HEMLOCK RESTORATION INITIATIVE

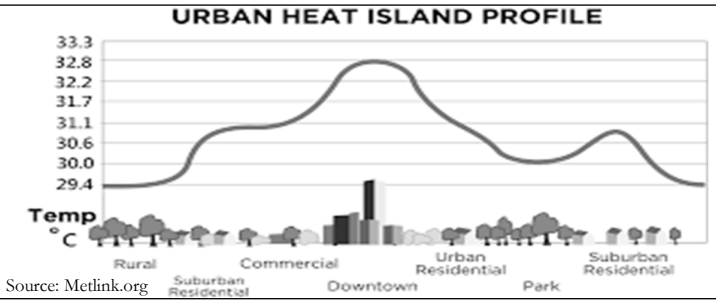
Hemlocks in Urban and Community Forests

What is a Community Forest?

Community forests are the trees and ecosystems that are anywhere people are. Cities, towns, farms, and rural areas all have community forests. These forests serve these different communities in a variety of ways, such as mitigating pollution, reducing energy use, providing habitat for wildlife, and providing scenic beauty.

Water Quality

Hemlocks intercept precipitation with their dense foliage, reducing erosion from rainfall. Hemlock roots soak up excess water and reduce flood severity, especially during the winter while hardwood trees are dormant.[1] Not only do hemlocks help protect downstream communities from floods, they also reduce the frequency of streams drying up during droughts.[2] Trees can also reduce pollutants by absorbing some contaminants through their roots. In streams where hemlocks have suffered high mortality from the hemlock woolly adelgid, there are higher concentrations of chlorine and copper, which are harmful to aquatic life.[3]

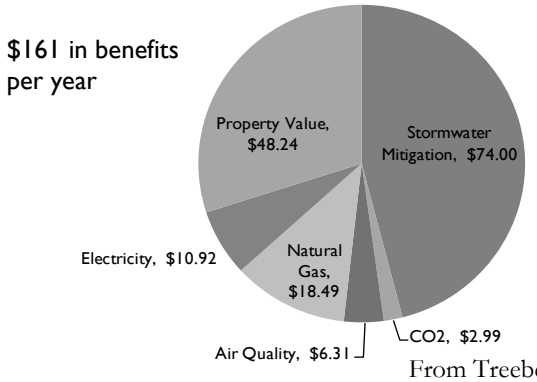


Source: Metlink.org

Economic Benefits

Hemlocks are popularly planted in hedges as privacy plants due to their dense foliage. Healthy hemlocks increase property values, reduce street noise, and are considered to have a special aesthetic appeal.[5] A 10 percent decline in hemlock health from hemlock woolly adelgid has been shown to reduce a property's value by 1%.[5]

Economic benefits of a 20 inch wide eastern hemlock

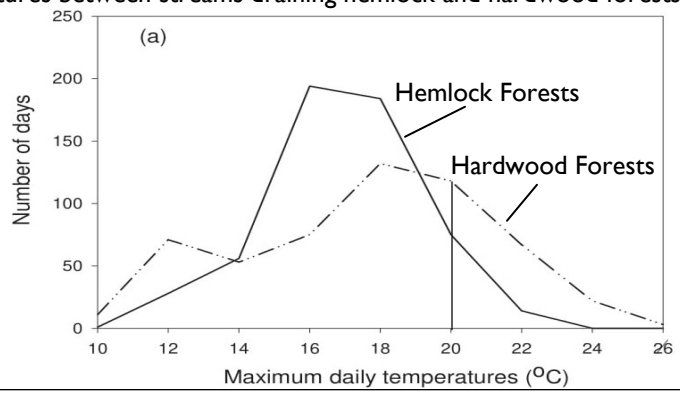


From Treebenefits.com

Wildlife Habitat

As a foundation species, hemlocks are disproportionately influential in the ecosystems they occur. Hemlocks provide shelter for a variety of animals, especially during winter when cover for animals is scarce. They also reduce the daily variations in stream temperatures (see graph), supporting cold water fish species.[2] A hemiparasitic plant, pirate bush, and the medicinal reishi mushroom are both found growing only with hemlock trees.

Comparisons of the distributions of summer maximum temperatures between streams draining hemlock and hardwood forests.



Climate

Canopy trees reduce the urban heat island and shade houses lowering home cooling costs. Hemlock trees are ideal shade trees due to their dense canopy and can reduce carbon emissions created cooling homes. Compared to other trees, hemlocks score above average for carbon storage and sequestration, reducing greenhouse gases.[4]

Air Quality and Health

Urban trees filter particulates out of the air, and reduce atmospheric carbon, improving air quality. As evergreens with dense foliage, healthy hemlocks provide these benefits year-round. Damage from hemlock woolly adelgid reduces these benefits as foliage dies off.

For more information about hemlocks and the hemlock woolly adelgid, visit savehemlocksnc.org

1. Brantley, et al. 2015 "Changes to southern Appalachian water yield and stormflow after loss of a foundation species."
2. Snyder, et al. 2005. "Long-term effects of hemlock forest decline on headwater stream communities."
3. Huddleston, 2011. "Riparian ecosystem response to hemlock woolly adelgid induced eastern hemlock mortality in the Great Smoky Mountains National Park, USA."
4. Scharenbroch. 2012. "Urban trees for carbon sequestration."
5. Holmes, et al. 2005. "The economic impacts of hemlock woolly adelgid on residential landscape values: Sparta, New Jersey case study."
6.Velarde. et al. 2007. "Health effects of viewing landscapes–Landscape types in environmental psychology."

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