

Four most polluted national park sites are in California

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A couple years ago, as part of the Sierra Club's Outdoors for All campaign, Roberto Morales took a group of low-income Los Angeles area residents north to Sequoia National Park to help with a forest restoration project.

They planned to hike several miles during the trip. But Morales ended up cutting the hike short because the park was so smoggy he worried the air would trigger asthma attacks or other [health issues](#) for the volunteers.

"For us it was just a teachable moment," Morales said. "Even though these are beautiful places, we can't really get away from pollution."

Nearly 97% of 399 key national park sites are experiencing "significant" or "unsatisfactory" levels of human-caused ozone pollution, according to a new study from the National Parks Conservation Association. Mark Rose, a California-based program manager for the nonprofit, said weather and geography sometimes can make [air quality](#) even worse in our parks than in the neighboring cities where that pollution originates.

The four U.S. parks with the worst air are in California.

Joshua Tree, Sequoia and Kings Canyon national parks and Mojave National Preserve regularly have such poor air quality that exposure poses risks to visitors, employees and neighborsâ€"along with the flora and fauna that call these protected places home. Yosemite and Death Valley national parks also rank in the top 10 for most unhealthy air.

Pollution from industry, transportation and agriculture frequently means hazy skies at these parks, which can hinder views. Those emissions also are triggering global warming that greatly increases the risks parks

faceâ€"and harms they're already experiencingâ€"from persistent battles with drought, wildfire, invasive species and rising seas.

Fortunately, Rose said there have been measurable improvements in some areas since the last "Polluted Parks" report came out in 2019. There also are steps people can take to maintain that recent positive momentum and protect parks for generations to come.

In the meantime, Rose said some simple precautions can protect our health when we do visit these places, so no one has to give up experiencing some of the most impressive natural wonders on Earth.

Pollution disproportionately affects visitors

The number of parks experiencing "significant" air pollution issues dropped from 96% in 2019 to 70% in the latest report from the National Parks Conservation Association or NPCA. Unfortunately, Rose said, California parks haven't seen the same improvements.

It all comes down to where the pollution originates.

"There are some national parks in some states where it's maybe one or two massive coal-fired power plants that are driving near pollution," Rose said. "So, if you can put in controls, or retire those plants, you're gonna see massive benefits.

"California just has so many different sources of pollution that it's going to be harder for the state," he added.

"But we've just got to keep plugging away and going after all of those different sources."

Parts of Southern California regularly experience the nation's worst air

quality, as pollution pours from oil refineries and the ports of Los Angeles and Long Beach. It comes from trucking corridors and large warehouses throughout the Inland Empire. It also comes from hard-to-decarbonize business sectors, such as cement manufacturing plants in the high desert and airports throughout the region.

Those pollution sources are causing above-average asthma rates for children, since ozone inflames and irritates lungs. They're also elevating risks of preterm births, certain cancers, even diabetes, with people of color and low-income communities, who are more likely to live near pollution sources, more likely to be impacted.

But while there may be hard lines around national park boundaries on a map, Rose said air pollution easily blows dozens or hundreds of miles into these protected areas. It then becomes trapped and concentrated in the parks' valleys, before slowly making its way into foothills and mountains. That's why there have been years when air monitors in Sequoia and Kings Canyon showed ozone violations were more common in national parks than in Los Angeles.

For Morales, whose group aims to help residents escape the smog by getting them into nature, it's getting harder and harder to find places that offer real relief.

Impact on parks

Pollution, and the burnt fossil fuels pumping it out, isn't only harming the health and enjoyment of people who visit, work or live near national parks. The NPCA report shows it also is harming plants and animals living everywhere from Channel Islands to Indiana Dunes to Everglades national parks.

For starters, Rose said, "ozone pollution can damage foliage and leaves

and make it harder for plants to photosynthesize." That, he noted, can stifle the growth of trees and plants.

Another problem is playing out across Southern California deserts, according to Arch McCulloch, director of the Morongo Basin Conservation Association.

Ozone pollution contains lots of nitrogen. That's a key ingredient in most fertilizers, which is how Rose said air pollution can fuel toxic algae blooms that harm fish, birds and other wildlife even in remote alpine lakes.

Desert soils typically don't have much nitrogen, McCulloch noted, and native plants have adapted to growing without it, just as they've adapted to not getting regular access to water. Since they don't usually grow close together, or completely dry out during drought, McCulloch said if a lightning strike or other event triggers a fire in these environments, it typically fizzles out pretty quickly, limiting any damage.

But as polluted rain falls in the deserts, McCulloch said the soil is becoming richer in nitrogen. That's allowing invasive grasses and other species to flourish. Invasive desert plants fill the spaces between native plants, then often dry out by late spring. And when lightning strikes they become fuel, carrying flames between Joshua trees, creosote bushes and other natives.

That's one reason wildfires in places like Joshua Tree National Park and Mojave Desert Preserve are becoming more frequent and destructive, McCulloch said.

In addition to spreading nitrogen-rich pollution, burning fossil fuels also warms the planet, which leads to more frequent and intense droughts and the spread of invasive insects. Such disasters can weaken even

2,000-year-old sequoias, which have become more vulnerable during periods of high temperatures, wildfire and other threats.

Between 2020 and 2021, the National Park Service estimates that just three major fires killed up to 19% of the world's giant sequoias, including thousands in the Sierra Nevada region.

Of course, when a major wildfire does break out in the forest or the desert, it makes air pollution much worse. And so the vicious cycle continues.

What can be done

To break that cycle, Rose said we need to rapidly limit emissions from transportation and industrial sectors. That's why the NPCA has long advocated for improving fuel efficiency in vehicles, for pivoting to electric and other zero emission options, and for state and federal policies that will reduce pollution from coal- and gas-powered plants.

His organization also would like to see more action around the Regional Haze Rule, which since 1999 has required state and federal agencies to work together to improve visibility in 156 national parks and wilderness area. As it stands, the NPCA reports that 98% of parks experience enough haze pollution to obscure scenic views, sometimes reducing visibility from 100 to just 20 miles.

Morales would like to see more urban areas connected with national parks via public transportation. That would increase park access for people who live in cities, and reduce the pollution and traffic congestion cars can bring.

An immediate concern for Rose's group is [budget cuts](#) on the table for both the Environmental Protection Agency and the National Park

Service, which is already limiting funding for staff and projects that target pollution. Air monitors also are aging out and not being replaced, Rose said.

"If we don't have monitors in our parks, or near our parks, it's hard to understand what the air quality impacts are and understand how to clean things up."

There was cause for Rose and others to celebrate on Feb. 7, when the EPA announced it was creating stricter regulations around one of the most dangerous types of air pollution. While Rose's organization wishes the agency had taken even tougher action, he said that crackdown, plus state and federal efforts to reduce various sources of emissions, will improve air quality in parks and beyond for years to come.

People who care about protecting national parks can urge their representatives to support such policies and to restore related funding, Rose said. And while system-wide changes are needed, he said the public can also do their part by limiting vehicle emissions and energy use at home.

For now, he encourages anyone planning a trip to a national park site to check air quality reports before they go.

If pollution levels are bad, he said they might want to consider cutting back on hikes or other activities. If they're traveling with people who are sensitive to poor air qualityâ€"including folks with asthma or other respiratory issues, children and seniorsâ€"Rose said consider staying inside. And since [pollution](#) is typically worse in summer, he encouraged people to visit off-season whenever possible.

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