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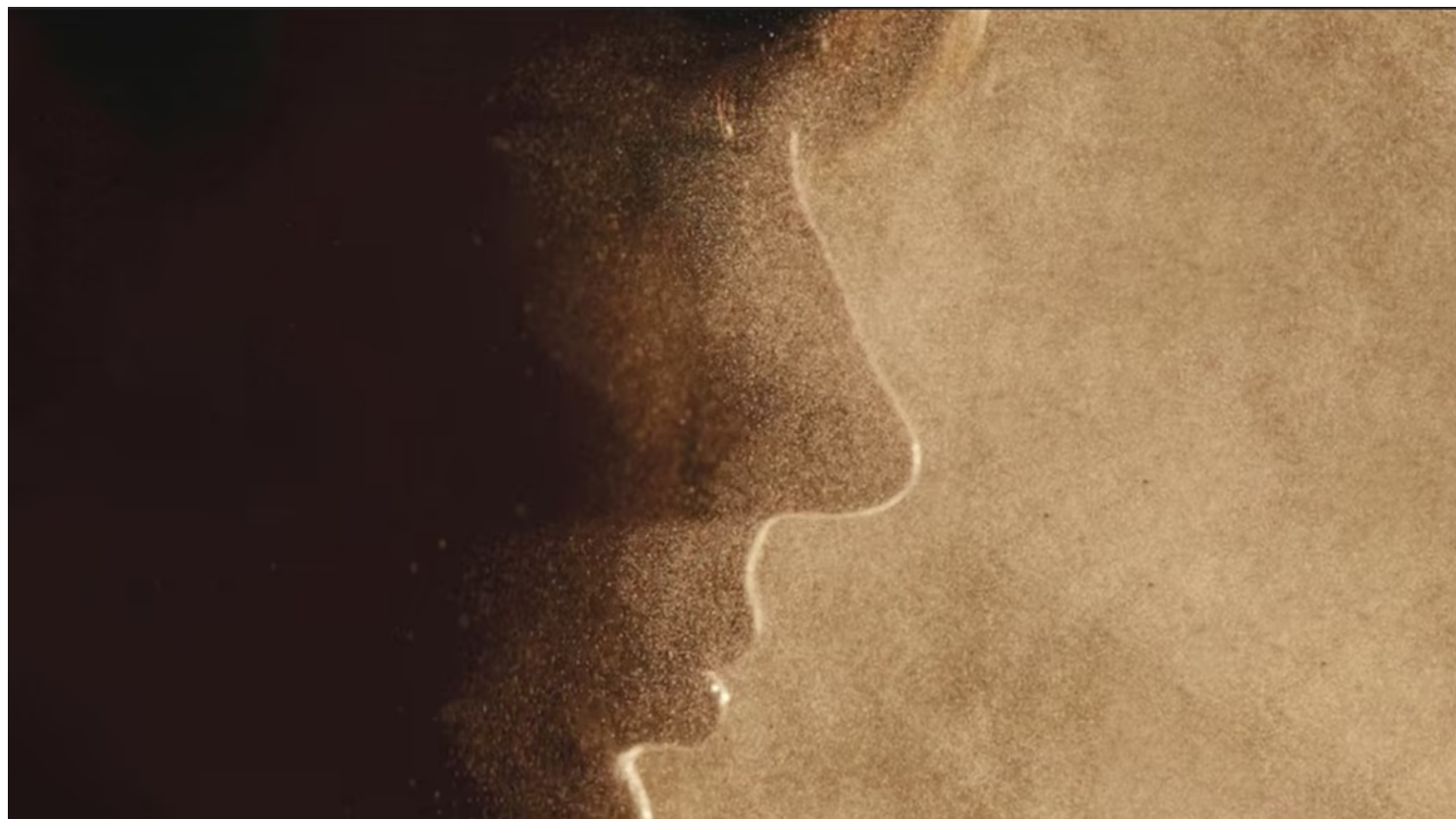
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There Is No Stopping the Allergy Apocalypse

Climate change is pumping the air with pollen, and it's a problem even for people who don't think they're allergic.

By Yasmin Tayag



Alecio Ferrari / Connected Archives



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These days, many Americans are muddling through an antihistamine haze. Between the sniffing, sneezing, and itching, those I've spoken with manage to croak out some version of the same grievance: *This allergy season is the worst*. I have no choice but to agree. In New York, where I live, the tiny chartreuse blossoms of maple trees and the caterpillar-like catkins of birches and oaks are pollen bombs that seem to be exploding with more vigor than usual. As I write this, mascara is streaming from my lashes in pollen-induced tears. One colleague, reliant on drowsiness-inducing decongestants, has resorted to knocking back an absurd number of espressos to get through the day.

Complaints about allergies arise every spring, but the symptoms really do seem to be getting worse. Blame climate change: Allergy seasons, says Kenneth Mendez, the CEO of the Asthma and Allergy Foundation of America, are "getting longer and more intense" because plants are producing more pollen over a longer period. The problem is not just that higher temperatures lengthen plants' growing season; carbon dioxide *itself* encourages pollen production. Compared with three decades ago, the North American pollen season now starts about 20 days earlier, lasts roughly eight days longer, and involves 21 percent more pollen, according to research published in the journal *PNAS*.

