



Biosphère

URBAN

BioKit



Environment  
Canada

Environnement  
Canada

Canada

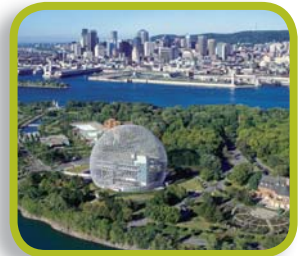
# Four Seasons of Fun for the Whole Family!



## 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, is 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 forum for environmental information.



[www.ec.gc.ca/biosphere](http://www.ec.gc.ca/biosphere)

## *Reconnect with your environment... and build your EcoProfile*

[www.ec.gc.ca/biotrousses-biokits](http://www.ec.gc.ca/biotrousses-biokits)



## *How the BioKit Works*

1. Choose a nearby park.
2. Gather up your equipment: magnifying glass, binoculars, camera, pocket-size mirror, pencil and clipboard.
3. Step out your front door and consider your surroundings in order to complete the activity on the next page.
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 and share the results of your diagnosis on the BioKits website.



# 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!

\_\_\_\_\_



# 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: \_\_\_\_\_

City: \_\_\_\_\_

Date: \_\_\_\_\_

Departure time: \_\_\_\_\_

Return time: \_\_\_\_\_

GPS coordinates: \_\_\_\_\_  
(optional)

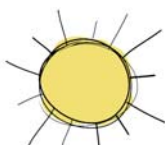
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## WEATHER

Today's 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

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**Find out more**  
See "Air Issues" on the back cover

**Curious about the air quality in your city?**  
Many cities in Canada have an Air Quality Health Index that helps you to better plan your outdoor activities.

# Park Visit



**Find out more**  
See "Healthy Communities"  
on the back cover

## TAKE A BREATH!

*Take a deep breath and look around you.*

*What is your first impression?*

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



### Prowling for Lichens

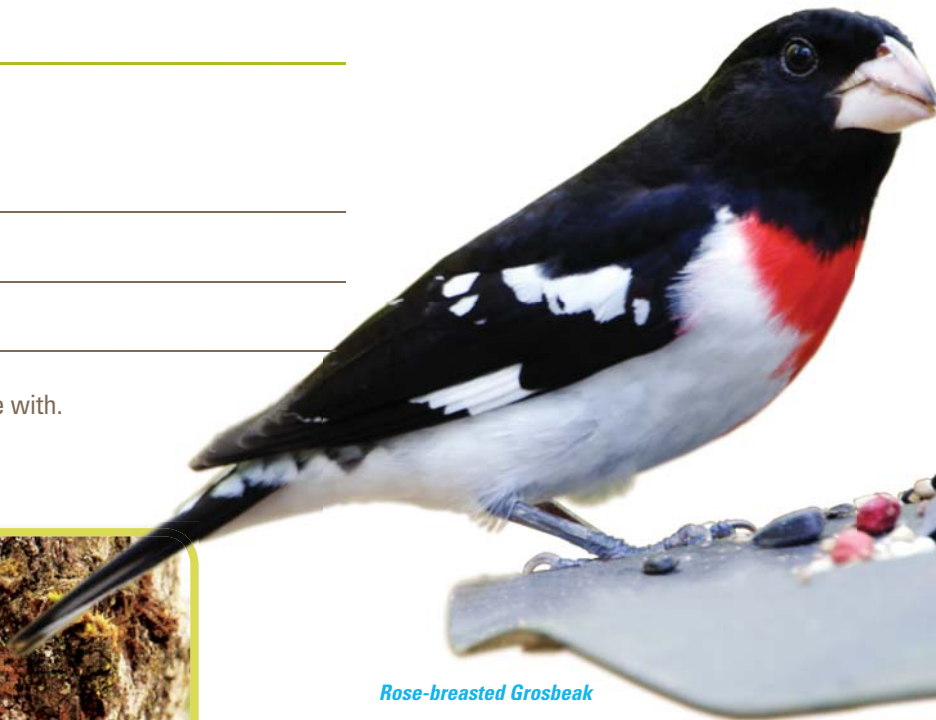
Air pollution can worsen health problems like asthma. Did you know that the type and amount of lichens growing on tree trunks can tell us about the air quality? Most lichens are sensitive to air quality and deteriorate when air pollution levels are high.

