

*An adventure in which you're
the hero: discover the biodiversity of
Île Sainte-Hélène and crack the code
to open a mysterious chest!*



Biosphère
ÎLE HÉLÈNE
SAINTÉ HÉLÈNE
BioKit



Environment
Canada

Environnement
Canada

Canada

Biosphère
ÎLE SAINTE-HELÈNE
BioKit



*An adventure in which you're the hero:
discover the biodiversity of Île Sainte-Hélène and
crack the code to open a mysterious chest!*



To pursue your adventure:

**To begin, go to POINT A, located just past
the old military cemetery.**

GPS: N 45° 31.002' W 73° 31.914'

Warning!

Stay on the paths and respect the
biodiversity around you by leaving it
where you found it!



Duration

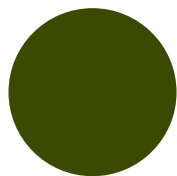
Between 1.5 and 3 hours, depending on the circuit selected.

Required equipment

GPS unit: Available at the Biosphère.

Camera (optional): To take photos of your discoveries.

Pencil: To record your observations and take part in some activities.



How it works

1. Choose one of the options available.

Note: The option appearing in bold always represents the fastest option for completing the BioKit.

2. Use the map or GPS unit to get to the location of the activity.
3. Open your BioKit to the corresponding page and complete the activity. Don't forget to include your answers in your travel log. When you see this pictogram, you have to write an answer in your travel log.



The answers to the "chest" questions must be written in the appropriate space on page 1 of your travel log.

The "Geocache" station activities are hidden in a container located within a 5-m radius of the GPS coordinates indicated. Look carefully and put everything back when you're done.



Note: This BioKit can be used in any type of weather. However, some activities cannot be carried out during winter. They are identified with this symbol.

An island, a chest and a biodiversity quest



POINT

A

N 45° 31.002' W 73° 31.914'



*To pursue your adventure,
choose among the following options:*



Some say that strange animals breathe through their skin... Investigate this rumour by going to **POINT B**, on the terrace bordering the pond to the left of the white bridge.

GPS: N 45° 31.080' W 73° 32.035'

OR

Go to **POINT C**, at the corner of the Grande Poudrière wall on the other side of the lovely white bridge. You'll find some very, very old animals...

GPS: N 45° 31.105' W 73° 32.009'

◀◀ On this 28th of July 1749,
I visited Île Sainte-Hélène and was astounded by
the wide variety of species that live there! I wonder
how the island will change in the centuries to come...

If you're reading this journal, it means that my precious
chest has been found! Wondering what's inside?
To find the combination needed to open it, you must
complete a mission! You must visit different parts
of the island to discover its natural beauty and take
notes on the state of health of the environment.

In the pages that follow, you'll have to answer
five observation questions to find the combination to
unlock the chest. Keep your eyes and ears open! ▶▶



A



It was right next to the Biosphère that
botanist Pehr Kalm was welcomed to the Baron
of Longueuil's summer residence. He therefore
probably began his journey in the area,
just like you!

Since his visit, the island has gone through some
changes. Look around closely and try to picture
yourself in the place of the botanist, who walked
right here more than 260 years ago.



***What do you think has
changed since Pehr Kalm
was here?***



Take a
deep breath...



POINT

B

N 45° 31.080' W 73° 32.035'



To pursue your adventure:

**Want to see some tropical animals
situated nearby? Go to POINT C.**

GPS: N 45° 31.105' W 73° 32.009'

◀◀ It was a hot summer season when I visited Île Sainte-Hélène. That's why I enjoyed cooling off in the woods next to a lovely pond. I observed a variety of amphibians. ▶▶



American toad

B

You decide to take a closer look at the pond's edge to get a glimpse of a frog, a toad or a salamander.

Take a look around, cross the bridge, go exploring!

Warning!

Make sure to stay on the paths and not to move any branches or rocks so as not to disturb this fragile ecosystem.

Did you see any?



Great! Sketch your discoveries. If not, draw any other curious-looking creature you saw near the pond.

Amphibians stay hydrated and breathe in part through their very thin skin. This is why they are very sensitive to pollution and changes in the environment. Their presence is an excellent indicator of an ecosystem's health.



Gray treefrog

Green frog



In the fall, amphibians find shelter under a rock or in the mud and hibernate until spring returns.

Set in stone



POINT

C

N 45° 31.105' W 73° 32.009'



*To pursue your adventure,
choose among the following options:*

**Intrigued by the hill with the tower at its
summit? If you want to explore it, go to
POINT D, at the very top. Enjoy the climb!**

GPS: N 45° 31.027' W 73° 31.999'

OR



GEOCACHE

Want to see more fossils? No problem!
Find the geocache at the following
GPS coordinates:

N 45° 31.110' W 73° 32.012'



◀◀ I saw, in the area, stones in which creatures seemed to be frozen.

Incredible!

