COMMENTARY

A yellow swallowtail butterfly feeds on butterfly bush at The Sunflower Garden in Westminster, Maryland. **BRIAN KRISTA/STAFF**

Butterflies are in decline

Blame the pesticides that are everywhere

By Bruce Beehler

You say you don't like spiders and insects and other creepy crawlies? You wish that mosquitoes would disappear from the planet? Beware of what you wish for. In partnership with green plants, the invertebrate world forms the very foundation of life on Earth. We need them more than they need us.

There are indications that arthropods are in decline in North America. This could spell trouble not only for our beloved butterflies but also for many other lifeforms. Many species of plants important to humans (think food-crops) require insect pollinators. These food-crops also benefit from the work performed by predaceous insects that control populations of crop-eating invertebrates.

Let's take a look at what we know about insect decline, starting with some anecdotes. I recently took a walk on the C&O Canal towpath on a bright sunny day near my home in Bethesda, Maryland. I walked through a verdant environment bordering the mighty Potomac — ideal habitat for insect life. Over an hour's walk, I came upon trumpet vine and joe pye weed in flower, but saw only two butterflies, one dragonfly and one large wasp. My canal encounters with insects are much reduced from what I experienced in the 1990s, when I would see gorgeous tiger and zebra swallowtails, red admirals and assorted bees and dragonflies.

This spring, I camped in the Georgia low country, south of Savannah. This is a rural mix of marsh, swamp forest and pinelands. You would think spring in the Georgia low country would be a haven for biting insects, but not any longer. I applied insect repellent only once while camped there, when a few no-see-ums attacked me at dusk at the picnic table.

In May and June 2022, I spent a month camping in Alaska, the Yukon and the Northwest Territories of Canada, driving north of the Arctic Circle and passing through spruce forest, muskeg and tundra, famed for their biting insects. I walked miles across the tundra where the Porcupine Caribou herd migrates. But where were those voracious biting insects?

Wondering about my own troubling observations, I reached out to two respected naturalists for their opinions. My Louisiana colleague spoke of driving through Cameron Parish on a spring night in the 1980s and having to stop mid-trip to clear the windscreen of abundant insect "splat." But not anymore. My Virginia colleague noted that in the 1980s, he had an abundance of butterflies and bees in his backyard garden, which today are few and far between.

Jeffery Glassberg, founder of the North American Butterfly Association, has been surveying butterflies over several decades on a site in Westchester County, New York, documenting the disappearance of 10 butterfly species from the area over that time. And this year, a publication in the journal Science by Collin Edwards and co-authors presented the most comprehensive analysis of butterfly populations in the Lower 48. Analyzing 12.6 million butterfly records across 35 monitoring programs, they found that between 2000 and 2020, total butterfly abundance fell by 22% across 554 butterfly species, with 13 times as many species showing declines as those showing increases.

Experts believe that the three main causes of arthropod decline are habitat loss, climate warming and pesticides. Habitat loss has been insidious — croplands have been stripped of their bordering hedgerows and old fields and woodlots have been converted to housing developments. Climate warming is driving species northward where they can escape the harmful heat. Widespread pesticide use, mainly for agriculture, is perhaps the most worrisome threat of all. Most of the U.S. corn, soybean and cotton crops come from seeds coated with a little-known chemical with a user-friendly brand name such as Gaucho, Cruiser, Merit, Maxforce or Dyna-Shield. Since the 1990s, the expansion of the use of these pesticides, known as neonicotinoids (chemicals related to the more familiar nicotine, which has pesticidal properties) has been associated with the wholesale decline in butterflies and other insect groups. Being water-soluble, these toxins ("neonics") wash off seeds and infiltrate groundwater and soil. Of the three major threats, neonic pesticides may be the most serious — but also the most accessible to remedial action.

We may have to wait for the return of a pro-environment administration to see the EPA assert adequate oversight of neonic use in the U.S. That said, individual states can take action. For example, New York's Governor, Kathy Hochul, signed the Birds and Bees Protection Act in December 2023, which restricts the use of neonics on an array of food crops in the state. This is a step forward in one of our largest states with a substantial agricultural economy. Vermont has followed suit.

Halting the over-application of neonics provides clear benefits — not only for our insect fauna but also for our birdlife. Neonics are major bird-killers, analogous to the plague of DDT that prompted Rachel Carson's "Silent Spring" in the 1960s. A single corn seed coated with a neonic pesticide can kill a bird. A similar chemical-coated seed can kill a thousand nontarget insects. The seed-borne application of these potent neurotoxins needs to be better managed. A recent study published in the journal Science found that 75% of North American bird species are in decline. Neonics are certainly a contributor to this loss.

States need to follow the leads of Vermont and New York to control the flow of neonics' neurotoxins onto our lands and into our waters. Not only will this benefit our butterflies, but also our birds and other wildlife that we cherish, as well as the little-known invertebrate groups that support life on earth. We took the right steps in the 1960s to outlaw DDT, and we need to do it again to halt the scourge of neonics. Our grandchildren will thank us for our courage.

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