

have just returned from Michoacan, Mexico, where each year up to 14 colonies of Monarch butterflies winter in the mountains 100 km northwest of Mexico City. The fall return of the butterflies often coincides with the national *Dia de Muertos* festival and local residents view the butterflies arrival as the return of their ancestors' souls.

Monarchs cluster in such high density colonies that their numbers are measured by the total hectares (ha) occupied in the UNESCO Santuario Mariposa Monarca in Michoacan. The area of occupation varies annually but from 1994 to 2003 an average of 9 ha was used by the butterflies. From 2004 to 2011 the average dropped to 4 ha. In 2013 the area used was less than one hectare. The period of major decline corresponds with the introduction of genetically modified corn and soybeans resistant to glyphosate, a herbicide applied to fields to kill weeds prior to planting. One of the plants eliminated in this type of field preparation is the milkweed, essential for Monarch egg deposition and food for larvae. In 2007 corn production and field utilization were increased to meet the demand for ethanol biofuel production.

A number of factors contribute to the reduction of the Monarch populations. The loss of milkweed from the agricultural areas of the mid-west United States, southern Ontario, Quebec and the Maritimes have had the most drastic impact on Monarchs. The use of herbicides on and mowing of roadside corridors and shoulders also reduces milkweed. Illegal logging and tourist invasion in the Michoacan sanctuary have reduced the wintering habitat. Changing climate patterns of more extreme temperatures and rainfall are affecting survival of migrating and over wintering butterflies and impair the reproduction of successive generations traveling north.

Monarch butterflies migrate north from Mexico in early spring and go through three or four reproductive generations on their way to the northern US



# Monarchs, Milkweeds and Mexico

The Cold Creek Report  
by Gordon Craig



states and Canada. In the spring, the migratory individuals transform to a reproductive phase and mate before departure. As the migratory females fly north they deposit eggs only on milkweed in southern Texas and die within two weeks. The eggs hatch in four days and the larvae grow over two weeks eating milkweed leaves before spinning a chrysalis and entering the pupa stage. The adult emerges after another two weeks and lives on the nectar of several flowering

can grow naturally and provide the reproductive essentials for Monarch butterfly reproduction. Consider a milkweed patch and nectar bearing flowers for your garden and give the migrating Monarchs a boost. Visit our Monarch page on ColdCreek.ca for special reports, links and videos. **M**

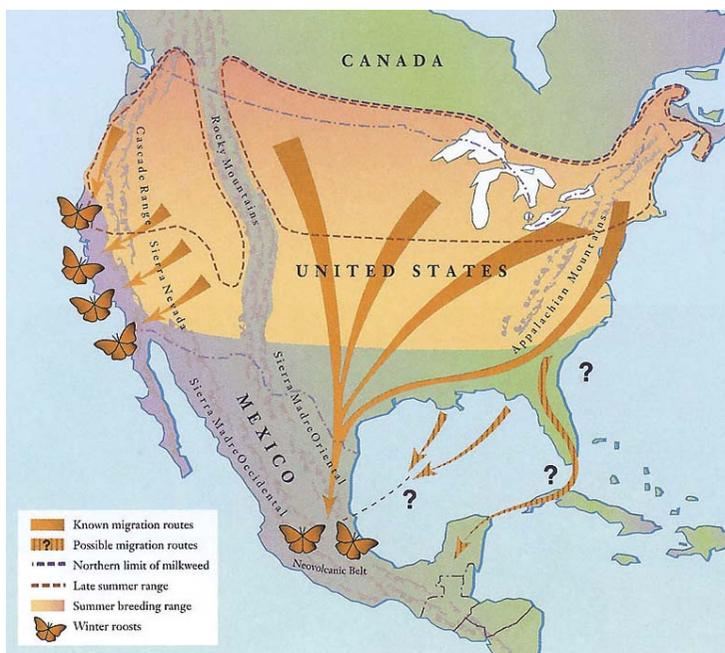


#### Links:

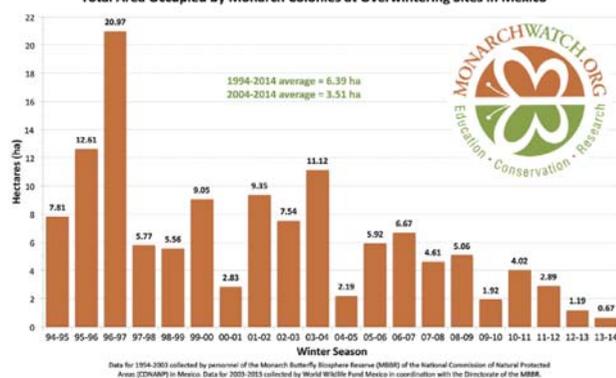
<http://whc.unesco.org/en/list/1290/>  
<http://www.monarchwatch.org/>  
<http://www.learner.org/jnorth/monarch/>

#### Videos

Life cycle of Monarchs <http://www.youtube.com/watch?v=7AUeM8Mbalk>  
Migration of Monarchs <http://www.youtube.com/watch?v=Le1snq0ROXM>  
Tagging Monarchs, Donald Barber <http://www.youtube.com/watch?v=tnnxXisGp3U>  
Dr. Chip Taylor – Challenges Ahead



Total Area Occupied by Monarch Colonies at Overwintering Sites in Mexico



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wildflowers as it moves further north to continue the progression of successive generations. Spring and summer adults live only a few months but the last and migrating generation enters a non-reproductive diapause stage that lives up to eight months enabling it to migrate back to Mexico, over winter and begin the return journey north.

A number of volunteer groups are making efforts to increase milkweed growth to compensate for the loss of agricultural habitat through herbicide use. *Monarch Watch* provides historical data and background information. *Journey North* collects volunteer observations and maps first sightings of adults, eggs and larvae. Residents and municipalities throughout North America are being urged to plant milkweed waystations in their gardens, parks and roadsides; encourage nectar producing flowers for Monarchs and pollinators; and avoid the use of insecticides.

Cold Creek Conservation Area has extensive meadow habitat where milkweed and wildflowers



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