[Why Has The Magnificent Monarch Butterfly Migration Slowed To A Trickle?](http://thinkprogress.org/climate/2014/01/31/3230561/monarch-migration-decline/)

BY [**JOANNA M. FOSTER**](http://thinkprogress.org/?person=jfoster)**** POSTED ON JANUARY 31, 2014 AT 12:09 PM



*This year’s record-low number of monarchs was less than half of the record-low set last year.*

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Every November, one very special forest in central Mexico is transformed into a quivering cathedral of monarch butterflies. The [Oyannel](http://www.forestsformonarchs.org/projects/monarch-area/) fir forest in Mexico’s Sierra Madre mountains is the wintering ground for tens of millions of butterflies that migrate from as far north as Canada. It’s a natural wonder — the delicate bangled insects coat everything in orange and drip from the tree branches — but it’s also at risk of being lost forever.

The number of monarch butterflies that migrates across the United States each year to Mexico has dropped to an all-time low. World Wildlife Fund Mexico [announced](http://www.theday.com/article/20140129/NWS14/140129660/1047#.Uukyvz9lXZU.twitter) Wednesday that just 33.5 million individuals are wintering in Mexico this year. That may sound like a lot of butterflies, but back in 1997, there were over 1 billion — covering 45 acres of forest with butterflies. This year’s migrants are in just 1.65 acres, or about one and a quarter football fields.

Although the number of butterflies varies from year to year — the long term average over the past 20 years of record keeping is 350 million — this year’s number is the 9th consecutive yearly measurement below the long term average.

Researchers have identified three major factors that are driving the decline: deforestation in Mexico, agriculture displacing key milkweed habitat in the U.S., and episodes of extreme weather along the migration route.

The deforestation in Mexico is leading to less dense tree cover in the monarch’s wintering area which makes the butterflies incredibly vulnerable to unusual weather. In [2002](http://www.nytimes.com/2002/02/12/world/storm-in-mexico-devastates-monarch-butterfly-colonies.html), for example, a single storm killed about 75 percent of the wintering population.

The [ongoing drought](http://thinkprogress.org/climate/2012/07/17/534331/the-dust-bowl-of-2012-drought-covers-majority-of-us-might-be-a-50-billion-event-for-the-economy/) in the Southwest has also taken a toll on the species. The butterflies depend on being able to fatten up on wildflower nectar in Texas to have enough energy reserves to make it through the winter. When the wildflowers can’t survive the drought, the butterflies are in danger of starving.

Other [studies](http://thinkprogress.org/climate/2013/11/22/2984371/butterfly-study-climate-change/) looking at the connections between climate change and monarch migration have found that monarchs need consistent cold triggers to continue migrating south to Mexico in the fall — without those cold conditions, monarchs in the midst of migrating south can actually reorient themselves and fly north where they cannot survive the winter.

The story of monarch butterflies confused by climate change was at the center of New York Times best-selling author Barbara Kingsolver’s most recent novel, [Flight Behavior](http://www.nytimes.com/2012/11/11/books/review/flight-behavior-by-barbara-kingsolver.html).

The third culprit in the monarch’s decline is the ubiquity of genetically modified crops that are resistant to the weed-killer, Round Up. Thanks to these plants’ engineered hardiness, Round Up is now liberally applied across agricultural fields. This kills milkweed plants, which would otherwise thrive around fields and in ditches. Milkweeds are the only type of plant that monarchs use for laying their eggs.

Few researchers fear that monarch butterflies will actually go extinct, but some do worry that the migration may collapse altogether. While the exact mechanism by which the monarchs make their astounding journey of 4,000 miles each year is not known, some scientists hypothesize that the butterflies rely on chemical cues left behind by last years’ migrants. If not enough butterflies use the route, those chemical signals may not be strong enough to lead the butterflies back and forth from their summer and winter homes.

The announcement of this year’s disappointing butterfly numbers comes on the heels of the [20th anniversary of the North American Free Trade Agreement](http://thinkprogress.org/climate/2013/10/03/2712961/biggest-free-trade-agreement-climate/), which saw the United States, Mexico, and Canada sign environmental accords to protect migratory species. The symbol they chose to represent that pledged cooperation? None other than the monarch butterfly.