

## The Amazing Monarch Butterfly

I have always been amazed that tiny hummingbirds are capable of migrating across the Gulf of Mexico and down into South America and back every year. They are so small (the average ruby-throat only weighs 3 grams, a little over a tenth of an ounce, and they have to beat their wings so fast.

But there is one animal that has an even more amazing life story; the Monarch butterfly. This is what makes it so amazing.

We begin sometime around the first of April, give or take a couple of weeks depending on the weather, when the butterflies begin to arrive in the Hill Country. The monarchs have left their wintering ground in Mexico, probably mated there, or maybe as they arrive here, and the females are looking for some milkweed plants on which to lay their eggs. The most common native milkweeds in this area are the antelope horns (*Asclepias asperula*) and hierba de zizotes (*A. oenotheroides*). Neither of these plants are all that common, although they are certainly not rare either.

The eggs hatch in 3 to 6 days into what is called the first instar, or first of 5 successive larvae or caterpillars, each bigger than the previous one. The bigger ones have black, yellow and white bands around their bodies and a pair of antennae near each end. The final instar, after gorging on the milkweed, forms a chrysalis or pupae, and seven to ten days later the adult butterfly emerges. The total time from egg laying to the new adult takes about 5 weeks.

This adult then begins a migration northward, with stops along the way for nectar, to mate, lay its own egg, and die, and a new generation is born. This process of creating new generations of monarchs continues into the summer all the way up into the northern U.S. and southern Canada.

But then something really interesting happens. In late summer or early fall, the generation of monarchs that hatch at that time do not mate and lay eggs just then. Instead, they go into what is called “reproductive diapause”, and do not breed. They then begin the long migration south and southwest, thousands of miles over areas they have never seen to a small wintering ground in the mountains of Mexico where they have never been! In fact, none of the last several generations have ever been there either!

They tend to wait for favorable north winds to help them along and stop to nectar when the winds are not favorable. A large fraction of all monarchs cross the Red River and travel through central Texas, some from Minnesota, some from New England, arriving sometime around the end of September. Some butterflies arrive from the east along the Texas coast and travel along the coast to Mexico.

Their migration takes them to the Sierra Madre Oriental Mountains in Mexico, then south and then west to the very small area in central Mexico where the vast majority of all monarchs in North America overwinter hanging from fir trees. Then, those butterflies that survive the winter, as well as having survived predators, disease, automobiles and insecticides, many fewer in numbers now, begin the migration back north in the spring. And here in the Hill Country they lay their eggs about eight months after they emerged from their pupae in the north. Look for them anytime now!

Somehow, the genes in the DNA of monarchs, along with whatever serves as their “brain” or nervous system is programmed to cause the butterflies to migrate north in the spring with adults dying and creating new generations along the way. But then to sense shortening days and/or cooler temperatures and to cause a new generation to be born that, instead of living only a few weeks, lives for eight months. And in those months, it migrates thousands of miles, winters hanging in a fir tree and then flies back to Texas in the spring to start the cycle all over again.

Because of man’s converting native pastures containing milkweeds into farms, heavy use of insecticides, air pollution, plus the logging of their wintering grounds, the populations of monarchs has declined over the decades, and it continues to fluctuate because of weather conditions. But in spite of all of these problems, these amazing little insects persevere and survive and give us something beautiful and inspirational to look at twice a year.

Until next time...

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