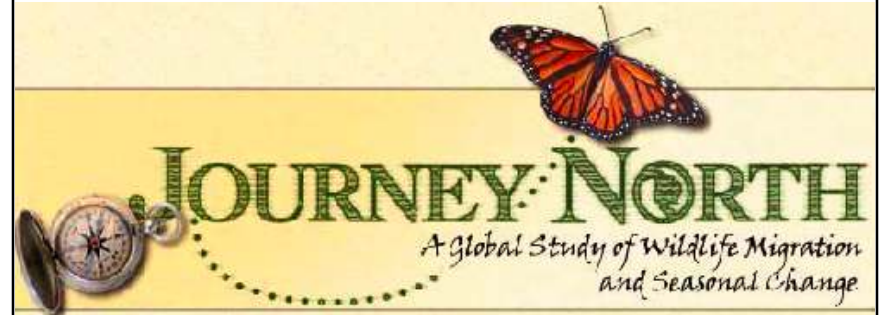




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Layout by Margaret Black



Why Do Monarchs Form Roosts During Fall Migration?



Photo © Harvey Medland

by Elizabeth Howard

Monarch butterflies migrate alone. They do not travel in flocks the way many birds do. So why do they come together at night and form roosts like the one in the picture on the cover of this booklet? And how do they find one another?

Let's see what scientists know — and don't know — about this unusual monarch behavior.



Monarchs only migrate during the day. They come down at night and gather together in trees. A cluster of butterflies is called a "roost" (or a bivouac").

Most roosts last for only a night or two. That's one reason it's so exciting to discover one! In other places, these gatherings may last as long as two weeks or more.

1

Some roosts have only a handful of butterflies.



Some roosts have too many butterflies to count!



2

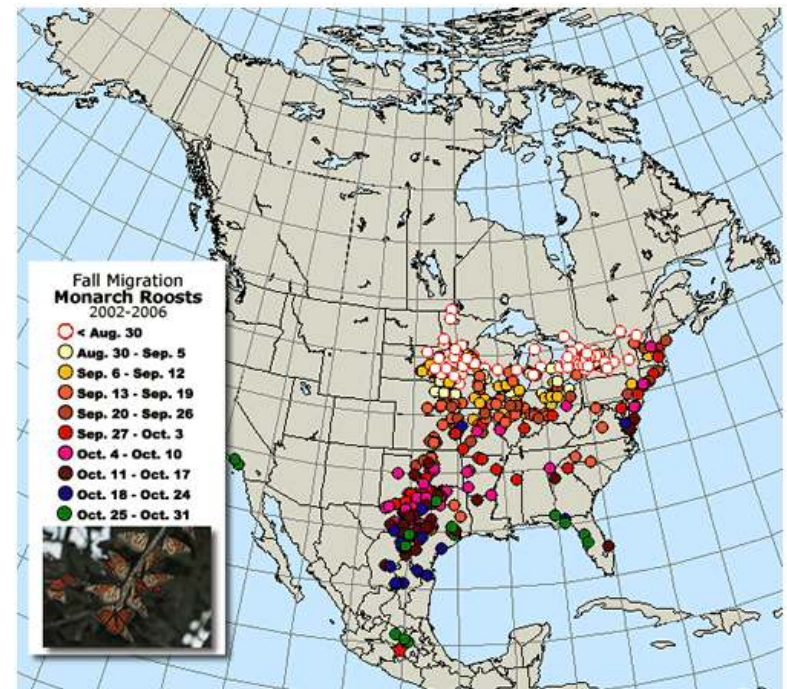
Scientists don't understand why monarchs gather this way, says Dr. Lincoln Brower. He has studied monarch butterflies for over 50 years. How would Dr. Brower study a roost if he found one?

"I'd pull up a chair, grab a pair of binoculars and just sit and watch! I'd try to stay hour after hour, day after day—as long as the monarchs were there. People can contribute important observations by going with an open mind and documenting what they see."



