

Ozone Danger to Trees

Humans aren't the only ones affected by recent ozone alerts in various parts of the country. Many of the most commonly planted trees in the nation's urban forest also suffer during high levels of ozone pollution.

Ozone is the result of a chemical reaction that converts car exhaust into ozone in the presence of light. The regions with the highest automobile traffic and sunshine are the most at risk. Even areas without congested traffic may suffer, since ozone is transportable over long distances. In southern California, entire populations of Ponderosa pine have been wiped out in the San Bernadino Mountains due to chronic ozone exposure. Surviving tree populations are made up exclusively of ozone-tolerant species.

The pollutant acts as an oxidant that disrupts the chemical pathways in a plant's photosynthetic powerhouse, the chloroplast. In response, the tree manufactures antioxidants like vitamin E and C. This process may offer relief from low levels of ozone, yet are no match for repeated exposure to toxic levels.

Ozone injury looks different on different species. On the leaves of poplar and black cherry, the homeowner may see brownish lesions on a leaf that appears water-soaked. On ash and hickory, however, the lesions are white. On other species, damage appears as a purple stippling all over the leaf. Evergreens appear to have burnt needle tips.

At present, the best thing homeowners can do to protect trees from ozone injury is to keep them in an overall healthy state. This includes protecting trees from wounding and keeping them well watered and judiciously fertilized. Below is a list of both sensitive and tolerant species:

Sensitive Species

Yellow Poplar
White Ash
Hickory
Black Cherry
Flowering Dogwood
Eastern White Pine
Sassafras
Aspen

Tolerant Species

Hemlock
Eastern and Colorado Blue Spruce
Yew
Rhododendron
Azalea
Oak
Most Maples
Balsam Fir
London Plane

Homeowners who believe their trees may be suffering from ozone pollution should consult a professional arborist to monitor their trees. Arborists will be able to suggest treatments to keep as healthy as possible, and if necessary, recommend ozone-tolerant species to plant around homes where the potential ozone damage is high. Call the licensed tree experts at Pardoe's Lawn and Tree Service at 800-427-4890.

