

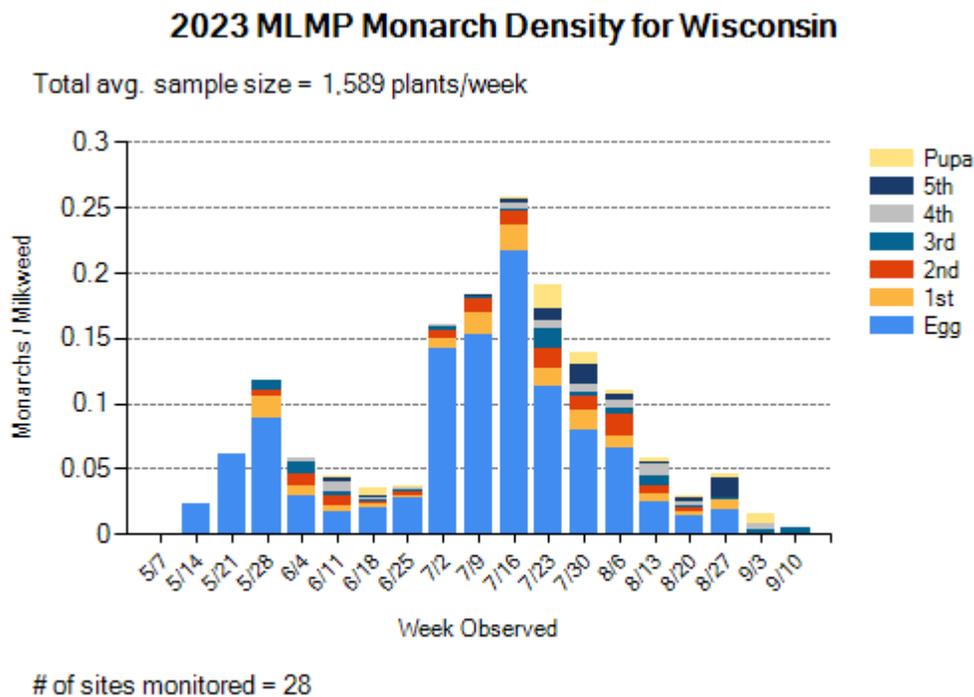
Wisconsin Monarchs 2024: A promising start that fizzled out?

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For almost 30 years, volunteers in the Monarch Larva Monitoring Project have visited milkweed patches, documenting monarch egg and larva abundance throughout Wisconsin and the rest of the monarch breeding range. They monitor backyard gardens, restored and remnant prairies, and other habitat, counting the number of plants they search and the number of eggs and larvae, identified to instar, they see. The resulting data allow us to compare monarch populations from year to year, and week to week within years. Graphs at [this link](#) and below represent per plant monarch densities, with eggs and the 5 larval instars represented by different colors. The amount of egg and early instar mortality is apparent, with blue, which represents eggs, being much more common.

Generally, we see a pattern like the one from 2023 (Figure 1). The first new generation of the year flies north from the southern US, and lays eggs over a period of just over a month, from early- to mid-May to late June. There's then a lull as these butterflies die and before their offspring start emerging as adults, and then another period of egg laying by the overlapping second and third generations of the year. The abundance of eggs laid by generations 2 and 3 monarchs generally peaks in mid-July. Monarchs laid as eggs from mid-July on will migrate to Mexico. Usually the population increases from spring to summer.

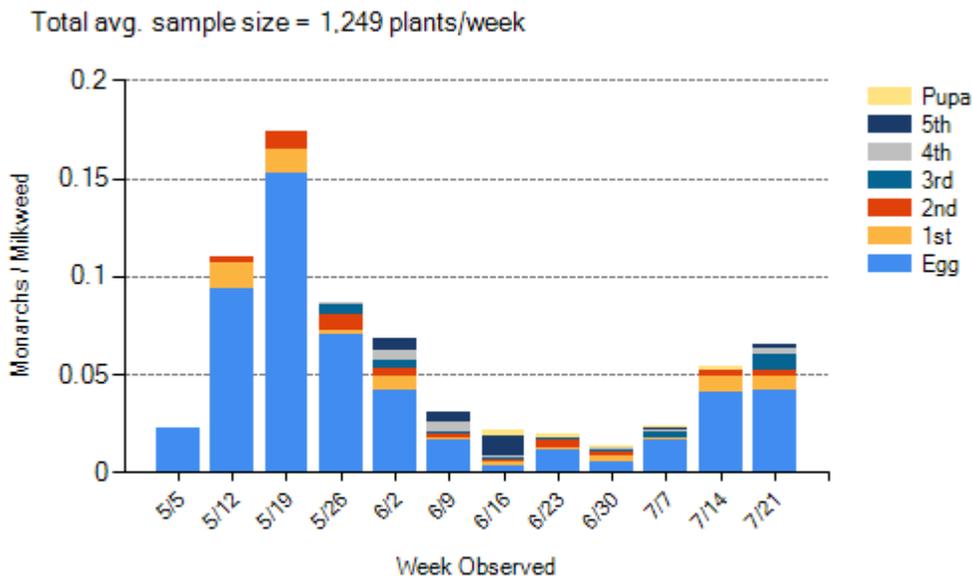
Figure 1.