**Take a look at the tree trunks around you.**

**Do you see any lichens?** \_\_\_\_\_

**Do you see different types of lichens?** \_\_\_\_\_

**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.



*Rose-breasted Grosbeak*

## 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:

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From human activity:

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

# 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.*

## 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.

## Eco-friendly tips for clean air:

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- **Walk,** ride your bicycle or take public transit.
- When waiting, try not to let your vehicle idle. **Turn off** your engine instead.
- Did you know that heating with wood **pollutes** the air in cities? Some types of wood-burning stoves are more efficient than others. Find out for yourself which ones are best.

# Urban Biodiversity



**Find out more**  
See "Air Issues" on the back cover

## 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?

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*Cities are 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

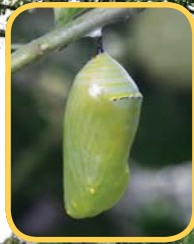


# Hide and Seek!

## 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!

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## 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. Do you see any nests made by **squirrels**, **birds** or **wasps**? Do you see 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.

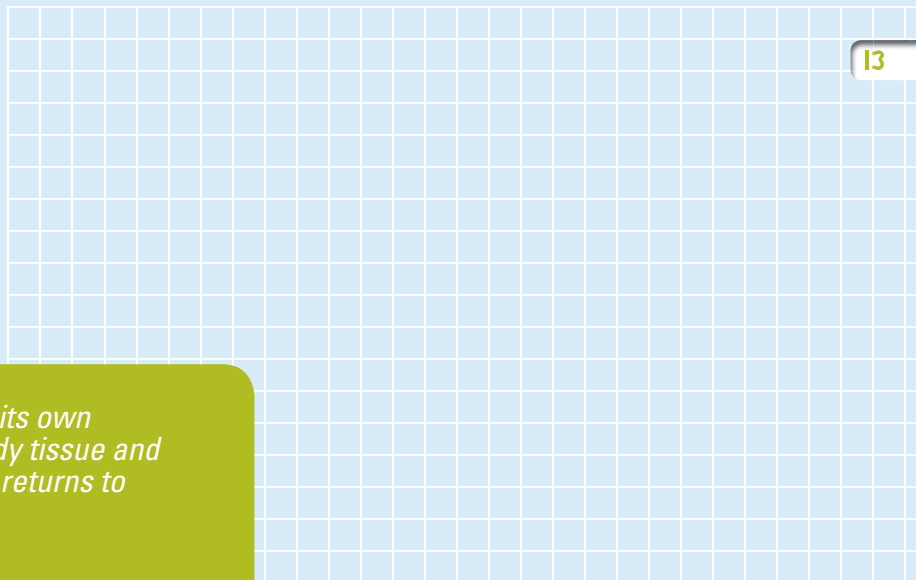


## Winter Comes and Life Goes On

**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.



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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

**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"!

# 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

**Find out more**  
See "Urban Biodiversity  
Issues" on the  
back cover

## 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 your area, then you will be better able to help protect them.

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## 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

*Spiders and millipedes are not 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

### 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.

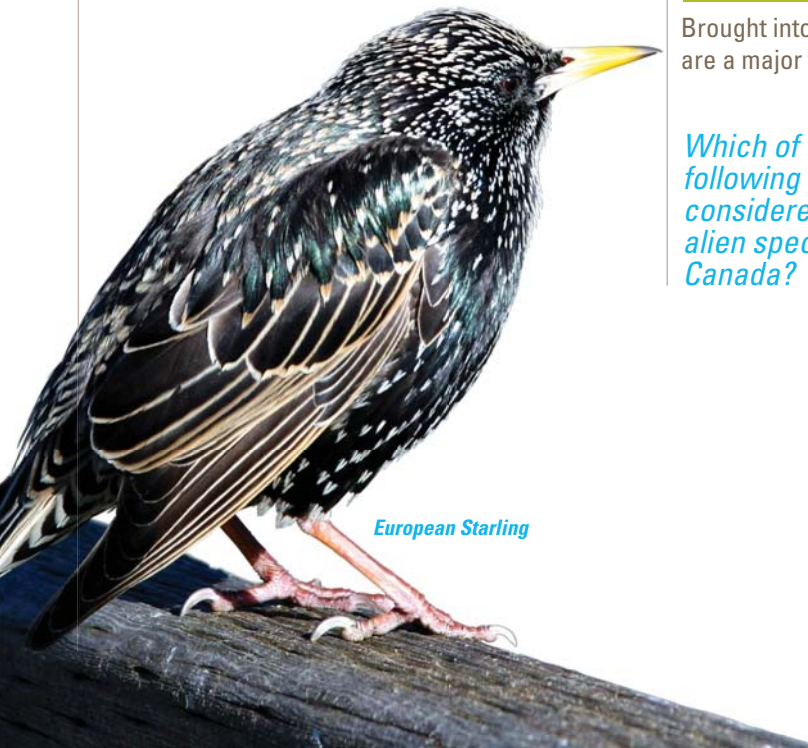
These days, pollinating insects are threatened by

