

Study reveals how pesticide use and climate affect monarch butterflies

May 17 2017



Photo by Derek Ramsey. Via Wikipedia.

An analysis of data in Illinois has found a link between higher county-level use of an herbicide called glyphosate and reduced abundance of adult monarch butterflies, especially in areas with concentrated agriculture. This association was only evident during the initial years of the adoption of herbicide-resistant crops (1994-2003), however, when glyphosate use was increasing most quickly.

Investigators also found that wetter and, to a lesser degree, cooler springs in Texas were associated with higher summer abundances of monarchs in Illinois, as were relatively cool local summer temperatures in Illinois.

The findings suggest that both seasonal climate and land use conditions

are associated with trends in adult monarch abundance.

"Current studies on migratory species rarely integrate seasonal processes occurring outside the core breeding period or range. Our research was motivated by this knowledge gap," said Dr. Sarah Saunders, lead author of the *Ecography* study. "Monarchs are an ideal species to study because the hypotheses proposed to explain their decline include climate and land use factors occurring during every season of their annual cycle and incorporating broad geographic extents."

More information: Sarah P. Saunders et al, Local and cross-seasonal associations of climate and land use with abundance of monarch butterflies, *Ecography* (2017). [DOI: 10.1111/ecog.02719](https://doi.org/10.1111/ecog.02719)

Provided by Wiley

Citation: Study reveals how pesticide use and climate affect monarch butterflies (2017, May 17) retrieved 25 April 2024 from <https://phys.org/news/2017-05-reveals-pesticide-climate-affect-monarch.html>

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