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Westchester

A Season a Tad Off Color, and Here's Why

By [AVI SALZMAN](#)

FALL arrives in New York state like a prom queen, draped in boastful reds, yellows and rusty browns, perfumed with wood smoke. It saunters through the Appalachians and down the Catskills before taking its final bow in Westchester and New York City.

The season is important here not only for the spectacle it creates, but also for the tourist economy it supports and the cultural symbol it represents; no season is more strongly identified with the Northeast than fall. Even 150 years ago, Henry David Thoreau realized how special it was.

"October is the month of painted leaves," Thoreau wrote in his 1862 essay "Autumnal Tints." "Their rich glow now flashes round the world."

But what if the glow wasn't so rich?

That is a question some scientists have already begun to ask, and they don't think it is hypothetical. Already this year, throughout the Northeast, the foliage has been late, and, some say, unspectacular. Scientists at the University of New Hampshire project that shifts in the climate caused by global warming will progressively dull the leaves throughout southern New England and New York over the next century. Maples will move north and the remaining oaks and hickories will change colors later and with less verve, they say. If the projections are correct, leaf-peepers may be forced as far north as [Canada](#) to for their fix of foliage.

Indeed, one scientist says autumn in the region has already lost its brilliance.

"We haven't had a really great display in the last 10 years," said Barrett Rock, a professor in natural resources and a researcher at the Complex Systems Research Center at the University of New Hampshire who has studied the effects of global warming on the autumn landscape from New York to [Maine](#). Dr. Rock was the lead author on a federally financed 2001 report, the New England Regional Assessment, that assessed the effects of climate change on the Northeast.

This year, the problem has been intense heat in late summer and early fall, which delayed the changing of the leaves and, Dr. Rock said, dulls the foliage. The average temperature in New



Joyce Dopkeen/The New York Times

Leaves like this are fairly rare at Barton Orchard, right, a "pick-your-own" farm in Poughquag.

York in August was 70.6 degrees, nearly 4 degrees higher than the average since 1895, and the fifth highest August average in that period, according to the National Oceanic and Atmospheric Administration. The heat did not let up in September, when it was again 4 degrees warmer than average.

But global warming is a gradual phenomenon, and one warm year does not mean that fall will be this warm every year.

Nonetheless, scientists like Dr. Rock say there is ample reason to worry.

In the 2001 report, Dr. Rock and fellow researchers at the University of New Hampshire and other universities in the region found that New York's average temperature had increased by 1 degree over the last century. The scientists used two different models to project what the Northeast would look like over the next 100 years.

Both models, Dr. Rock noted in a telephone interview, are considered "middle of the road," predicting gradual but not extreme warming trends. But both project that global warming will accelerate dramatically in the region. One forecasts an overall temperature increase of 6 degrees by 2090. That would leave Boston looking and feeling like Richmond, Va. The other model projected a climate like Atlanta's, a full 10 degrees warmer than Boston's, according to the report.

This year another University of New Hampshire environmental scientist, Cameron P. Wake, issued a report in conjunction with Clean Air Cool Planet, a nonprofit organization that studies climate change in the Northeast. Using different methods from the earlier study, the new report confirmed the warming trend in the Northeast throughout the 20th century, and showed it increasing over the last 30 years. That report did not focus on foliage but found other significant effects to plants and trees, including progressively later bloom dates for lilac trees.

The warming trends affect foliage in various ways, Dr. Rock said. As greenhouse gases accumulate and the earth warms, summer weather will linger into fall. That will delay the frosts that degrade chlorophyll and trigger leaves to change. It takes at least one frost in which temperatures fall to 30 degrees Fahrenheit or below to start the changes in the leaves. If those fall frosts are delayed, or the chlorophyll breaks down more gradually, leaf-peepers won't see the vibrant reds they have come to expect, Dr. Rock said.

Last week, Marian Travis was decorating a lamp post near her house in Ossining, N.Y., with colorful fake leaves when she realized that something felt wrong though she was getting her neighborhood ready for fall, it felt more like summer.

"It didn't even feel like fall," she said. "It is fall by the calendar, so you have to put the decorations up."

Ms. Travis said she thinks fall has changed since she was a girl. "I remember in the fall, I'd walk home from school and there were so many leaves in the street and the gutter," she said. "They don't have them anymore. I don't think the fall is like what we used to have way back."

Global warming will affect which tree species can survive in the state and which will move north to cooler climates, scientists say.

Maples, with their stunning red, yellow and orange leaves, are beauties in the fall. Thoreau positively gushed over them, writing that they seem to absorb "all the sunny warmth of the season."

New York is full of maples, too, but changes in temperature, air quality and rainfall, the 2001 report said, will change the mix of trees in the state's forests.

Birches and beeches, two other species known for their foliage, can also be expected to migrate north, the report noted.

It details other possible effects of global warming on foliage, including increases in plant diseases and insect outbreaks. Warming also increases ground-level ozone, which can damage leaves.

But it is not just scientists who have a stake in the changing autumn landscape. The colors of fall are big business for New York's tourism industry. The state maintains a Web site (www.iloveny.com/fall/pages/foiliagereport.html) that specifically tracks the progression of the foliage, enlisting about 55 volunteers from all over the state who call and write in to report the quality of the leaves in their areas. A map highlights the regions of the state where the foliage is brightest.

Leaf-peepers make up an important portion of New York's tourist population, said Charles Gargano, chairman of the Empire State Development Corporation, which runs the state's I Love New York tourism Web site (www.iloveny.state.ny.us/). Summer is the king of tourist seasons in the state, but fall still attracts 21 percent of the yearly visitors, he said.

"Certainly, we depend on beautiful foliage," he said. "A lot of people travel around the state to see the foliage."

Peter Barton, a member of the family that owns Barton Orchard, a "pick-your-own" farm in Poughquag that attracts more than 100,000 people in the fall, said the last decade has been marked by more extreme weather, another expected effect of global warming.

"From my point of view as a grower, the last decade we've seen much more volatility," he said. "The storms have been more volatile."

He said he was concerned about the effect of global warming on plants, even if the increase in temperature isn't as much as 6 or 10 degrees.

"A simple 1 or 2 degree change can change the organisms that can exist here," he said.

If that happens, and the autumn prom queen starts dressing in brown or dull green, autumn in New York could look a lot different.