

JULY 2021

MONESSEN, PENNSYLVANIA

Public tree inventory

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Inventory field work performed by the
Pennsylvania Outdoor Corps



OVERVIEW OF INVENTORY

During the week of July 12th, 2021, a crew of the Pennsylvania Outdoor Corps, led by DCNR forester and certified arborist, Celine Colbert, conducted a public tree inventory in Monessen, PA. During the inventory, they mapped 747 trees and 59 stumps. The inventory data is stored at www.opentreemap.org/patreemap/map and is publicly visible. For access to edit the inventory information, contact the Forbes Forest District Office.

LOCATIONS INCLUDED

Areas inventoried included park trees located in Monessen City Park, 6th Street Park, Eastgate Park, Herman Mihalich Memorial River Launch and street trees along Eastgate Ave. Planting sites were also mapped near the 10th street and E. Schoonmaker Rd bus stop, and within the 9th street park. These locations did not have existing shade tree cover.



TREE BENEFITS

AVERAGE ANNUAL BENEFITS PER TREE

Energy Conserved

1,229 kwh

Stormwater Filtered

2,247 gal

Air Quality Improved

2.4 lbs

Carbon Dioxide Removed

641 lbs

Carbon Dioxide Stored to Date

3,372 lbs

Average Financial Benefit per Tree

\$86.43/yr

Trees provide a variety of benefits for communities. Some of these benefits include healthier residents, reduced crime rates, and improved attention levels. Other benefits are easier to quantify. The iTree formulas which are integrated into the Open Tree Map software used to complete this inventory take into consideration saved energy costs, removed carbon, improved air quality, and stormwater filtration to estimate the annual value of the benefits provided by the city's 747 public trees.

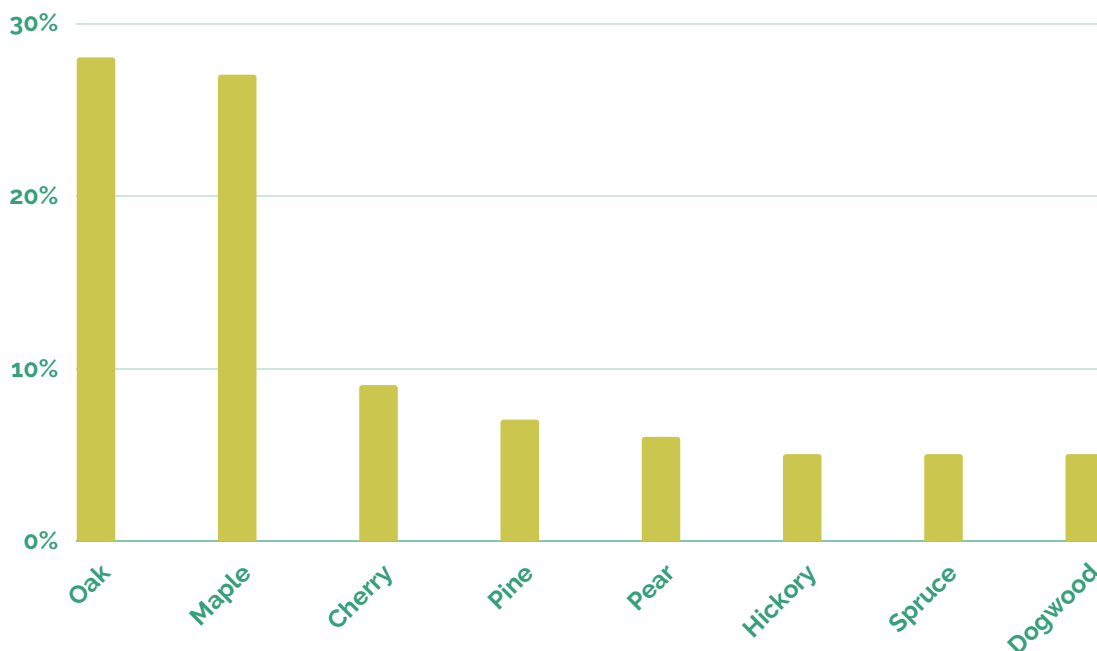
We found that the average Monessen public tree provides \$86.43 annually in benefits, while all the park trees inventoried provide \$64,564 in community benefits each year. Collectively, the trees inventoried save \$51,602 in energy costs, remove 1,806 lbs of air pollution, a service valued at \$10,019, filter 1,678,784 gal of stormwater saving \$1,343 and remove 478,875 lbs of carbon dioxide a benefit worth \$1,599/yr.

SPECIES DIVERSITY

A healthy community forest is one that emphasizes diversity of both tree species and tree ages. By diversifying the tree species planted in our communities, we can make them more resilient to insect and disease attacks such as the Emerald Ash Borer and Dutch Elm Disease. A diversified urban forest also benefits a wide variety of wildlife from pollinators to songbirds and allows for year-round visual interest in the community.