How can that be? ▶▶

Chest:

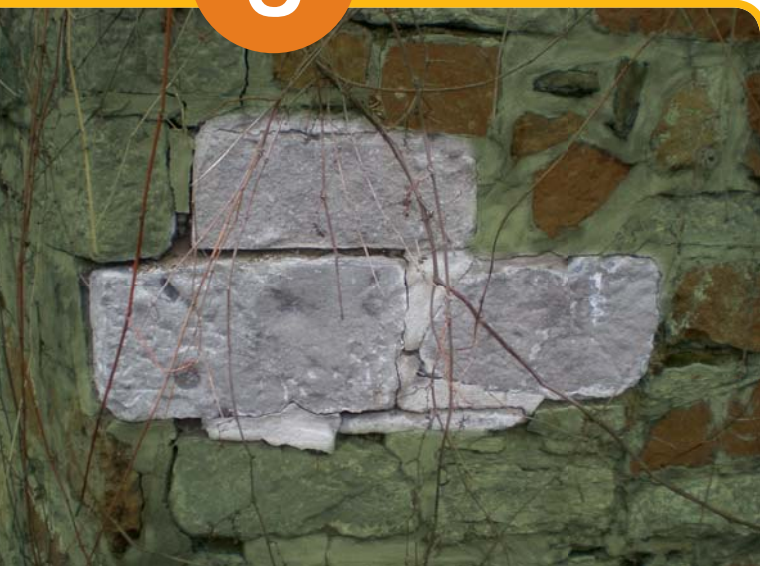
How many posts support one of the two guard rails of the white bridge behind you?

On the right side of the corner of the wall, some stones contain fossils! You can see shell and coral fragments.



Use the photo below to try to find them:

C



Warning!

In the summer, the stone can be hidden under the vegetation. Carefully part the greenery to have a look...

Coral in Montréal?

These animal species lived several hundreds of millions of years ago. Due to continental drift, Quebec was once located near the equator, hidden under a tropical sea. The species' underground sojourn gradually transformed them into fossils, leaving behind a trace of their existence that can still be seen today.

Île Sainte-Hélène is mainly composed of diatrema breccias, a reddish-coloured rock resembling cement which consists of an array of stones that do not contain any fossils. Many of the grey limestone blocks containing fossils come from former City of Montréal fortifications, taken down between 1804 and 1817.



Up in the trees



POINT

D

N 45° 31.027' W 73° 31.999'



*To pursue your adventure,
choose among the following options:*

**Starting to hear a variety of birds chirping?
They are waiting for you at POINT E, close to
the building next to the playing field.**

GPS: N 45° 30.913' W 73° 32.074'

OR

A clearing is believed to be inhabited by
strange animals living underground. Curious?
Go to POINT F, near the Pavillon des baigneurs
(swimmers' pavilion) parking lot.

GPS: N 45° 30.844' W 73° 32.039'

OR

GEOCACHE

Is one of Pehr Kalm's old friends still on the island?
To find out, look for the geocache at the following
coordinates: N 45° 30.948' W73° 32.145'



Chest:

How many white stones does the entire arch above the tower door include?



D

The common hackberry is a rare species in Quebec. It appears on the list of plants that could potentially be designated as threatened or vulnerable in Quebec.



Photo: Paul Wray, Iowa State University, Bugwood.org

Common hackberry:
Its bark resembles cork and forms small ridges.



American white ash:

Touch its bark; it is rough, and its crevices are shaped like an "X".

Photo: Pennsylvania Department of Conservation and Natural Resources - Forestry Archive, Bugwood.org



Red-osier dogwood:

No wonder why it is also called "redstem dogwood" ...



Photo: Mary Ellen (Mel) Harte, Bugwood.org

◀◀ The woods in the middle of the island are magnificent!

They are home to different tree species such as the common hackberry and the ash. Let's not forget the shrubs, like the flamboyant red-osier dogwood.



A fortified castle on Île Sainte-Hélène?

Not at all! The Lévis Tower was built in the 1930s as a water tank to supply the island's different buildings.



Using the photos below, try to find the different species mentioned by Pehr Kalm.

Listen
carefully...



POINT

E

N 45° 30.913' W 73° 32.074'



*To pursue your adventure,
choose among the following options:*

In nature, there's no wasting...
To find out more, go to **POINT G** near
the playground equipment.

GPS: N 45° 30.839' W 73° 32.146'

OR

**Can you identify different ways to access
the island? Go to **POINT H**, near the ferry boat
dock. Warning! You must go left around a
long black fence.**