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

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# 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 plants are considered invasive alien species in Canada?*



a) Purple loosestrife



b) Eurasian watermilfoil



c) Water hyacinth



d) Dandelion

Photo: Dave Bonta, Flickr

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## 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!*



**Find out more**  
See "Urban Biodiversity Issues" on the back cover



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## Answer:

If you guessed that all of them are alien species, you were right! However, only a) purple loosestrife and b) Eurasian watermilfoil are a serious threat to habitat in Canada, although c) water hyacinth is causing major problems in other parts of the world. Lastly, the medicinal properties of d) the dandelion have important health benefits, and it gets a lot of applause from fine-food lovers, both human and winged!

# 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.*

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

### Structures and signs of human activity

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

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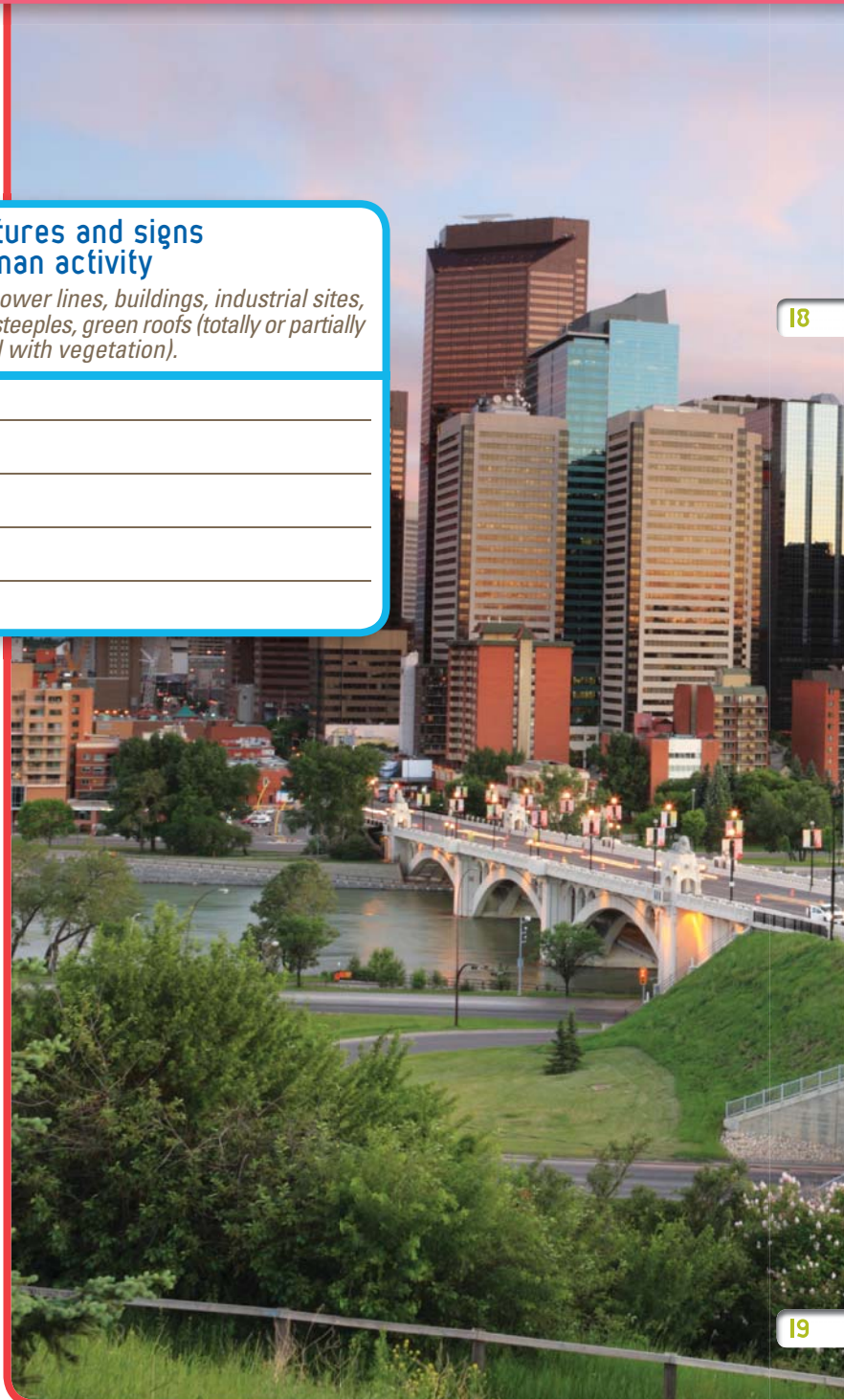
## A DIFFERENT ANGLE!

