

MONARCH BUTTERFLY ANNUAL CYCLE

SUMMARY

It takes an entire year to complete the annual monarch butterfly migration from central Mexico to the eastern U.S. on to southern Canada then back again to Mexico. To do this it takes 3 generations of butterflies to move north from Mexico. The monarchs that spend the winter in the mountains of central Mexico are the fourth and final generation of a cycle that starts over each year. The monarch butterfly's annual cycle involves four phases: Overwintering in Mexico from November through February, the spring migration from March through mid-June which includes breeding and egg laying in the south, late spring and summer breeding in the north from mid-June through mid-August, and the fall migration from mid-August through October.

SPRING MIGRATION AND THE FIRST GENERATION OF MONARCHS

The spring migration begins in March. The overwintering monarchs' reproductive organs have remained in an undeveloped state. This delayed maturity is called diapause. When temperatures warm in early March at the overwintering sites the monarchs start becoming more active. Some of the butterflies end diapause and begin to mate. Once the female monarchs breed they migrate north to lay eggs on milkweed plants in northern Mexico and the southern U.S. These eggs will become the first generation of butterflies. The monarchs from Mexico lay their last eggs by late April or early May. When the first generation monarchs emerge as adults they breed and continue to fly north to lay eggs. The monarchs complete the migration north as milkweed becomes available. Monarchs reach the northern limit of their habitat in early to mid-June.



photo: Bruce Schuette

Monarchs move north as milkweed becomes available for reproduction

SECOND AND THIRD GENERATION BUTTERFLIES

Second generation butterflies are the grand children of the monarchs from Mexico. Second generation monarch adults emerge from June into July then mate and lay eggs soon after emerging. Many of those that begin their lives in the south move north as adults, as the southern summers are overly hot and dry for their offspring. The monarchs that have emerged from eggs laid in the north usually remain close in order to conserve energy so that as many offspring as possible can be produced.

Third generation butterflies are the great-grandchildren of monarchs from Mexico. Third generation adults lay their eggs throughout the northern part of the range in July and August. These eggs will become the fourth generation of monarchs.

It takes five generations of Monarchs to complete the annual cycle

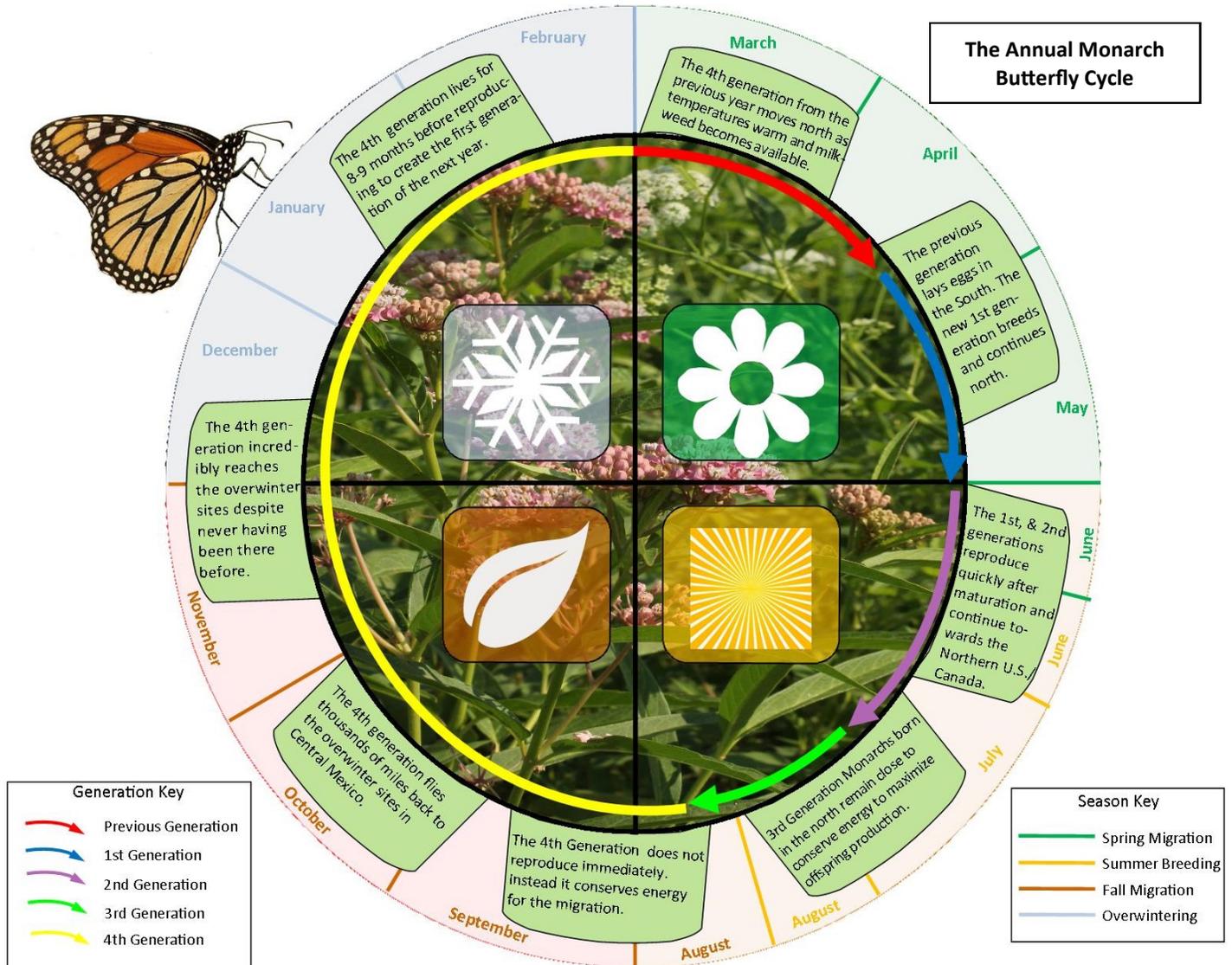


photo: Bruce Schuette

FOURTH GENERATION BUTTERFLIES AND THE FALL MIGRATION

These are the great-great grandchildren of monarchs from Mexico. This generation is different from the first three monarch generations in two notable ways. First, they do not reproduce right after they emerge as their reproductive organs remain in an immature state. This condition is referred to as diapause. Instead of mating and laying eggs, they spend their time drinking nectar and conserving energy in preparation for their long journey south to Mexico. The monarchs will remain in this condition until the following spring, when they begin to mate in the overwintering colonies. In comparison, the first, second and third generation monarchs live only about a month as adults and start laying eggs when they are only a few days old.

The second difference is that they will migrate south to the overwintering sites in central Mexico and then back north to the U.S., living as long as eight to nine months. Most of the butterflies in this final generation begin their lives in the northern US or southern Canada. They then migrate thousands of miles back to the Sierra Madre Mountains in Mexico. They have never been to this area before but incredibly they make the journey south to complete the monarch butterfly annual cycle.



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