The Plight of the Monarch Butterfly
Adapted from an article by Don Bojnowski
by Francie McGowan

This is the third in a series about the eastern monarch butterfly, adapted from articles researched and written by Don Bojnowski. The more we understand about these beautiful and important pollinators, the better able we are to help save them. As previously mentioned in his article, "Over the past twenty years, the migration of the monarch butterfly has dropped by ninety percent." The implications of this drop-off are disastrous for all plants in general, and for human and animal food in particular.

The monarch butterfly travels every year to Mexico (western monarch butterflies winter in Aptos and Pacific Grove, California). According to Don's article, "At winter's close, Mexican monarchs wait for favorable conditions. The first generation flies to the Gulf States, mates, and dies in a month. The next generation continues to the northern US, where they, too, mate and die in about a month. The third generation flies to Canada and the northeastern US, also surviving a month. It is the 4th generation that lives nine months and flies all the way back to Mexico in an epic trip covering up to three thousand miles."

Every year 4 individual lives are needed to complete the cycle required to continue the existence of this species. In February and March a butterfly mates and searches for an ideal place to lay its eggs. In March-April, it lays its eggs on the leaves of milkweed plants. The larvae eat, grow and metamorphose into a chrysalis. In May-June, the third generation butterfly repeats the life of its parents in a new geographic area. It will perish in fifteen to fifty days after metamorphosing into a butterfly but not before laying eggs that will become the generation that travels to Mexico.

These butterflies fly at speeds of 12 to 25 miles an hour. They use updrafts of warm air, called “thermals” to glide as they migrate from the Great Lakes in Canada to the warm Central Mexican Oyamel fir forests in the Michoacan hills. They rest there through winter and then complete their migration Northwards in search of milkweed plants in the Eastern United States. At the wintering sites in Mexico, they roost in the millions in huge groups in the trees. The females will lay their eggs on the milkweed leaves, and the cycle goes on until the next fourth generation starts the return migration to complete the cycle north in the spring.

It is interesting to note the anatomy of the monarch. The black spot on the inside surface of its hind wing distinguishes the male Monarch from the female, which has no spot. The monarch breathes through vents in the thorax or abdomen called spiracles. Tiny tubes called trachea distribute oxygen through its body. With a 4-inch wingspan and a weight of one fifth of an ounce, Monarchs flap their wings at about 300 to 720 times a minute. Senses of smell and vision help the Monarch assess its environment. They perceive a broad spectrum of colors and can see UV light. Chemical discharged from their rear wing glands helps males attract mates. The Monarch lays as many as 250 eggs a day, one a time. Monarchs use their eyes to locate flowers, their antennas to smell nectar, and receptors in their feet allow them to taste sweets. Sweets

attract them because glucose is food for the brain, which consumes most of their resting calories, and muscles convert glucose to useable power, so they can go out and eat more and procreate.

Adult monarchs feed on nectar and water by sipping on it using a sucking tube called proboscis that lies coiled under the head when not in use. The poison they store by feeding on milkweed leaves is called Cardiac Glycosides. These are harmful to vertebrate predators like lizards, birds, and frogs, but ineffective on invertebrate predators.

The more we realize how important species, such as butterflies, bees and other insects are for our own survival, the more willing we will be to try to save them through individual and legislative efforts to provide a healthy environment for them.

Don Bojnowski is a University of California Cooperative Extension Master Gardener of Calaveras County.
Francie McGowan is a University of California Cooperative Extension Master Gardener of Tuolumne County.