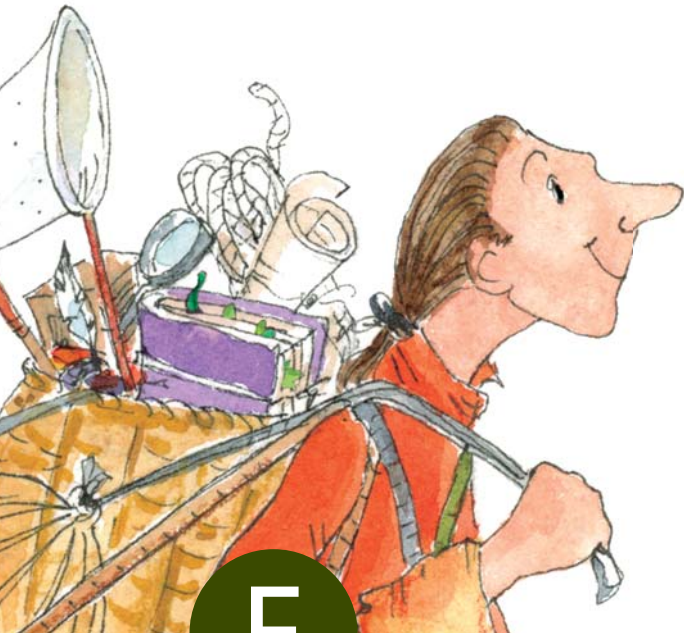
GPS: N 45° 30.767' W 73° 32.283'

◀◀ Whatever the season,
the birds accompany me on my journey,
no matter where I travel around the world.

Here, on Île Sainte-Hélène, I was pleased
to hear and see a wide range of species. ▶▶



The island is a flyway for many bird species. Some stop for a while during migration and others stay here year-round. In all, 121 different species have been observed since 1983.



E

To observe the birds, nothing beats closing your eyes! Begin by listening to the different bird calls...



Then, *try to find which species they belong to!*

"Teek-cheek-chereek"
Downy Woodpecker



"Chick-a-dee-dee-dee-dee"
Black-capped Chickadee



"Chirili chirip,
chirip chirili chirip"
American Robin



"Konk-la-ri-ri-ri"
Red-winged Blackbird



Very piercing "Chink"
or "purdy purdy purdy..."
Northern Cardinal



Loud "Chip!"
House Sparrow



Six feet under



POINT

F

N 45° 30.844' W 73° 32.039'



To pursue your adventure, choose among the following options:

In nature, there's no wasting...
To find out more, go to POINT G near the playground equipment.

GPS: N 45° 30.839' W 73° 32.146'

OR

Can you identify different ways to access the island? Go to POINT H, near the ferry boat dock.

GPS: N 45° 30.767' W 73° 32.283'

◀◀ This part of Île Sainte-Hélène welcomes a very abundant species that digs burrows everywhere around the island. The species is easy to spot, because it spends its days doing two things: eating plants and sunning itself! ▶▶



F

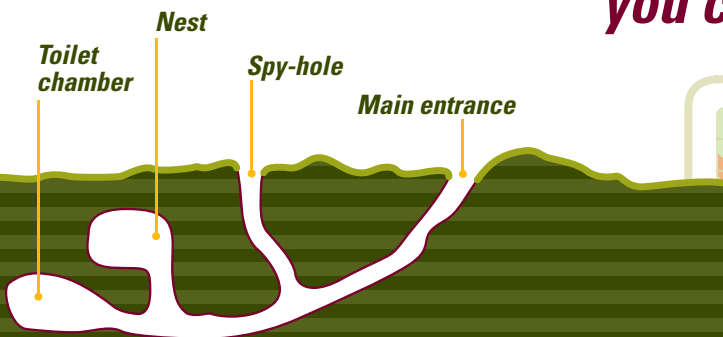
You are slowly getting closer

to where these intriguing animals supposedly live. Step by step, you inspect each nook and cranny of this part of the island when, suddenly, you fall into a hole! You are more frightened than hurt; you just fell into a woodchuck burrow...

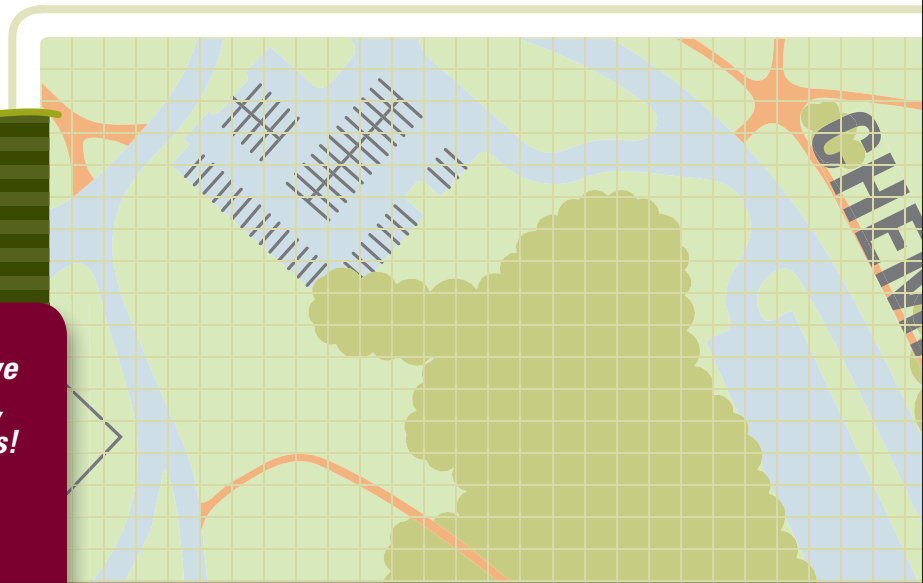


To make sure no one on the island gets hurt, examine the surroundings and draw a map indicating the burrows you can see.

