Online

http://ville.montreal.qc.ca/portal/page?_pageid=916,1606798&_dad=portal&_schema=PORTAL
http://ville.montreal.qc.ca/portal/page?_pageid=4537,7190968&_dad=portal&_schema=PORTAL
www.ec.gc.ca/cleanair-airpur

WAYS TO IMPROVE THE ENVIRONMENT:

Éco-quartiers (French only)
Environnement (French only)

http://ville.montreal.qc.ca/portal/page?_dad=portal&_pageid=916,1607163&_schema=PORTAL
http://ville.montreal.qc.ca/portal/page?_pageid=916,1606116&_dad=portal&_schema=PORTAL

URBAN BIODIVERSITY ISSUES:

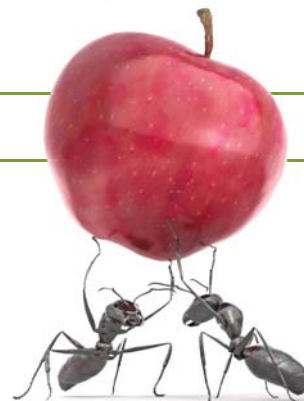
Ville de Montréal - Biodiversity
Nature Museums
Network of large parks
Ville de Montréal - Nature in the city
Pollination

http://ville.montreal.qc.ca/portal/page?_pageid=5197,18357688&_dad=portal&_schema=PORTAL
http://ville.montreal.qc.ca/portal/page?_pageid=5557,27853619&_dad=portal&_schema=PORTAL
http://ville.montreal.qc.ca/portal/page?_pageid=175,4230570&_dad=portal&_schema=PORTAL
http://ville.montreal.qc.ca/portal/page?_pageid=5697,32909558&_dad=portal&_schema=PORTAL
www.pollinationcanada.ca

HEALTHY COMMUNITIES:

Federation of Canadian Municipalities (FCM)
Montréal Urban Ecology Center

www.sustainablecommunities.fcm.ca
www.urbanecology.net



29

Answer:

The iris, rose, thistle and shamrock symbolize, respectively, France, England, Scotland and Ireland, the primary countries of origin of the early settlers of Montréal. *In French, this symbol is called the fleur de lys, (lily in English). However, it is in fact, an iris that grew on the banks of the Lys river in France. • The branches of the sugar maple leaves symbolize the search for harmony between all members of Montréal's population as well as belonging to Canada. • The beaver represents the industrious and patient character of Montréal residents.

Urban Environment: My Diagnosis

Now that you've gathered an abundance of observations, use them to reach your own diagnosis about the health of your urban environment by filling in the chart opposite.

You can easily complete it on the BioKits website and compare your results with others!



Find out more
See "Environment"
on page 29

Check the
boxes that apply

Excellent!

Not bad but...

Things
must improve!

Trees, bushes, balcony planters
and gardens providing a biological
corridor between your home and
the park

☐
☐
☐

First impression of the park

☐
☐
☐

Surrounding sounds

☐
☐
☐

Air quality

☐
☐
☐

Biodiversity:
plants and trees

☐
☐
☐

Biodiversity: animals

☐
☐
☐

Presence
of pollinators

☐
☐
☐

Invasive
plant control

☐
☐
☐

Waterways,
ponds or lakes

☐
☐
☐

☐
☐
☐
☐
☐
☐
☐
☐
☐

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.



Black swallowtail caterpillar

Encourage biodiversity

Now it's your turn

*to promote biodiversity in Montréal!
If you have access to a yard or just a balcony, you can take action!*

What actions will you take?



House Sparrow

Maintain a yard that welcomes biodiversity.

Compost outdoors or indoors using vermicomposting.



Remove invasive exotic plants.

Common reed



Photo: Linda Turgeon

Buy local vegetables and participate in a community-supported agriculture (CSA) program.



Grow vegetables in a community garden, yard or in containers.

Make my alleyway green with the help of my neighbours and Éco-quartier.