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.



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# 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!

Visitors to the site can also build their EcoProfile.

Curious?  
Follow the link:  
[www.ec.gc.ca/biotrousses-biokits](http://www.ec.gc.ca/biotrousses-biokits)

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

☐
☐
☐


**Find out more**  
See "Ways to Improve the Environment" on the back cover



Black swallowtail caterpillar

## 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.

# Think Back on Your Outing

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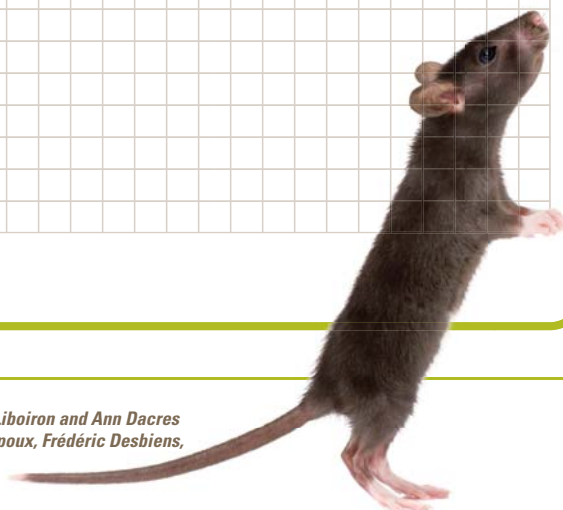
## Back Home

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

### PRODUCTION TEAM

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## Find Out More

### HEALTHY COMMUNITIES:

Federation of Canadian Municipalities (FCM)  
Montréal Urban Ecology Center

[www.sustainablecommunities.fcm.ca](http://www.sustainablecommunities.fcm.ca)  
[www.urbanecology.net](http://www.urbanecology.net)

### AIR ISSUES:

Clean Air Online  
Air Quality Health Index  
Project Atmosphere Canada

[www.ec.gc.ca/air](http://www.ec.gc.ca/air)  
[www.ec.gc.ca/cas-aqhi](http://www.ec.gc.ca/cas-aqhi)  
[www.msc-smc.ec.gc.ca/education/teachers\\_guides/index\\_e.html](http://www.msc-smc.ec.gc.ca/education/teachers_guides/index_e.html)

### URBAN BIODIVERSITY ISSUES:

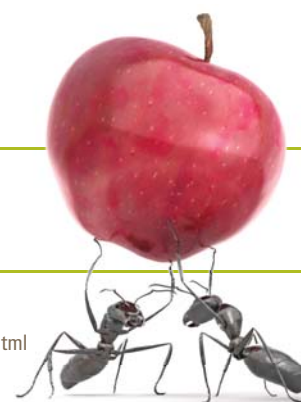
Hinterland Who's Who  
NatureWatch  
Canadian Biodiversity Information Network  
Pollination  
Invasive Alien Species

[www.hwww.ca](http://www.hwww.ca)  
[www.naturewatch.ca](http://www.naturewatch.ca)  
[www.cbin.ec.gc.ca](http://www.cbin.ec.gc.ca)  
[www.pollinationcanada.ca](http://www.pollinationcanada.ca)  
[www.ec.gc.ca/eee-ias/Default.asp?lang=En&n=C4637128-1](http://www.ec.gc.ca/eee-ias/Default.asp?lang=En&n=C4637128-1)  
[www.exoticpests.gc.ca](http://www.exoticpests.gc.ca)

### WAYS TO IMPROVE THE ENVIRONMENT:

Take Action for the Environment  
Gardening for Wildlife

[www.ec.gc.ca/education](http://www.ec.gc.ca/education)  
[www.wildaboutgardening.org](http://www.wildaboutgardening.org)



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