



By Robert Turner

Eat Your View A BUG'S LIFE

I remember as a child riding down the road with my father and counting the number of bugs that hit the windshield. There were a lot of them—in bright greens, reds and yellows splattered across the windshield like a Jackson Pollock painting.

Very few bugs hit my windshield as I drive that same stretch of road today, and I wonder: Where have all the bugs gone?

I realize that this observation is not scientific proof of a bug apocalypse.

Perhaps, I could have conducted a more science-based experiment over the years had I driven down the same stretch of road at the same speed on the same day at the same time every year and recorded the number of bugs on my windshield after so many miles. My science friends might be impressed with how I designed this

“bug-on-windshield” experiment, but I’m not sure that I could ever get the results published.

Some recently published research suggests that there are 45 percent fewer insects in America than there were in the 1960s, before we started spraying DDT. And, closely related to that, other research suggests that there are 30 percent fewer birds flying over our heads than there were in the 1970s.

While the loss of bird species may be partially related to habitat loss and other causes, birds do eat bugs, and if there are fewer bugs, there’s less food. And if you take out the food source at the bottom of the food chain, it isn’t long before the ripple effects are felt higher up the chain, including where we’re standing.

Renowned Harvard entomologist E.O. Wilson has said that without insects the rest of life, including humanity, “would mostly disappear from the land, and within a few months.”

Bees, butterflies and other beneficial insect populations are declining as industrial agriculture continues to use chemicals known to kill them. Some studies have shown that US agriculture has become almost 50 times more toxic to honeybees over the past 25 years. At least one-third of our fruit and vegetable crops depend on honeybees for pollination. We spray to kill a pest and end up killing something that we depend on. It’s like an alien movie where we fire a missile, and it turns around and comes right back at us.

The increasing use of neonicotinoid pesticides closely corresponds to sharp declines in bees, butterflies and other pollinators, as well as birds who eat the bugs. But honeybees are like the canary in a coal mine. They’re the first to go.

These newer pesticides are more lethal than DDT and are not only incredibly toxic to honeybees but can remain toxic for more than 1,000 days in the environment. They are also systemic insecticides, which means plants absorb them and incorporate the toxin into their tissues—stems, leaves and all. You may eat from that plant in the future.

Other studies have suggested that only 5 percent of the toxin ends up on the plant when it’s sprayed; the rest ends up in the soil and the environment. Most pesticides readily dissolve in water, and that means what’s used on the farm won’t necessarily stay on the farm. With irrigation and rainwater, they wash into streams, ponds, lakes and wetlands—contaminating those bodies of water.

A 2014 international study of 452 species of insects estimated that insect populations had declined 45 percent over 40 years. Another study reported that

81 species of butterflies declined by an average of 33 percent in the last 20 years. A major 2019 study warned that 40 percent of all insect species face extinction due to pesticides. Climate change and habitat destruction are also exacerbating the problem. The evidence is mounting and it doesn’t bode well for bugs or human beings.

In 2018, the European Union banned neonicotinoids for field use based on their harm to pollinators. In 2019, Canada also passed restrictions on the use of the most widely used neonicotinoids. But here in the US, it’s still full steam ahead.

KILLING OFF THE GOOD BUGS

With the spraying of massive amounts of chemical pesticides on farmland, we don’t just kill a targeted insect, we kill all of the bugs, including predator bugs who eat the bad bugs that eat our crops.

In a healthy, natural ecosystem, there is a wide variety of plant and animal species, and no one gets to dominate the playing field. Each species has evolved to keep the other in check, whether predator or competitor. More food means more eaters. The system checks itself.

When we grow vast monocultures of one crop, like corn or soybeans in the Midwest or cotton in the South, we attract certain pests that are particularly fond of that food source, and they thrive. When we spray chemicals and eliminate predators and competitors, that one species will inevitably gain resistance to the pesticide we’re using because there are so many more of them and more chances of genetic variation that will bring resistance.

The peach aphid has become resistant to everything we’ve got—more than 75 different chemicals in our arsenal—and it has been able to adapt to eat more than 50 different plants now. We’ve given them a whole new salad bar with no natural predators to stop them.

So, as we change the world, eliminate predator bugs and turn the insect food chain on its head, a few pests that can adapt will come along for the ride with us, and it’s like winning the lottery for them. We’re giving these few species of bugs the keys to the kingdom.

My windshield is now a very sparsely covered canvas, with just a few small blotches of color, and like a Pollock painting, we don’t really know what it means. And what does it mean if all of the splatterings, although fewer in number, are all the same size and color? I must conduct another experiment to find out. Where are my car keys?

Robert Turner is the director of the Creekside Farm Education Center and the author of Carrots Don't Grow on Trees: Building Sustainable and Resilient Communities. To learn more, visit EatYourView.com.



Green peach aphid