

From Monarch Watch Spring 2017

Monarch Population Surprises - by Chip Taylor

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Those of us who are educators, and who follow monarchs closely, are being educated by the monarchs themselves this spring. The movement and behavior of monarchs returning from Mexico has been unprecedented. I'll save the details for a longer Status of the Population that will be posted online at a later date but for the purpose of making the point of how the monarchs are schooling us, I'll briefly summarize the important points here.

The overwintering population was just 2.91 hectares. That's a relatively small population. Yet, more returning monarchs have been reported this spring than for any previous overwintering population including many that were much larger.

Monarchs moved into central Texas after the 12th of March in good numbers and advanced at a rapid rate to the north and northeast, reaching Oklahoma a bit earlier and in larger numbers than seen in most years. This advance into Oklahoma continued in late March and early April, resulting in many sightings of egg dumping (multiple eggs on single plants). Evidently, large numbers of monarchs had reached northern Oklahoma before the 4th of April, but no further due to colder weather in Kansas and Missouri. On the 4th of April, we received a report of clustering monarchs on a ridge top near Bixby, OK (see "Spring roosting: A rare event" at <http://monarchwatch.org/blog/2017/04/11/spring-roosting-a-rare-event/>). This clustering may have been the result of storms that were moving through the area at the end of the day. Small spring clusters have been reported before, but the observers in this case reported that 1200-2000 monarchs had clustered in a series of pine trees on this hilltop. That was unprecedented. No one has reported seeing that many monarchs in one place that far north in the spring. Some monarchs lingered at this site through the 6th.

The weather changed on the 7th and from 7-9 April strong south and southwesterly winds and favorable temperatures allowed monarchs to expand the leading edge of the returning population from the Kansas/Oklahoma border well into Nebraska, a distance of 300 miles, in three days. I've looked at all the first sightings data posted via Journey North and I don't recall anything comparable to that expansion in those records. While the expansion was impressive, the number of monarchs in this wave was also remarkable.

These monarchs were ahead of the milkweeds in most of Kansas, Missouri, Nebraska and Iowa. Milkweed that had just emerged in burned over grassland sites, in the heat islands of cities and towns, and in some gardens, were quickly found by females who deposited large numbers of eggs on the few plants available. Egg dumping was the rule, allowing the collection of hundreds and hundreds of eggs and larvae – again, unprecedented numbers for these latitudes for this time of year. The eggs and larvae

were collected to save both the milkweed plants in gardens and the monarchs from predators. We collected well over 500 eggs and larvae with a minimum of effort. We also monitored a number of sites with large number of eggs and larvae that were not collected. Nearly all of the latter disappeared.

I kept watch on a special cohort of larvae that were relatively protected from predators to monitor their developmental rate. Those larvae were from eggs laid on the 9th and 10th of April. They are 29-30 days old at this writing (9 May) and most will pupate over the next three days. At emergence, most will be 45 days old. That's a long generation and that's not good. Shorter generation times are better for a number of reasons.

Monarchs resulting from the premature, ahead of the milkweed push, resulting from the winds of 7-9 April, will arrive late to the northern breeding grounds. In effect, these monarchs will lose a generation.

In 2000, there was a somewhat similar earlier push into Kansas and other northern sites. That didn't work out well. The overwintering population that year was only 2.83 hectares, down considerably from the 9.05 hectares from the previous overwintering population.

So, what does all of this foretell for this year's migration and overwintering population? Frankly, it doesn't look good. We could be looking at another decline such as seen in 2000, but it is really too early to make predictions. We will have to assess the number and timing of first generation monarchs that move into the northern breeding areas later this month and into early June. If those numbers are low, the population is certain to decline. Moderate numbers and summer temperatures that are 1.5F above normal could offset the loss of reproduction associated with the "too far north too soon" scenario that has played out this spring.

We will certainly have more to say about this in the coming weeks so stay tuned.