

Project overview
In the field
Online submission

www.mission-monarch.org



Mission monarch overview

Background



There are two migratory monarch populations in Canada, separated by the Rocky Mountains: the western population and the eastern population. The latter makes one of the world's most impressive animal migrations, flying more than 4,000 km in the fall to reach its wintering sites in central Mexico.

Unfortunately, North American migratory monarch populations have declined dramatically in recent years, to the point that there are now fears for their survival.

Given this disturbing decline, Canada has committed to protecting these butterflies' summer breeding grounds, as a way of maximizing their reproductive success. To do so, we need to collect data on their breeding habitats. But it's tremendously difficult to track and observe these insects that cover thousands of kilometres and visit three different countries in just a few months. That's where you come in!

Monarchs need you!

Mission Monarch is calling on Canadians to help out. People from all over who care about monarchs are being asked to count eggs and caterpillars in the field. Participants are encouraged to record their observations once a week from June to September, although any input is welcome.

The *Mission Monarch* website is a goldmine of information on these butterflies. You'll find a photo gallery, additional activities and adapted protocols. Research and other news is covered in a blog. Participants will find lots of other useful information in the "FAQ" section, explanatory videos and a help forum.



In addition to helping advance scientific knowledge, *Mission Monarch* will teach Canadians and make them aware of the monarch cause. The project is a way for citizens to be part of the solution.

Join *Mission Monarch*, and be part of the solution!

Are you up to the challenge?

Mission monarch overview

Accepting your mission



1. Getting ready

Read up on how to participate in *Mission Monarch*. Learn how to recognize the milkweed species in your area and the monarch life cycle. Familiarize yourself with the instructions you'll need to follow in the field, and find all the tools you'll be using during your mission.

2. Choose your inventory site

Where might you be able to inventory monarch eggs and caterpillars? Learn how to find and recognize suitable monarch habitats.

3. Describe your site

Before starting to hunt for monarch eggs and caterpillars, you'll need to record a few details about your chosen site. Here's how to go about it.

4. Count the monarch eggs and caterpillars

This is the heart of your mission – and the most fun! Read the instructions, and download the data collection sheets you need to take with you.

5. Submit your data

Once you get back home, share your findings with the Mission Monarch researchers and other participants.

6. Further reading

Learn more about monarch biology, other related scientific projects and the other species you might see in their habitat. This section contains all kinds of interesting information and activities.



In the field

1-Get ready



Recognize milkweed

Milkweed is an essential part of the monarch life cycle because it is their host plant – which means that it is the only thing that monarch caterpillars eat. There are about a dozen different milkweed species in Canada, in nine of the ten provinces. So if you are participating in *Mission Monarch* you'll start by identifying and counting all the milkweed plants on your site, because it's on those plants that you'll be looking for monarch eggs and caterpillars.

Consult the identification sheets in order to find and learn to recognize the milkweed species that grow in your region. The province of Newfoundland and Labrador and the three Canadian territories aren't included in the table because no milkweed species grow there.



Recognize monarchs

Monarch eggs and caterpillars are central to your mission. These are the stages you will be looking for and counting on milkweed plants. Of course, you may also see some chrysalises and adults, and it will be interesting to record them. This means it's very important to be able to recognize monarchs at each stage in their life cycle.



Learn to recognize monarch eggs and to differentiate the five larval instars, thanks to the identification sheets.

In the field

2- Choose your inventory site



Find it...

To get started, you'll need to find a site where you can inventory all the monarch eggs and caterpillars. While the site you choose must contain **milkweed**, there is no minimum or maximum number of plants. You'll also need to confirm that the site hasn't been treated with any pesticides.

Common milkweed is found in almost all open sites: in abandoned fields, along country roads, in parks, on forest edges, near paths, etc. Milkweed usually prefers **disturbed sites**, and thrives in poor soil. So look for it in **wide-open spaces** like fields and vacant lots.



...and look around carefully!

Once you've chosen your site, take note of all the species of milkweed you can see. Use the milkweed identification sheets for your area to help you recognize them.

When you go online to send in your data, you will be asked to indicate the total surface area of your site on a map. A site is defined as **the entire area in which milkweed could grow**, even if it isn't found everywhere. For instance, if there is a tiny patch of milkweed in the middle of a large field, the total area of your site will be the whole field. So take the time to look around carefully and to pick out some landmarks to help you mark your observations on the map.

Pick a **starting point**. This can be any spot that it is easy to access. Just remember to always start in the same spot.

In the field

3- Count the monarch eggs and caterpillars



Although every step in a monarch's life cycle is essential, the *Mission Monarch* project is interested mainly in eggs and caterpillars. Why? Because we're trying to find the best places for monarch butterflies to reproduce.