But sometimes, like this year, the population does not increase (Figure 2). We've passed mid-July, and monarch densities are only about half as high as they were in mid-May. This happened in 2012 (Figure 3), which resulted in low monarch numbers at the Mexican wintering sites. 2012 was unusual for other reasons; monarch returned much earlier than usual and in very high numbers, and then crashed. Interestingly, 2024 was an early year too; volunteers found eggs during the week of May 5, earlier than in most years.

Figure 2.

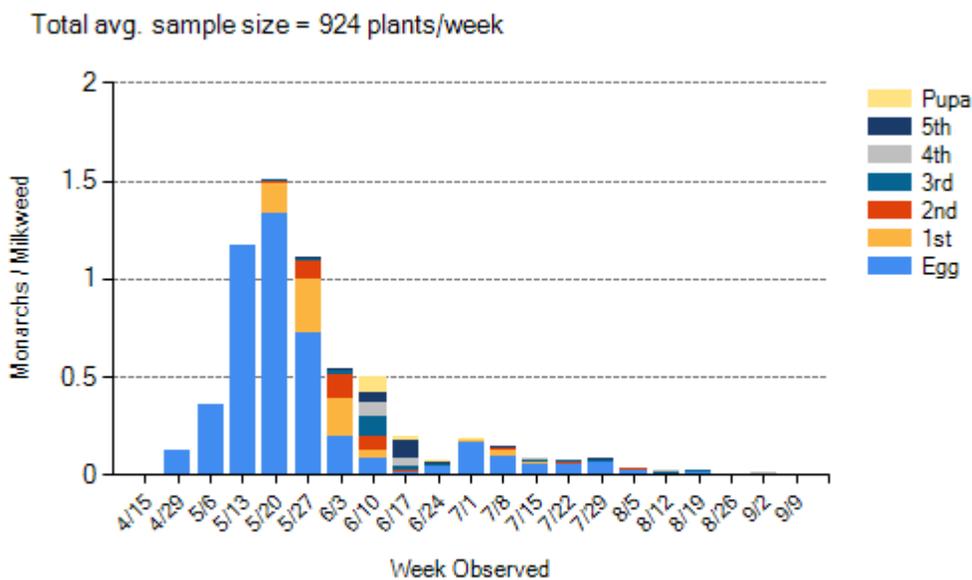
2024 MLMP Monarch Density for Wisconsin



of sites monitored = 21

Figure 3.

2012 MLMP Monarch Density for Wisconsin



of sites monitored = 18

While data from other monitoring programs are not yet available, anecdotal evidence from several NABA count coordinators in Wisconsin suggest that adult numbers reflect the same decline seen by MLMP volunteers.

Of course, summer isn't over yet, and monarch numbers could pick up. This would, however, be unusual. Peaks in numbers after mid-July, while not unheard of (see 2014, for example), are rare.

What happened? A possible cause is the big rainstorms just as generation 2 was about to eclose. Adult monarchs are good at hunkering down when it's raining; they can't lay eggs, but they can generally find shelter and wait the rain out. And we don't have good evidence that normal rainstorms wash eggs, larvae, or pupae off plants (although this hasn't been well-studied). But eclosion from pupa to adult is a vulnerable, albeit short, event, and monarchs probably can't delay it to wait for better weather. The intense heat early in the summer may also have affected both eclosion success and butterfly fitness. Long term data, like we can get from the MLMP and NABA, can help us understand the relationship between weather patterns and monarch numbers.

The likelihood that weather in the midwestern US is impacting monarch numbers this year illustrates the importance of habitat on broad regional scales. In years when monarchs don't do well in some locations it's important that habitat is available in locations where the weather is better.

Thanks to volunteers out there keeping track of monarchs at all life stages, we may be better equipped to support them. Please feel free to explore the MLMP graphs at our [website](#), and if you have a site with milkweed, join us!