Burrow



This rodent's residence is very well organized: nest, toilet chamber, spy-hole for keeping an eye on things... When woodchucks move out, foxes, hares and snakes quickly take over their homes!



Hunting for stumps!



POINT

G

N 45° 30.839' W 73° 32.146'



To pursue your adventure:

A little tired?

The river breeze at POINT H, near the ferry boat dock will revive your taste for adventure! Warning! You must go left around a long black fence.

GPS: N 45° 30.767' W 73° 32.283'

mid 17th century -1818
Summer residence for
the Le Moyne family

1818-1870
Military base

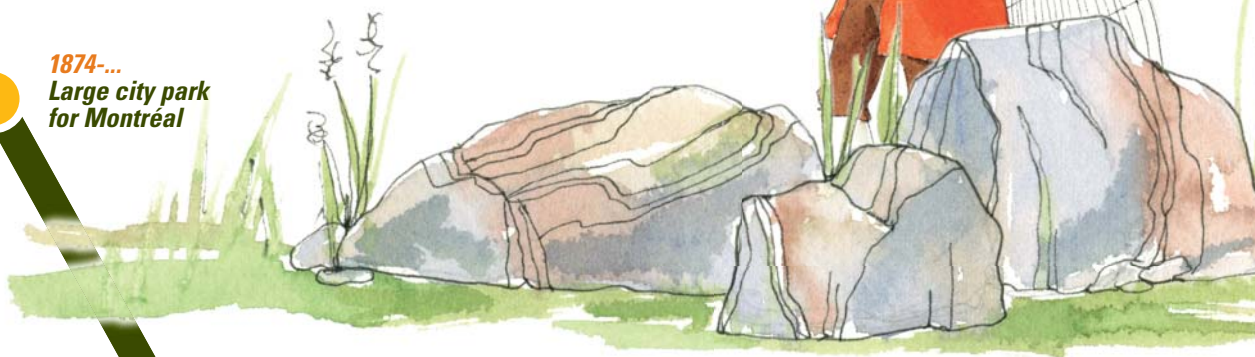
I was strolling around, admiring the panoramic view of Montréal seen from the island, when I tripped over a tree stump. When I got over my astonishment, I took a closer look at the wood, which I thought to be dead. I was in for a surprise...



Île Sainte-Hélène history

From this vantage point you can also observe several structures that bear witness to the island's rich history, here are a few significant dates.

1874-...
Large city park
for Montréal



G

1930
Inauguration of
the Jacques Cartier
Bridge

1967
Expo 67

Take a close look
at the stumps from every
angle. Maybe you will find
different signs of life.
Which ones do you see?



Some of the large trees you see around the playground area had to be cut down. Are they necessarily without life?

By giving food and shelter to a variety of species, these stumps contribute to maintain biodiversity. In nature, nothing is lost!

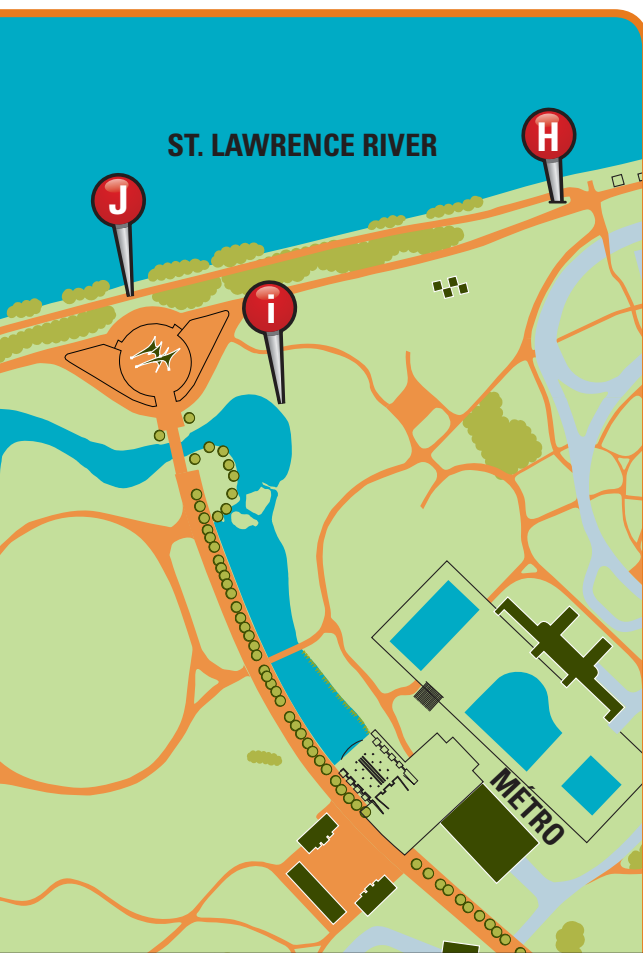


From
the city to
the island

POINT

H

N 45° 30.767' W 73° 32.283'