This map shows when and where people have discovered roosts during fall migration. Let's find out what they have observed and see what we can learn.

- **Keep this question in mind as you read:** How might roosting help monarchs survive the migration?



Where do monarchs form their roosts?

"I've been experimenting with finding roosts," says Mr. Tom Murphy of Minnesota. "I think the key is finding a nectar source. Even when migrating hard, monarchs seem to stop for a sip.



Monarchs roost at Mr. Murphy's farm every year. He uses a net to gather the butterflies from the roost for tagging.

5

Mr. Paul Viger and his children tag monarch butterflies in their back yard in Minnesota. They have made some interesting discoveries by watching closely.



"One of these monarchs made it to Mexico," he wrote. We don't know which butterfly it was because we can't read the numbers on the tags in the picture, but one was recovered."

6

What causes roosts to come and go?

Mr. Viger counted the number of monarchs each night that roosted in his yard. The graph below shows the pattern he noticed. What might cause the number of monarchs to change this way?

Monarchs at the Roost



Here is what Mr. Viger said:

"I noticed that the roost grew bigger and bigger when the wind was from the south, said Mr. Viger. When the wind blew from the north the numbers dropped."

How long does *one butterfly* stay at a roost?

This is a hard question to answer. Can you imagine why? List the reasons it would be hard to find out how long an individual monarch stays at a roost.

- Then read our list on the next page.

"Basic information like this isn't documented in the scientific literature," says Dr. Brower.



Mr. Viger tagged the two monarchs in this picture. See if you can find them. Do you think he would find them again if he came back the following night?

Why would it be hard to study how long individual monarchs stay at a roost?

Here are some reasons:

- The butterflies are hard capture. They're up high, they can fly away and they're easily scared.
- The butterflies are hard to **recapture**. If you don't recapture a butterfly you don't know if the butterfly is gone or if you just can't find it.
- People don't want to disturb the butterflies during migration.
- The butterflies are hard to see. It's dark much of the time because the monarchs arrive at sunset (and may leave early in the morning).
- It's hard for a person to find a roost!
- Roost form in unpredictable places, they can't always be found in the same place every year.
- Roosts don't stay in a place for long.
- The migration season is short. Fall migration happens only once a year.
- It's hard to organize an expedition if you don't know when or where to go.
- Can you think of other reasons?

This is why citizen scientists can be so important. Regular people can make observations that are difficult for a scientist to make.

How do the butterflies find the roost?

Few people have had the chance to watch a roost form. One observer described it this way:

"The air resembled a Monarch airport, with monarchs coming in from every direction, floating through the air, checking out various trees, landing, then taking off again. It took from about 7:15 to 7:35 p.m. for them to cluster in the trees, just before dark."



Monarch biologist Dr. Bill Calvert describes how a roost forms:

"When watching the roosts form in the evening, one is struck with several things. There is active patrolling amongst the canopies of trees. Many butterflies appear to be flying around looking for something. Some butterflies land on perches. When another butterfly approaches their position, the perched butterflies open their wings, often rather abruptly. After this disturbance they may continue to open their wings for a few seconds more, 'flashing,' usually much more slowly than initially."



The monarchs in the lower right corner of this photo are "flashing."

Learn More!

- Does scent attract monarchs to a roost?
- Do monarchs rest at the same roost sites every fall?
Read Monarch biologist Dr. Bill Calvert's thoughts about both of these questions at: <http://www.learner.org/jnorth/tm/monarch/FallRoosts.html>
- Inspect the roost map carefully. How are geographic features related to the location of roosts?
http://www.learner.org/jnorth/maps/current.html?layers=monarch_roost
- Read comments from observers and see what they have seen.
<http://www.learner.org/jnorth/tm/monarch/RoostObservations.html>
- How would Dr. Brower study a roost site? Listen to him describe what he would do and the questions he would ask.
<http://www.learner.org/jnorth/tm/monarch/FallObservationRoosts.html>

If you see a roost, make careful observations—and please report what you see!