

Trees and the urban environment: An overview.

Urban forests are recognized as important storage sites for carbon dioxide, the primary greenhouse gas (2). Trees reduce atmospheric carbon dioxide by directly sequestering carbon dioxide in their stems and leaves as they grow.

Trees in urban forests provide additional air quality benefits and can be a sound method for controlling air pollution. Urban forests can reduce air pollution by:

- Absorbing gaseous pollutants such as ozone, nitrogen dioxide and sulfur dioxide through leaf surfaces

- Intercepting particular matter (PM₁₀) like dust, ash, pollen and smoke.

- Releasing oxygen as a by product of photosynthesis.

- Transpiring water and shading surfaces which lowers air temperatures and reduces ozone levels.

- Reducing evaporative hydrocarbon emissions and ozone formation by shading paved surfaces and parked cars.

- Reducing energy use, which lessens emissions of pollutants from power plants.

In the Northeastern region, one hundred large public trees remove 25 tons of carbon dioxide and 250 pounds of other pollutants per year (1).

Urban stormwater runoff is a major source of pollution entering wetlands, streams, rivers and oceans. Trees can reduce runoff in several ways:

- Leaves and branch surfaces intercept and store rainfall, reducing runoff volumes and delaying the onset of peak flows.

- Tree canopies reduce soil erosion by diminishing the impact of raindrops on barren surfaces.

- Transpiration through tree leaves reduces soil moisture, increasing the soil's capacity to store rainfall.

In the Northeastern region, one hundred large public trees can catch/capture 162,400 gallons of rainwater per year (1).

We all need to pitch in and steward the trees in our city whether they grow in tree pits, parks or next to our homes because they make the urban environment livable.

1. McPherson, E.G.; Simpson, J. R.; Peper, P. J.; Gardner, S. L.; Vargas, K. E and Xiao, Q. 2007. Northeast Community Tree Guide: Benefits, Costs and Strategic Planting. Gen. Tech. Rep. PSW-GTR-202. Albany, CAL U. S. Department of Agriculture, Forest Service, Pacific Southwest Research Station. 106 p.
2. Nowak, D.J.; Crane, D.E. 2002. Carbon storage and sequestration by urban trees in the USA. Environmental Pollution. 116:381-389.