

Science Brief

Photo: National Park Service

Wildfire Smoke and Public Health

Wildfire smoke degrades air quality and has severe public health consequences. Proactive forest management reduces wildfire risk and decreases population smoke exposure.

➤ *Exposure to wildfire smoke can lead to severe health consequences*

- **Negative health impacts of wildfire smoke are primarily caused by particulate matter (PM) 2.5 microns or smaller**, although many other chemicals and irritants are found in smoke.¹
- 1 in 7 Americans (50 million people) experienced at least one day of "unhealthy" air quality during the 2020 wildfire season, as smoke can travel far distances.²
- Under future climate conditions, over 82 million Western U.S. residents will experience a 31% - 57% increase in the frequency and intensity of major smoke events.³
- The chemical makeup of wildfire smoke and the intensity and duration of exposure play a large role in determining the severity of health impacts.^{4,5}
- **Respiratory and cardiac-related illnesses and deaths** are the most common consequences of smoke exposure.⁶
- Wildfire smoke also contributes to **low birth weight, mental health concerns**, and other **chronic health problems**.⁶
- Smoke exposure can also have long-lasting impacts, for example leading to a **more intense flu season months after exposure**.⁷

➤ *Disadvantaged communities are more susceptible to smoke-related outcomes*

- **Communities of color, low-income populations, and rural communities are disproportionately affected by wildfire smoke.** They are more likely to work outside, less likely to be able to escape poor air quality, and less likely to have health insurance.^{4,8}
- Children, the elderly, and those with pre-existing conditions, are more likely to suffer negative health impacts from smoke inhalation.⁴

In 2018, smoke from the Camp fire caused almost 2 weeks of poor air quality in the San Francisco Bay area.

Photos: NASA, Forest Service



➤ **Proactive forest management can reduce smoke and public health risks**

- Forest management treatments such as general fuels reduction, Aspen and meadow restoration, underburning and prescribed fire, and biomass utilization reduce the risk of catastrophic wildfire.
- **Health impacts from prescribed fire smoke are substantially less than from uncontrolled megafire burns**, as prescribed fires are slower and more controlled, though negative health impacts can also result.
- Decreasing the severity of fires that occur results in fewer PM 2.5 particulates and toxic airborne chemicals being released.^{4,9}

➤ **The economic costs of public health impacts from wildfire smoke are immense**

- Public health impacts from wildfires are expensive, with the economic cost due to short-term exposures at \$11-\$20B per year and long-term exposures at \$76-\$130B per year.¹⁰
- Incorporating the value provided by decreased wildfire smoke to communities can accelerate the forest restoration work necessary to reduce wildfire risk.

Blue Forest is examining the benefits of forest restoration to public health.

To learn more about these benefits and forests in your area, reach out to us at connect@blueforest.org