



Prayitno/Wikimedia Commons

Los Angeles is famous for both sunshine and smog. Turns out the two are related. Ozone pollution is caused by the interaction of sunlight and the chemicals that come out of vehicle tailpipes and factory smokestacks.

But when Ann Carlson’s family first moved to Southern California, nobody knew what caused smog and there were no laws on the books to prevent it. “I lived through the smoggiest decades of Los Angeles in the 1960s, all the way into the 1990s, and I’m always struck by how few people understand just how bad the air was and what we’ve accomplished to clean it up,” she said.

Carlson, the Shirley Shapiro Professor of Environmental Law at UCLA and faculty director of the [Emmett Institute on Climate Change and the Environment at UCLA School of Law](#), sets the record straight in her new book, [“Smog and Sunshine: The Surprising Story of How Los Angeles Cleaned Up its Air,”](#) which comes out TODAY and is the subject of a [book talk at UCLA](#) on Friday, April 10. “I’m hoping that we’ll also be famous for cleaning up our air,” Carlson said.

The following interview first ran at [UCLA Newsroom](#) and has been lightly edited for

clarity.

Why did you want to tell this story?

Several years ago, I went on a hike in Glacier National Park with other [UCLA women](#) to raise money for the UCLA Emmett Institute and the hike coincided with the worst wildfires in Montana history. When we got there the skies were covered with smoke and we were being rained on with ash. The woman leading us on the hike, who was from Montana, leaned over to me and said, “This must remind you of home.” And I just couldn’t believe that she thought our air quality in Los Angeles was so bad that it resembled the air quality in Montana during the worst wildfires in history.

She was only one of many people who continue to perceive Los Angeles air quality as a cesspool, and that’s just not true anymore. It’s true that we still have air pollution problems but the contrast between then and now is so extraordinary, and what we’ve accomplished in cleaning up our air is such an important story to tell that I felt absolutely compelled to write this book.

Where does the story begin and who are the characters?

The book takes us from the very first reports of smog — when Spanish explorers came to San Pedro in the 1500s — to the really persistent smog that starts in the 1940s. I include stories of my family, including my parents who moved to Southern California in the 1950s. I tell the story of not only what the smog was like but how Los Angeles started to respond to it.

One character is a Caltech scientist named Arie Haagen-Smit, who studied how to isolate flavor compounds in various plants. It turned out that studying the pineapple was very important in figuring out what constitutes smog, and what is it that contributes to the brown muck that was polluting L.A. air. Crops were dying and because he was a plant scientist, it became really important for him to understand what was going on. So he modified his pineapple testing process and concocted smog in that chamber outside his office. He realized the pollutants coming out of car tailpipes didn’t cause smog in and of themselves; it was when they were exposed to sunshine that they created the toxic brew Los Angeles was famous for.

There’s also Mary Nichols, a distinguished scholar now here at the UCLA Emmett Institute. She twice served on the California Air Resources Board, leading the state

to become the first to require catalytic converter technology installed on every vehicle. That was the single most important technological advance in emissions reductions, and that technology has spread around the world.

Another crucial figure was [Juana Gutierrez](#), who headed a group called Mothers of East LA. She and other courageous women brought attention to the fact that even as L.A. air got cleaner, low-income communities of color had to host all sorts of pollution sources that were creating problems of environmental justice. And she fought the placing of a garbage incinerator in East L.A. and got other young mothers together — they wore white kerchiefs and pushed strollers across bridges in East Los Angeles to bring attention.

Another important person is Henry Waxman, a UCLA Law grad who went on to serve for 40 years as a member of the U.S. House of Representatives. He fought against efforts in the 1980s to curtail the power of the Clean Air Act. Not only did he do that successfully, but he pushed for amendments to the Clean Air Act in the 1990s that really strengthened the act and continued to help Southern California clean up its air.

Give us a sense of how bad smog is and how far we’ve come.

In 1960, the year I was born, there were 286 days that Southern California violated ozone standards. On many days in the ’60s and ’70s you could not see more than 3 miles — that was more than half the year. The entire view of the mountains was occluded.

Let’s talk about lead pollution, which came from leaded gasoline and came out of the tailpipe of vehicles and polluted the atmosphere. In Southern California, lead concentrations were 50 times higher than they are today. Lead levels in kids were 1,000% higher on average than the lead levels we found in the blood samples of children in Flint, Michigan, after the pipes in Flint were contaminated with lead.

Or take carbon monoxide: In 1964, Los Angeles violated the carbon monoxide standards that California had set on 366 days — it was a leap year. We don’t violate the carbon monoxide standard anymore. We don’t violate the lead standard anymore. We violate the ozone standard many fewer days at much lower levels. We used to have smog alerts. They were a regular part of my childhood. In the 1970s we’d have smog alerts on more than half of the days of the year. We haven’t had a single smog alert since 2003.

What was the role of government?

The story of how Southern California cleaned up its air is centrally a story about government. The reality is that without government, we would not have cleaned up our air to the degree we have today. For lots of reasons, the private sector doesn't have a big incentive to do something about air pollution unless everybody is compelled to do something about air pollution. It's just too easy to conclude that, "Even if I try to stop my products from polluting, other companies will just continue to pollute."

It took government with incredible public support and pressure to do something especially about automobiles, which were the biggest smog source for many years in Southern California. It was government that stepped in — first at the local level, then at the state level and ultimately at the federal level to push the automobile industry to clean up their vehicles, and to push other industries to stop spewing pollutants into the air in order to get us where we are today.

How does this history relate to the current political context, in which the federal government is attacking California's ability to set clean air standards?

California was key, because under the federal Clean Air Act, California has a unique exemption that allows for stricter regulation of emissions from cars and trucks — no other state can do that, and California has used that power to force the development of technology that makes our vehicles 99.9% cleaner than they were in 1970. It's been an extraordinary success story.

But it's also the power that California has used to regulate greenhouse gases from cars and trucks, and it's that power that the Trump administration has been trying to eviscerate with the assistance of Congress, which passed legislation under a very obscure statute that took California's permission to issue strong standards for cars and trucks away from the state. So right now, California can't use that power. We can't regulate tailpipe emissions — greenhouse gas emissions or even tailpipe emissions that cause conventional smog. It's California's most powerful authority and if we can't use it, it really slows us down.

But it doesn't leave California without any authority to do anything. In fact, the state can regulate all sorts of other pollution sources like chemical plants and oil refineries, including for greenhouse gases. California can use creative powers like

providing tax incentives to encourage the purchase of electric vehicles and to encourage truckers to buy clean trucks, to continue to clean up the ports, which are the biggest source of remaining pollution in Southern California. So the state can do a lot, but we’re slowed down right now because of the assault on California’s authority coming from the Trump administration.

Watch Carlson’s interview below: