



Fact Sheet

Wildland Fire Smoke

Summer brings wildfires, and with these fires comes smoke. Wildfire smoke can sometimes suddenly blanket areas far from the actual fire itself, due to wind and weather conditions. This smoke can be hazardous to your health and some people may be more susceptible to the effects of smoke exposure than others. Knowing more about the characteristics, and impacts of smoke, will make your time at the park safer and more enjoyable.

What is smoke?

Smoke from wildfires is a mixture of gases and fine particles from burning trees and other plant materials. Smoke can irritate your eyes and your respiratory system, and may worsen chronic heart and lung conditions. The components of the smoke that contribute to the symptoms are the particulate matter (PM), a group of chemical irritants called aldehydes, and Carbon Monoxide (CO).

Why is smoke harmful?

Smoke results from the incomplete burning of the vegetation and is a mixture of fine particles and gases. Particles from smoke tend to be very small - less than one tenth the thickness of a human hair. Because of their small size they are able to penetrate deep into the lungs causing irritation and decreased lung function. The particles also can aggravate heart and lung diseases, such as congestive heart failure, chronic obstructive pulmonary disease, emphysema and asthma. Chemical irritants found in smoke such as aldehydes cause many of the noticeable symptoms such as runny nose and eyes when mucous membranes are irritated. Carbon monoxide (CO) is also a product of incomplete combustion and is a component of wildfire smoke. CO can take the place of oxygen in the body and will usually cause difficulty breathing and low exposures may cause headaches or nausea. High enough exposures can lead to impaired judgment, and loss of consciousness.

How can I tell if I am being affected by smoke?

People with heart and lung conditions, as well as the very young and elderly are more sensitive to the effects of smoke, and should pay particular attention to any symptoms they may experience, even if smoke levels are relatively low.

Any of the following can be signs that you are being exposed to too much smoke.

- Coughing
- A scratchy throat

- Irritated sinuses
- Shortness of breath
- Chest pain
- Headaches
- Stinging eyes
- A runny nose
- Asthma exacerbations

What should I do if I'm concerned about the smoke in the Park?

-If you are driving your vehicle or camping in a recreational vehicle, close all windows and set the air conditioner to the "re-circulate" setting. Drivers should check the owner's manual and assure that the system is set correctly to minimize entry of outdoor smoke and particles.

-If you are hiking, backpacking, or camping without a vehicle, calmly and carefully exit the area, as physical exertion may make smoke exposure symptoms worsen.

-If you begin to experience some of the above symptoms as a result of exposure to smoke, the best thing to do is to leave the area.

-Be alerted to any Park directives for area closures because of smoke. Be prepared to leave the Park when directed by Park personnel.

-Remain calm, breathing harder will cause you to inhale more smoke, and cause the symptoms to worsen.

-Drink plenty of water to keep eyes, nose, and throat moist.

Precautions

-Check the Air Quality Index (AQI) and the proximity of wildfires before your trip.

-Never recreate alone.

-Always have an emergency evacuation plan when you recreate.

-Always bring a compass and map, and familiarize yourself with their use. Smoke can obscure mountains, lakes, and other landmarks, and cause you to become disoriented.

-Do not recreate in areas restricted due to fires.

Sources of Information:

<http://www.fs.fed.us/air/smoke.htm>

<http://www.arb.ca.gov/smp/progdev/pubeduc/wfgv8.pdf>

<http://www.bt.cdc.gov/disasters/wildfires/facts.asp>