But it isn't just longtime allergy sufferers like me who have it bad. All of this pollen seems to be triggering seasonal allergies in people who have *never had them before*.

Allergies have taken off in recent years: In 2018, 7.7 percent of American adults experienced “hay fever,” another term for seasonal allergies; by 2021, that proportion had risen to about a quarter. Temperatures will only get hotter in the years to come, unleashing even more pollen into the air—potentially making even more people allergic. At this point, not much can be done to stop it.

Whether someone develops seasonal allergies largely depends on two factors: their genetics and their environment. Some people are naturally predisposed to allergies, and climate change isn't altering that, Kathleen May, the president of the American College of Allergy, Asthma, and Immunology, told me. The environment, however, is. The link between temperature, carbon-dioxide levels, and pollen—a fine yellow dust that some plants release in order to reproduce—is very well established. Decades ago, scientists learned that plants thrive in a warm greenhouse with high carbon-dioxide levels and, in the case of some species, produce more pollen than they otherwise would. This is happening now on a continental scale.

An allergy develops when a person's immune system mistakenly flags a harmless particle as dangerous and starts making allergy-fighting antibodies, known as IgE immunoglobulins, in preparation for the next encounter. When the IgE antibodies detect enough of the allergen, they mount an explosive attack on the hapless invader—releasing chemicals that cause itching, sneezing, congestion, and other classic symptoms of an allergic reaction.

Complicating matters is the fact that not everyone who develops these antibodies and is thus “sensitized” to an allergen experiences symptoms whenever some pollen flies up their nose. (Immunology is notoriously complex.) With seasonal allergies, “it takes a certain amount of time or exposure to make that sensitization cause symptoms,” May said. In other words, some people who think they don't have allergies actually do—they just haven't been exposed to enough pollen to experience symptoms yet. The body reacts when it “perceives that there's too much,” Mendez said.

By pumping the air full of pollen for long stretches of time, climate change increases the chances that people—both veteran sufferers and newbies alike—will meet that threshold. “Some of those people who might not have otherwise had symptoms will

now start becoming symptomatic,” May said, and “the people who already have it will certainly get worse.” Some of these allergy newcomers, especially adults, could end up having seasonal symptoms for life. Thanks to a phenomenon called the “priming effect,” it may take less pollen to trigger symptoms in subsequent allergy seasons, meaning that even the slightest bit of pollen in the air could eventually cause nasal chaos. Children sometimes “outgrow” the condition after their teen years, May said, whereas adults are less likely to, for reasons that are not yet clear.

On the whole, though, it’s safe to assume that more pollen means more chances for anyone to experience symptoms. As the planet continues to get hotter, the ranks of seasonal-allergy sufferers will expand substantially, though it’s not clear by precisely how much. According to one study, adults in American counties where spring now starts significantly earlier than the historical average have a 14 percent higher chance of developing seasonal allergies than adults in counties where the onset of spring is within the normal range. In Europe, modeling studies suggest that the number of people who are sensitized to the common irritant ragweed will more than double—from 33 million to 77 million—as early as 2041 because of climate change.

Worsening allergies are a worldwide concern, but the changes will not be geographically uniform. In the U.S., these shifts are currently happening faster in Texas and the Midwest, according to the *PNAS* study. William Anderegg, the study’s lead author and a biology professor at the University of Utah, told me that he isn’t sure why; a possibility is that the plants that grow there are especially sensitive to warmth. Those species could eventually spread as rising temperatures give them opportunities to migrate into new environments.

We’re simply not ready for the full effects of what climate change may mean for allergies. In time, temperatures across the country could become so high that pollen season lasts *year-round*, as it already does in warmer parts of the country, Anderegg noted. The effects could be especially bad in cities, where daytime temperatures can be up to seven degrees warmer than in neighboring rural areas. And exacerbating pollen counts are societal factors such as low use of over-the-counter allergy drugs and low numbers of allergy specialists in the southern and eastern U.S., making those areas

among the most challenging places in the country for allergy sufferers to live, according to a [recent report](#) from the Asthma and Allergy Foundation of America.

Yet even as pollen fills the air, there's plenty sufferers can do to ease their symptoms. Given enough warning from pollen forecasts, they could stock up on medications, learn to plan around high pollen counts, and maximize the benefits of anti-allergy drugs by taking them *before* symptoms begin. Advocating for more advanced pollen monitoring—nationwide counts are often [still performed by hand](#)—could help provide more timely forecasts in the long run. Still, there's no getting around the fact that allergies are yet another inconvenience climate change is introducing into our lives.

Even as America and the rest of the world make tangible strides to reduce carbon emissions, the level of warming that is already baked in means that pollen will just continue to become an even bigger nuisance—one that, in some instances, could snowball. Seasonal allergies are a trigger for asthma, which can lead to hospitalization, and they also make people [more vulnerable to some viruses, including the coronavirus](#). “There's also this huge set of societal effects that we don't tend to think about very much,” including [decreases in labor productivity](#) and [poor student performance at school](#), Anderegg said. Allergies are obviously far from the most devastating effects of climate change, but the hellishness of this pollen season is a reminder that even the most minor climate impacts can be much more than a nuisance.

Yasmin Tayag is a staff writer at *The Atlantic*.

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