*To pursue your adventure,
choose among the following options:*

**Some species are natural bullies...
Go to the edge of Lac des Cygnes pond,
at POINT i, to see why.**

GPS: N 45° 30.671' W 73° 32.193'

OR

**Want to hear a fish tale by Pehr Kalm?
Follow the path bordering the water up
to POINT J.**

GPS: N 45° 30.633' W 73° 32.241'



Chest:

How many concrete vertical towers make up the sculpture near the bank?



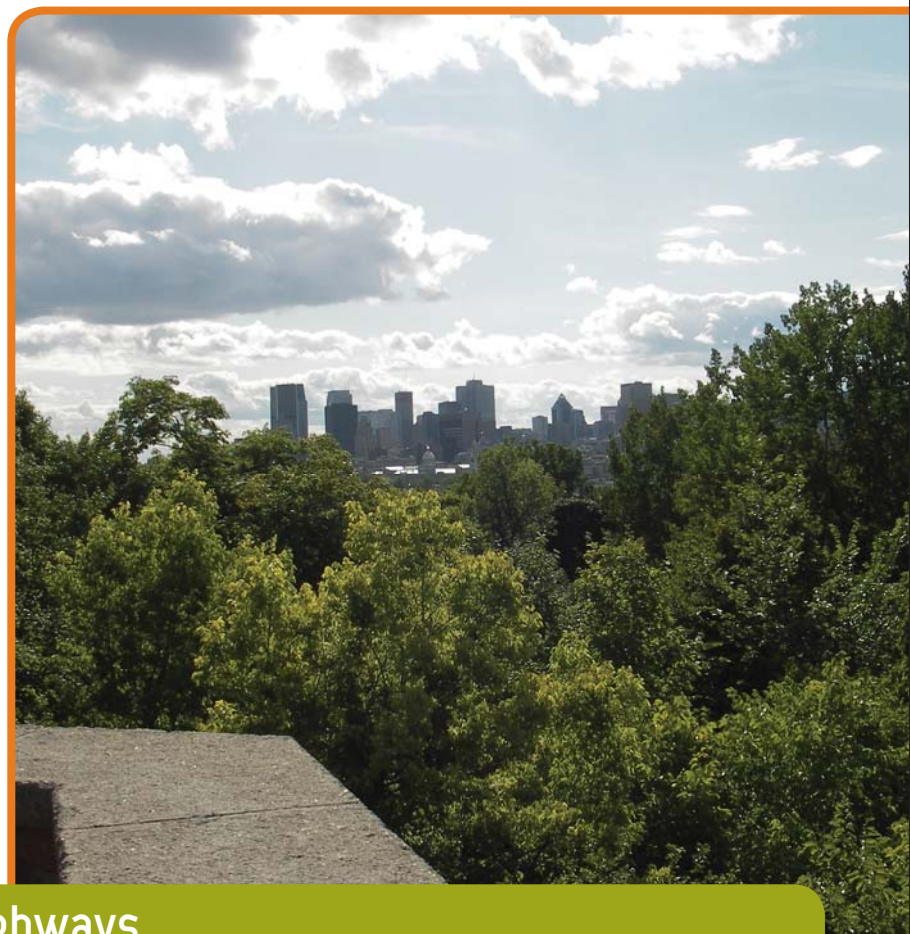
H

◀◀ *Due to its isolation, an island always forms a mysterious world of its own. Getting there isn't always easy. To reach Île Sainte-Hélène, I had to travel by boat. In the winter, the ice enables visitors to get there on foot. For some plants and animals though, it's a different story...* ▶▶

During your journey, you have already noticed the diversity of the fauna and flora on the island. But how did all of this biodiversity make its way to the island? By air, water or ground?



And how about you—what are your options?



Wildlife corridors: green highways

Some areas enable animals and plant seeds to move from place to place. Just think about the rivers, the forested areas or even the frozen waterways in the winter. These links between the different habitats are called "wildlife corridors." They provide living species with food, shelter and breeding areas as they move from one environment to another.

A quiet invasion



POINT

i

N 45° 30.671' W 73° 32.193'



To pursue your adventure, choose among the following options:

A treasure island... on the island? Go see POINT K, which is the island on Lac des Cygnes.

GPS: N 45° 30.563' W 73° 32.135'

OR

The island is like a living creature: it is constantly changing. Have a look at the changes from the past decades at POINT L, on the tree-lined path in front of the parterre.

GPS: N 45° 30.680' W 73° 32.053'

OR

GEOCACHE

Ready for a good walk that will add twenty or so minutes to your total visit? If so, go to GPS coordinates N 45° 30.533' W 73° 32.180' and you'll discover a secret passage to the river bank.