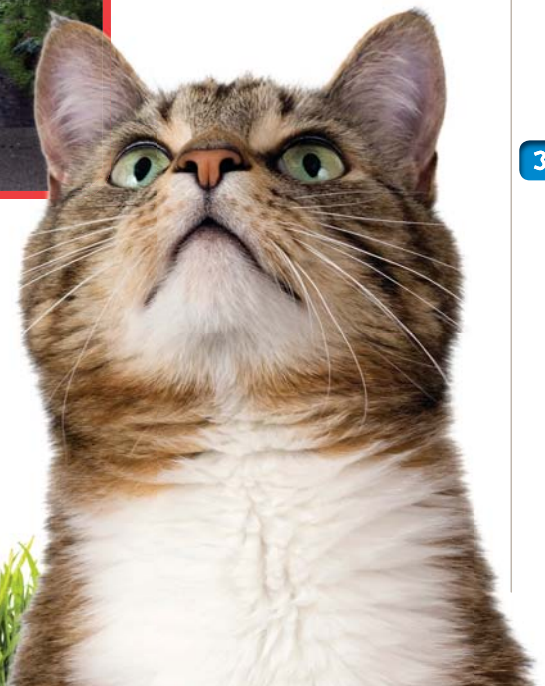


Turn off outdoor lights, put a bell on your cat and keep it indoors at night to encourage birds to visit.

Create a supportive environment for fauna with indigenous plants.



Care for your lawn in an environment-friendly way.



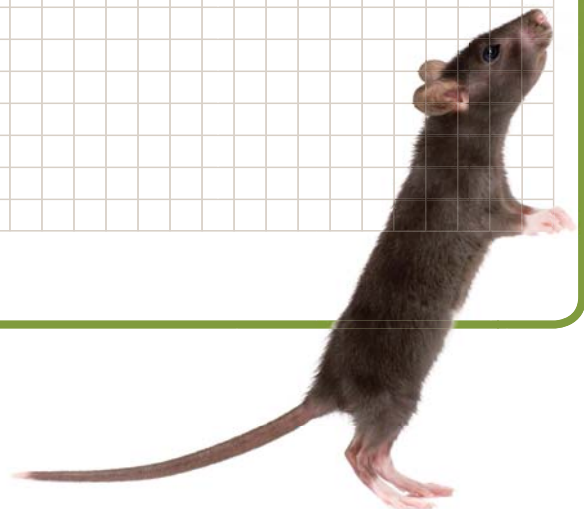
Think Back On Your Outing

34

Back Home

Create a souvenir of your excursion by making a drawing, story, poem, photo or collage.

35





A race on the Lachine canal!

Share your discoveries, build your EcoProfile and stay inform of any news on the BioKits Website at www.ec.gc.ca/biotrousses-biokits.

Aussi disponible en français sous le titre: BioTrousse Urbaine - Montréal
 Printed on recycled paper using vegetable-based dyes
 © Her Majesty the Queen in Right of Canada, represented by the Minister of the Environment, 2010
 Catalogue No.: En154-60/2010E-PDF, ISBN: 978-1-100-16333-8
 Legal deposit: Library and Archives Canada, 2010



Biosphère

Environment Museum
 Musée de l'environnement

PRODUCTION TEAM

The Montréal Urban BioKit is an adaptation of the Urban BioKit.

Production: **Biosphère, Environment Canada**
 Research and coordination: **Etienne Angers and Line Morand**
 Graphic design: **Yves Bilodeau**
 Illustration: **Caroline Brunet**
 Writing: **Etienne Angers**

Acknowledgements:
Yves Alavo, Patrick Asch, Carole Castonguay, André Champoux, Élodie Choqueux, Sylvie Comtois, Ann Dacres, Anne Desautels, Thérèse Drapeau, Claude Joyal, Elizabeth Kilvert, Jean Langlais, Sarah Maillot, Nathalie Matte, Glenna McGuire, Andrée Nault, Gabrielle Normand, Michèle Picard, Jacques Tremblay, Jean-Michel Villanove and everyone else who contributed discerning suggestions and comments during the production of this BioKit.



Montréal