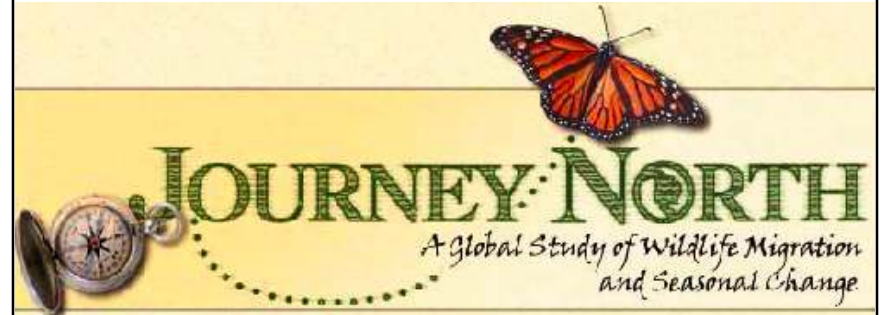




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Layout by Margaret Black



## **Why Are the Monarchs Standing in the Road?** A Puzzling Observation



Photos and text by Elizabeth Howard

It was a sunny day, but windy and cool. The temperatures were in the 60s. A strong wind was blowing from the south with gusts up to 30 mph. It was peak migration and monarchs were abundant. But something was unusual. Everybody who saw them wondered, "Why are the monarchs standing in the road?"

Many monarchs were nectaring on the roadside flowers. This is what we expect!



But quite a few others were standing in the road. What might they be doing? Think for a minute. Then we'll take a closer look...



What do you see when you look at the picture below? Make a list of *every detail* you notice. Think about the butterfly from top to bottom. Look carefully at its surroundings. Add details you know from the story. A scientist never knows which information will be important, so make a careful list.



Circle the information on your list that you think is most important. Maybe you noticed details like these:

- the butterfly's wings are closed
- the butterfly's legs are bent
- the butterfly's body (thorax) is close to the ground
- the butterfly's antennae are forward
- the butterfly's proboscis is touching the road
- the butterfly has a shadow (on its left)
- the butterfly's wings are tilted (to the butterfly's left)
- the sun is shining
- the road is dirt
- the road is light-colored (not dark pavement)
- the road looks dry
- the road looks hard, not sandy
- the day is cool (60s F)
- the wind is blowing (from the south)
- the monarchs are facing in the same direction (in the other pictures)



Here's another butterfly. In both cases, notice that the proboscis is touching the road. That's a key piece of information as monarch expert Dr. Lincoln Brower is about to explain. But first, make your own hypothesis:

- I think the butterflies are in the road because \_\_\_\_\_

Now let's see what monarch expert Dr. Lincoln Brower says!

Dear Journey North,

The monarch is engaged in a behavior called "Mudpuddling." It is a common behavior in many butterflies, although I have almost never seen it in monarchs.

I suspect there are salts\* on the road that may have contained some sodium and potassium chlorides.

Professor Thomas Eisner and his students at Cornell University have done several studies on the behavior. For some reason, male butterflies (and some moths) are attracted to these wet spots to imbibe the salts present. They may pass a lot of water through their bodies in order to concentrate the salts. Eisner showed that males of some species then pass these salts onto the females when they mate with them in "nuptial gift" behavior.

Here in Virginia, I frequently see the pipe vine swallowtail, the tiger swallowtail, and the spicebush swallowtail drinking from damp dirt along the road or the edges of mudpuddles. Interestingly, the behavior almost always involves males only.

There are wonderful pictures of tropical river sandbars covered with thousands of butterflies of numerous species. In the tropics, mudpuddling occurs naturally on areas where fish have died on sandbars.

In a somewhat macabre behavior, the swallowtails here in Virginia will often mudpuddle in spots where cars have run over and squashed a group of the same species of butterflies that were previously mudpuddling. Squashed toads and frogs are also attractive.

Professor Lincoln P. Brower  
Research Professor of Biology  
Sweet Briar College  
(Distinguished Service Professor of  
Zoology Emeritus, University of Florida)

*\* **Editor's Note:** Salt is put on this road in the winter to melt ice. Also, the road is sprayed with calcium chloride to control dust. Evidently the calcium chloride makes a salt solution when it absorbs moisture from the air and the road.*