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Earlier pollen season in Savannah? Climate change the 'main culprit'

John Deem Savannah Morning News

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That yellow powder clinging to vehicles like flour on a Southern fried chicken breast can mean only one thing.

The annual awakening of nature's reproductive system is underway in coastal Georgia.

And, continuing what has become a consistent trend, the region's signature slash pines seem increasingly anxious to initiate their ritual.

"What scientists have discovered is that every year the pollen season starts earlier and lasts longer," explained Alan Harvey, a Georgia Southern University biology professor who has studied the science and cultural context of pollen.

Experts also agree on what's driving this trend.

"Climate change issues are the main culprit," Harvey said.

Januarys in the Savannah area, as in most of the Southeast, are getting progressively warmer.

This year was no exception. In an analysis of National Weather Service data for Savannah since 1970, last month's average temperature was 1.2 degrees above normal.

That set the stage for our yellow haze.

Protecting a holiday tradition: Fungus has contributed to high prices of Christmas trees. Georgia researches may have a solution

Overall, January temperatures have consistently climbed over the past three decades. From 2015 through this year, the average January temperature in Savannah was nearly 52.3 degrees. That's up from 50.5 from 2005 through 2014, and from about 50 degrees during the 1995-2004 period.

The progression has pushed up pollen production.

“Plant growth is tied to temperature,” Harvey explained. “The earlier temperatures get warmer, the earlier in the year the plant is going to start actively growing and producing pollen. So, warmer temperatures are leading to earlier seasonal starts.”

Past, present, future

While tree-pollen levels in Savannah have been especially high this week, most allergy sufferers will likely experience minimal related effects for now, Harvey said.

“Pine pollen isn’t particularly a source of seasonal allergies,” he said. “Spring allergies are more likely to come from … windborne, but much smaller, pollen grains from trees like oaks, birches and Eastern red cedar. I haven’t seen much action from those trees here yet this year, although the Eastern red cedars seem about ready to go.”

There’s a reason tree pollen, in particular, is so prevalent. Most trees don’t have the built-in advantage of flowering plants that are fertilized by insects and other pollinators.

“They’re not trying to attract anybody,” Harvey said of trees. “They just have to produce a lot of pollen for the wind to blow around.“

While that can be a nuisance when it collects on any exposed outdoor surface, pollen plays a crucial role in nature.

It’s an essential component of sexual reproduction in plants, so in the absence of pollen, we would lose many, if not virtually all the plants around us that we depend upon,” Harvey said. “It’s fundamentally important to life on Earth that those plants are able to continue to reproduce.”

Heating up: Savannah has gotten 2 degrees warmer this century; thank climate change

Looking to the future, as heat-trapping pollution from the burning of fossil fuels drives temperatures higher, experts predict pollen season will continue to start sooner and end later. At the same time, researchers are using pollen to learn more about past civilizations – and how we're influencing our climate today.

Pollen grains are the sperm-carrying reproductive bodies of seed plants. Each grain has a unique shape depending on what plant it comes from, and their walls are made of a substance known as sporopollenin, which is chemically stable and strong.

When pollen grains are washed or blown into bodies of water, their resilient outer walls allow them to be preserved in sediment layers in the bottoms of ponds, lakes or oceans. Because of the grains' unique shapes, scientists can then take a core sample of the sediment layers and determine what kinds of plants were growing at the time.

That allows scientists to make inferences about the climate at that time based on what they know about modern and historical distributions of plants in relation to climate.

"Pollen may be small, but it is darn near indestructible," Harvey said. "You would need a pretty powerful microscope to see any of these, but with that tool, you can study pollen grains that are hundreds of millions of years old. They will last that long. They're so, so tough."

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