



Monarch Butterfly (*Danaus plexippus*)

With their lacy wings and graceful movements, the monarch butterfly only looks delicate. The Atlantic Coast population of this butterfly and its offspring complete a long and perilous migration each year. Much to the delight of onlookers, their route takes them through the New York/New Jersey Harbor Estuary area each June and September.

Easy to spot, their four wings are generally yellow, orange or gold with veins of black running throughout. They measure about 3 inches from wingtip to wingtip. Some travel upwards of 3,000 miles to complete a voyage that ends in the mountain forests of Central Mexico and can start as far north as Canada. The Atlantic Coast Monarchs migrate for two reasons. They cannot withstand the cold and so they head to warmer climates for the winter. In addition, milkweed, the plant that monarchs depend on for food and shelter throughout their four life stages, does not grow in the butterfly's overwintering grounds.

All insects change in form as they grow; this process is called metamorphosis. Butterflies undergo complete metamorphosis, in which there are four distinct stages: egg, larva (caterpillar), pupa, and adult. It takes Monarch Butterflies about a month to go from their egg to adult stage. The adults live another two to six weeks in the summer. Monarchs that migrate south live all winter, nourished by fat stored from eating milkweed, or about six to nine months.

Milkweed is the host plant for most of the monarch's life cycle. Eggs are deposited on the underside of the plant's leaves and from there they will hatch during the spring and early summer. Once hatched, the larva gorges on the fine hairs on the leaves of this plant, staying on the same plant for its five molting stages. After molting is complete, the larva will leave the milkweed and build its chrysalis somewhere else. Once an adult monarch butterfly emerges from the chrysalis, it soon heads to a milkweed plant for food and shelter.

The Monarch Butterflies that we observe migrating south in late summer and early fall are actually the great-grandchildren of those that spent the winter in Mexico. With the arrival of spring and with their stored fat depleted, the over-wintering population heads north in search of milkweed for food and for a place to lay eggs. Due to its wide range and somewhat predictable nature, monarchs are a prime indicator species for the ecological health of a very large area, including our own.

The Committee on the Status Endangered Wildlife In Canada (COSEWIC) lists the Monarch Butterfly as a species of "special concern," which means the monarch is very sensitive to human activities and natural events but is not endangered or threatened. For the most part, the survival of the east coast population of Monarch Butterflies depends on the health of their overwintering sites.

Based on estimates of how many butterflies spend the winter in Mexico, the eastern population of this species numbers in the tens of millions. Past counts indicate that monarch populations

fluctuate regularly, and many times dramatically, perhaps due to a severe winter storm, poor breeding conditions, predation, parasitism, disease or other pressures. In the past, both the eastern and western populations of the monarch have suffered losses of nearly 90% but still recovered when the remaining 10% experienced good conditions during the breeding period. While a fluctuating population appears to be the norm for monarchs, human degradation of the overwintering sites in Mexico, most notably through deforestation, is resulting in consistently higher levels of mortality. This could push the population below a level from which it can ever recover.



This entry was researched and written by Claire Antonucci, Rosemary Higgins and Cathy Yuhas of the New Jersey Marine Sciences Consortium/New Jersey Sea Grant Extension Program. It is part of a larger project, "The Key Species of New York/New Jersey Harbor Estuary" produced with funding from the New York/New Jersey Harbor Estuary Program.