



Ozone and Foliar Injury Monitoring in CUPN Parks

Importance

Exposure to ozone above the National Ambient Air Quality Standard may affect human health, causing acute respiratory problems, aggravation of asthma, temporary decreases in lung capacity in some adults, inflammation of lung tissue, and impairment of the body's immune system.

Ozone also affects vegetation in national parks. Research shows that some plants are more sensitive to ozone than humans, and effects to plants occur well below the National Ambient Air Quality Standard. Ozone causes considerable damage to vegetation throughout the world, including agricultural crops and native plants in natural ecosystems.



Portable Ozone Monitoring Station. NPS Photo by Mary Shew.

Monitoring Objectives

1. Monitor ozone concentration in two parks per year using a Portable Ozone Monitoring Station.
2. In late summer, conduct ozone injury surveys in at least those two parks.
3. Use nearby, off-site state-operated ozone monitors to compute ozone exposure indices for the areas surrounding the remaining CUPN parks. This data provides information about the severity of the ozone exposure in those areas.



Ozone Injury on Tulip Poplar. Courtesy, USDA PLANTS database.

Management Applications

Ozone concentration and ozone-caused plant injury data are used to determine whether select species of park vegetation are being injured by elevated ozone concentrations. This information is used for New Source Review, in the review of Prevention of Significant Deterioration of Air Quality permit applications.

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