◀◀ Humans weren't the only ones to settle in North America; there were also a large number of plants and animals that did not live here back in the old days. Some of these new species seem to take up more and more space. What will happen in the future? ▶▶

There are increasing numbers of invasive alien species in Canadian ecosystems. For example, 5% of the country's mammals and 27% of its vascular plants are alien species. Some, such as the zebra mussel and the Japanese knotweed, significantly disturb ecosystems by taking the place of local species.



Japanese knotweed



European Starling



Common reed



Purple loosestrife



Eurasian watermilfoil

Photo: Dave Bonta, Flickr

Île Sainte-Hélène has its share of invasive alien species. These plants and animals spread fast and compete for food and shelter with local species. They are a major threat to biodiversity. You can recognize a few right next to the pond.



Which ones do you see?



Like a fish in water

POINT

J

N 45° 30.633' W 73° 32.241'



*To pursue your adventure,
choose among the following options:*



A treasure island... on the island?
Go see **POINT K**, which is the island
on Lac des Cygnes.

GPS: N 45° 30.563' W 73° 32.135'

OR



GEOCACHE

Ready for a good walk that will add
twenty minutes or so to your total visit?

If so, go to GPS point N 45° 30.533' W 73° 32.180'
and you'll discover a secret passage
to the river bank.



◀◀ It was the perfect summer afternoon to go fishing at the edge of the island. What a good catch!

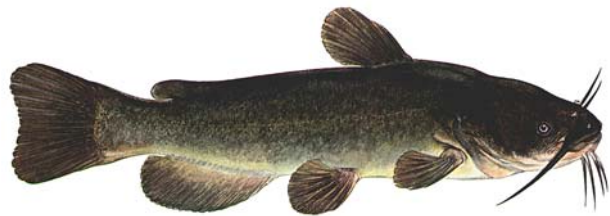
I filled my baskets with different fish, each more beautiful than the next... ▶▶

The lake sturgeon is one of the biggest freshwater fish in Canada.

Intense harvesting and habitat disturbances have caused a major decrease in this fish population. Interesting fact: the lake sturgeon does not have scales, but rather five rows of bony plates, passed down from its ancestors more than 65 million years ago.

If you're lucky, you may be able to see a lake sturgeon jump out of the water near the small rapids to your left!

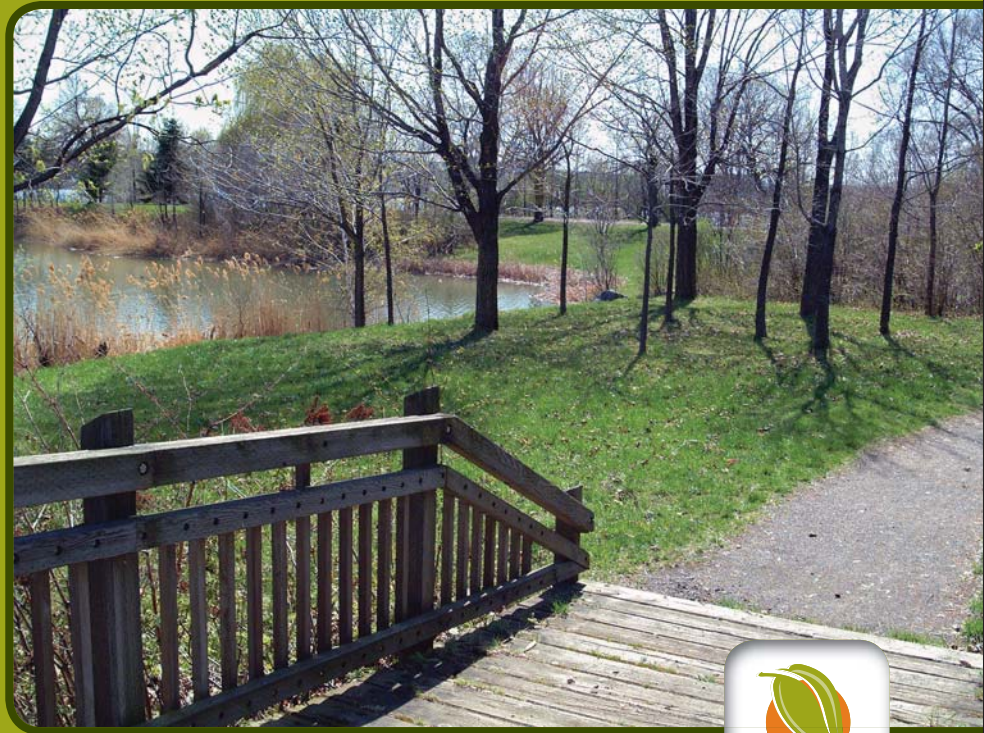
J



Can you match the fish images to their respective names?

- a Brown bullhead**
- b Yellow perch**
- c Lake sturgeon**
- d American eel**
- e Northern pike**

Treasure island



POINT

K

N 45° 30.563' W 73° 32.135'



To pursue your adventure:

Fifty years ago, you may have been standing in the water. Go see why on the other side of the parterre, on the tree-lined path at POINT L.