The focus of the *Mission Monarch* experience (and the most fun part, too!) is counting the monarch eggs and caterpillars on your site. You should do this at least four times a summer, and ideally once a week.

Instructions

- 1- When you arrive, and regularly during your observation session, look around and scan your site. Do you see any **adult monarchs**? Can you tell whether they are male or female? To avoid counting the same butterfly twice, just note the maximum number of monarch butterflies you see at one time.

For instance, if you spot one butterfly when you arrive, and then three a bit later, and two when you leave, you should mark down the number three. There is no way to tell whether you saw six different butterflies or counted some more than once.

- 2- Note any **change** or **disturbance** that has occurred on the site since your previous visit (e.g.: Have the weeds been cut? Is there a worksite nearby? Are there a lot of people passing through?).
- 3- Closely examine the milkweed plants on your site and note down on the sheet the number of monarch eggs and caterpillars you find.

⇒ **If you can examine all the milkweed plants** on your site, go ahead. The more information, the better!

⇒ **If there are too many milkweed plants** for you to examine them all, study a **random sample**. That means choosing milkweed plants to examine at random, as explained below. To use this method, go to step 4.



In the field

3- Count the monarch eggs and caterpillars



4- Go to your site's starting point. Toss a pencil into the air and let it fall to the ground. The direction in which the point is facing will determine the direction of your **transect**.

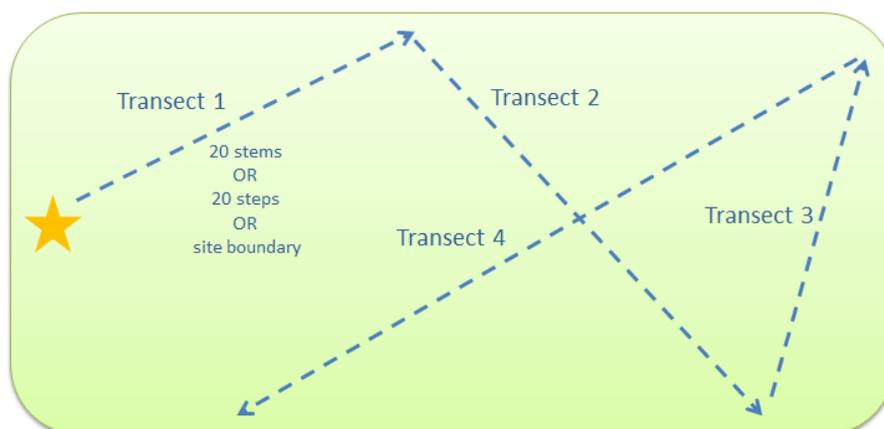
5- Stretch out your arms on both sides and walk along your transect. Stop to **examine every milkweed plant** within the distance between your two hands, and count the eggs and caterpillars you find.

6- Stop after you have examined **20 plants** OR taken **20 giant steps** OR reached the boundary of your site – whichever comes first. Throw the pencil again to choose a new direction at random and start over at step 5.

If the pencil is pointing in the direction you have just come from, throw it again to decide on a new direction. (Repeating the same transect would skew the data.)

7- Continue until you have completed **four transects** or until you run out of time.

8- You may even want to take pictures of your finds. That way you can confirm your identifications and share your observations in the interactive photo gallery on the *Mission Monarch* website. Your photos will also let us validate your observations.



Online submission

4- Submit your observations



Share your data with researchers

A- Create an account on www.monarch-mission.org and personalize your profile

B- Log in and describe your inventory sites, following the Mission Monarch protocol.

C- Log in and submit your findings after every survey. This way, you are sharing precious observations with experts, and contributing to the research dedicated to monarchs.

The screenshot shows the 'Submit Observation' form on the Mission Monarch website. The form is titled 'Step 1' and asks 'Where did you monitor monarch eggs and caterpillars?'. It includes a 'Search address' field with a 'Search' button. Below the address field is a map of North America with a 'Clear Map' button. To the right of the map are several input fields: 'Enter Location Name', 'Data usage' (set to 'Public'), 'Select Provincial/State', 'Latitude (decimal degree dd.dd)', 'Longitude (decimal degree -dd.dd)', and 'Area Count (square meters)'. There is a 'Clear Polygon' button and a question 'Could you count all milkweed stems at your site?' with radio buttons for 'Yes' and 'No'. A 'Next' button is at the bottom right. The website header includes 'Steps', 'Submit Observations', 'Explore data', 'More about project', and 'Monarch biology'.

Online submission

Learn more about monarchs



You can't get enough?

- Explore data collected by all Mission Monarch participants through lists, graphs or maps.
- Browse through the monarch photo gallery.
- Learn more about monarchs: their biology, the threats they face and the conservation efforts that are being initiated for their survival.
- Stay connected by following our blog all summer long!

For more information, please contact:

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