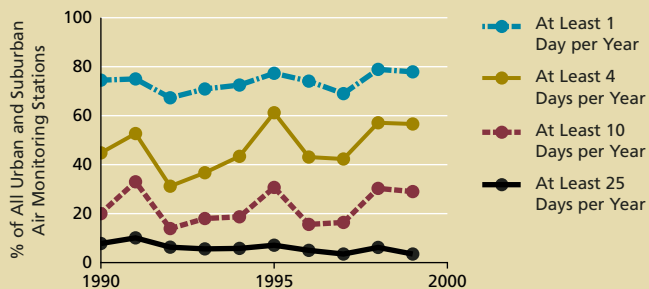




SYSTEM DIMENSIONS	CHEMICAL AND PHYSICAL	BIOLOGICAL COMPONENTS	HUMAN USES
Extent Pattern	Nutrients, Carbon, Oxygen <b>Contaminants</b> Physical	Plants and Animals Communities Ecological Productivity	Food, Fiber, and Water Recreation and Other Services

## ● Air Quality (High Ozone Levels)

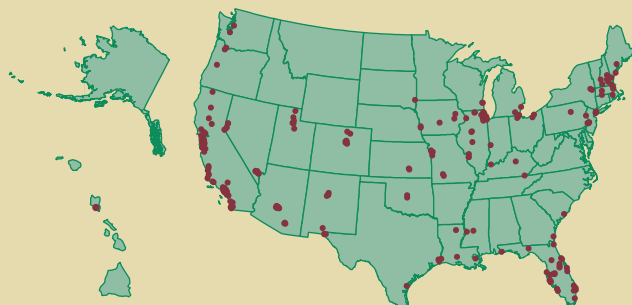
### Exceedances of 8-hour Ozone Threshold (0.08 ppm)



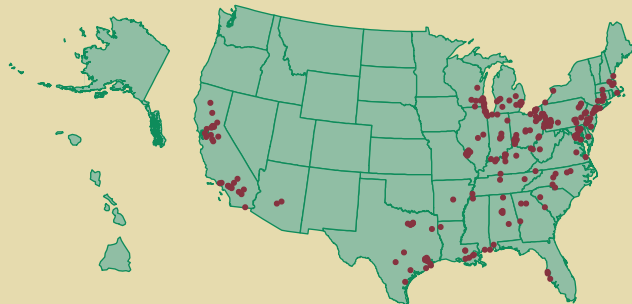
Data Source: U.S. Environmental Protection Agency. Coverage includes Alaska and Hawaii. Data from before 1990 exist, but they are not directly comparable. Only monitoring stations located in urban/suburban areas were included in the analysis.

### Air Monitoring Stations Exceeding 8-hour Ozone Threshold (0.08 ppm), 1999

#### 220 Stations with 1–3 Exceedances (45% of Stations)



#### 266 Stations With at Least 4 Exceedances (55% of Stations)



Data Source: U.S. Environmental Protection Agency. Coverage includes Alaska and Hawaii. Data from before 1990 exist, but they are not directly comparable. Only monitoring stations located in urban/suburban areas were included in the analysis.

### What Is This Indicator, and Why Is It Important?

This indicator reports the percentage of air pollution monitoring stations in urban and suburban areas with “high” ozone concentrations at least 1, 4, 10, and 25 days a year. Ground-level ozone is considered high when the 8-hour average concentration exceeds 0.08 parts per million (ppm). Violations of federal air quality standards are generally triggered by ozone concentrations exceeding this level for 4 or more days. For this reason, the maps show monitoring stations with less than 4 days and 4 or more days of high concentrations in 1999.

Ground-level ozone is one of the most pervasive air quality problems in the United States. Children and adults who are active outdoors, and people with respiratory diseases, are most likely to be harmed. Ozone can inflame the lungs, make people more susceptible to respiratory infection, and aggravate respiratory diseases such as asthma; repeated exposure may lead to permanent lung damage. High concentrations can harm trees, other plants, wildlife, and pets, and can damage painted surfaces, plastics, and rubber materials. In contrast, ozone in the upper atmosphere absorbs harmful ultraviolet radiation.

**What Do the Data Show?** In 1999, about 55% of monitoring stations in urban and suburban areas recorded high ozone levels on 4 or more days. The percentage of urban and suburban monitors with high ozone levels on 4 or more days per year fluctuated around 50% during the 1990s. The fluctuations are in large part due to year-to-year variability in weather conditions. The percentage of monitors recording high levels 25 or more times per year declined over the same period, to about 5% in 1999. Many of these monitors were in southern California, Houston, and Atlanta.

**Discussion** Ground-level ozone forms when pollutants from vehicles, paints and solvents, unburned fuel, and industrial sources “bake” in hot, sunny, stagnant

weather. Ground-level ozone is one of six common air pollutants considered harmful to human health and the environment (the others are lead, carbon monoxide, nitrogen dioxide, sulfur dioxide, and particulate matter). While high concentrations of other pollutants do occur in some urban and suburban areas, ozone is responsible for more than 95% of all days with violations of any air quality standard.

The technical note for this indicator is on page 267.