GPS : N 45° 30.680' W 73° 32.053'

◀◀ I thought about burying my chest right here, but this small island next to Île Sainte-Hélène is largely made up of rock that is impossible to dig through. It's just as well, since I saw some species that can easily be compared to the most beautiful of jewels! ▶▶



Is it still a
treasure island?
Yes!

Lac des Cygnes used to be... Île aux Fraises!

The island was deeply excavated to expand Île Sainte Hélène in order to welcome part of Expo 67. This is why only a few metres from the shoreline, the depth of Lac des Cygnes reaches more than 30 m (90 ft).

The treasure isn't located on the island, but rather... around it!
Carefully observe the bottom of the water from one of the two bridges.

K



**You may be surprised to see
the following species:**



**Pumpkinseed,
shiny as a gold bullion.**

**Painted turtle
with a shell as beautiful
as a treasure chest.**



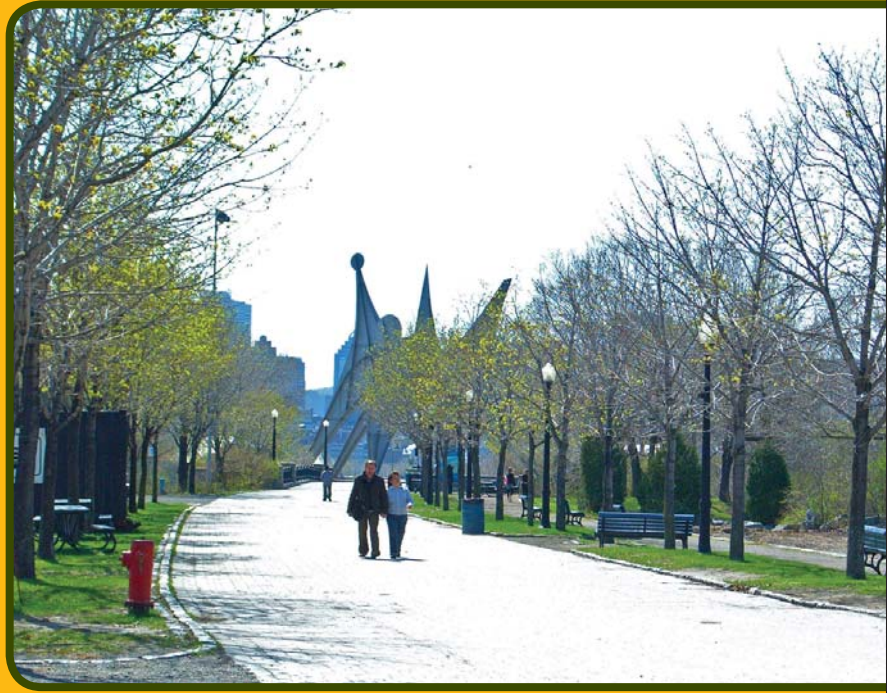
**Red-eared slider turtle:
This species is not native
to Quebec! Some people
release this pet into the wild,
but the turtle adapts to our
climate and takes the place
of indigenous species.**



**Impressively
big carp.**



A growth spurt



POINT

L

N 45° 30.680' W 73° 32.053'



*To pursue your adventure,
choose among the following options:*

Before you finish, how about taking a minute to test your sense of direction while you make your way to the next stop?

Go to POINT M, which is the circular plaza in front of the Biosphère.

GPS: N 45° 30.783' W 73° 31.900'

OR

You now have everything you need to try to open Pehr Kalm's chest! Return to the Biosphère at POINT N. Once inside, it's up to you to find the chest in the interior garden.

GPS: N 45° 30.844' W 73° 31.901'

Chest:

How many lamp posts are on the small bridge crossing the pond?



Here, a wonderful wetland links Île Sainte-Hélène to one of its neighbours, le aux Fraises (meaning Strawberry Island). It is a choice location for birds and fish, which enjoy abundant and diverse vegetation. Over the years, I have noticed that wetlands are also very efficient at cleaning the water that goes through them.



This area seems to have been disturbed since Pehr Kalm's visit! The map shows the island's transformation for Expo 67, notice that there were three original islands. In Pehr Kalm's time, everything you can now observe on the other side of the tree-lined path was covered by wetlands.

Do you think this area is as welcoming as the former wetland? Why or why not?



Yellow star:
Your position

Dotted red lines:
Former banks

To welcome the 1967 World Fair,

Île Notre-Dame was created from scratch and Île Sainte-Hélène was enlarged. This was done mostly using the 25 million tonnes of rock extracted to build Montreal's subway tunnels.

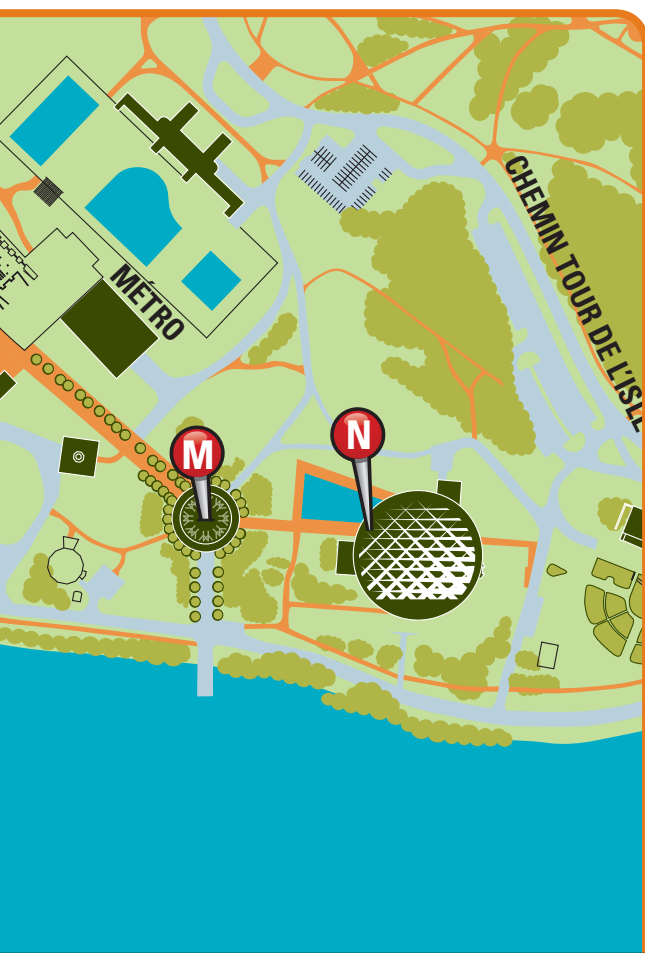


Bearing
north!

POINT

M

N 45° 30.783' W 73° 31.900'



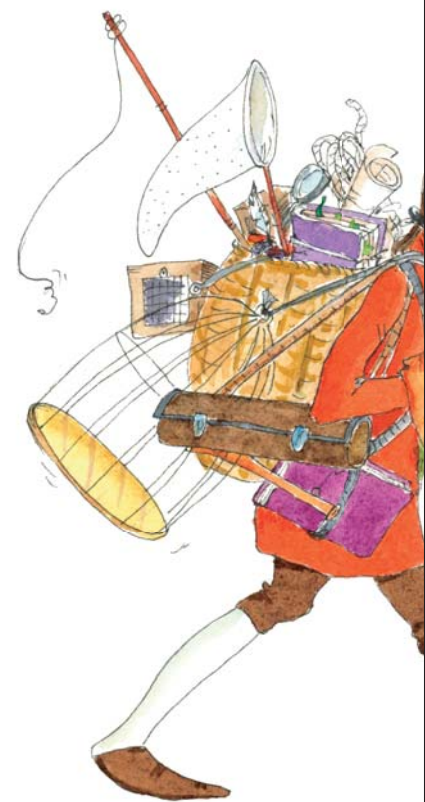
To pursue your adventure:

You now have everything you need to try to open Pehr Kalm's chest! Return to the Biosphère at POINT N. Once inside, it's up to you to find the chest in the interior garden.

GPS: N 45° 30.844' W 73° 31.901'



◀◀ I'm afraid I may have gotten lost again... I have to figure out which way is north so I can find my way using my map of the island. I know that the sun rises in the east, that it sets in the west, and that it is in the south at noon. ▶▶



Using the information found in Pehr Kalm's journal, indicate where the north is located in relation to your current position.



Do not use a GPS or a compass!



Photo: Vista photo

Did you know that...

Many migratory animals, such as birds, salmon and turtles, rely on their own internal compasses to find their way. Researchers suspect that one of their navigation techniques involves their ability to perceive variations in the Earth's magnetic field to determine where they are.





Photo: Vista photo

The chest

POINT

N

N 45° 30.844' W 73° 31.901'



*Did you know that Nature and Urban BioKits exist as well?
Share your discoveries, build your EcoProfile and stay informed
of any news on the Biokits website at
www.ec.gc.ca/biotrousses-biokits.*



Biosphère

Environment Museum
Musée de l'environnement

www.ec.gc.ca/biosphere

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St. Lawrence Plan 
For a Sustainable Development



◀◀ Your adventure
is almost over! ▶▶



Chest:

At the right of the main entrance
of the Biosphère, how many flags
can you see?



N

Now, all you have to do is find the combination to unlock the chest
using the numbers you entered in your travel log throughout your mission.

To open the chest:



1. Begin by setting
the knob on zero.



2. Turn the knob
three times to the
LEFT and stop
on the first number.



3. Turn the knob to
the RIGHT and stop
on the second number
when passing it for
the second time.



4. Turn the knob
to the LEFT, and
stop immediately
on the third number.

5.
**Turn the
key and open
the door.**