As a rule of thumb, good species diversity in an urban forest is met when no more than 10% of trees are of a single genus. The inventory shows that the oak genus, *Quercus*, makes up 28% of the public trees and the maple genus, *Acer*, is also above the threshold at 27%. Because of this, these genres should be avoided in future plantings until their percentage of the total population is well below 10%.

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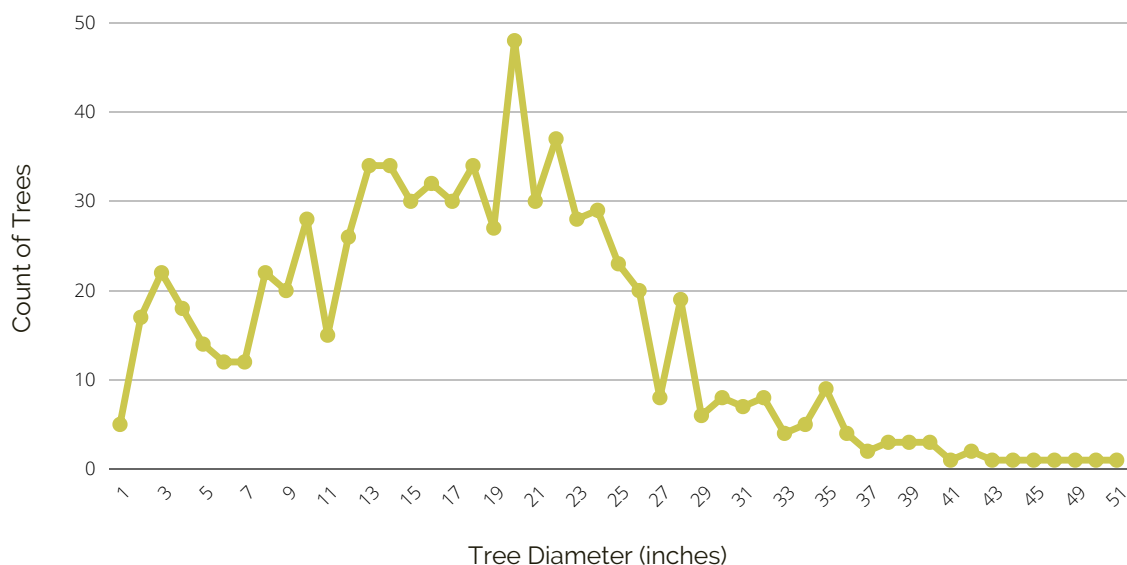
AGE DIVERSITY

Age diversity is another factor to consider in community forests. Due to the time-consuming process of determining the exact age of a tree, diameters are used as a quick estimate of the tree's age. The ideal urban forest would have the same number of trees in each diameter class, so that the population can continuously replenish itself and tree planting and removal costs are evenly dispersed. Though this is the ideal, it does not generally occur as trees may not all reach the maximum diameter class before needing to be removed. The best way to assure an even age distribution is to manage trees on a rotation. For instance, if a community forest were to be managed on a 50-year rotation, 20% of the population would be planted every decade. If more larger, longer-lived trees were included and an 80-year rotation was chosen, 12.5% of the population would need to be planted every decade in order to assure an even distribution.

Monessen currently has a sharp decline into the larger age classes as seen in the graph below. This trend is likely the result of premature mortality. Premature mortality that was witnessed onsite was due to a mix of factors including insect and disease damage on ash and blue spruce, stress of the trees around the amphitheater that were likely impacted by construction, and historical poor pruning practices. Focusing on the long-term health of mid-sized trees will help this curve to level out

Some ways to do this include:

- Avoiding compaction within a 40 feet radius of mature trees including piling dirt, storing building materials, or driving heavy equipment over this area
- Avoiding pruning trees during the growing season in favor of winter and early spring pruning
- Pruning problem branches early to reduce the size of wound left behind as the tree grows
- Seeking the services of a Certified Arborist when performing tree pruning
- Avoiding damage to tree bark by lawnmowers, string trimmers or any other equipment. Mulching around the tree 3" deep can help with this, but the mulch should not touch the tree bark.



CURRENT CONDITIONS

The structural condition of public trees is perhaps one of the most important things to manage in a park setting due to the risks that can be posed by unhealthy trees. Within Monessen, 24 of the trees were labeled as dead or dying and 47 were found to be in poor condition. These trees should be a removal priority. Of these, one dead and one poor tree were found at 6th street park and the remainder are located within the City Park.

FUTURE CONSIDERATIONS

Multiple invasive species are maintained as park trees within Monessen. These include callery pear and Norway maple. This is something to avoid moving forward as we learn more and more about the negative impacts these species convey. Luckily, Monessen has a good base of native species including white and red oaks, sugar and silver maples, and hickories. In future plantings, native species are preferable due to the ecological benefits they provide over non-native species. Though some invasive species are readily available at nurseries, they should be avoided. An up-to-date listing of species known to be invasive in Pennsylvania is published on the Pennsylvania Department of Conservation and Natural Resources' [website](#).



PLANTING SITES

POTENTIAL PLANTING LOCATIONS BY PARK

City Park

59

Ninth Street Park

3

Tenth Street Triangle

2

Sixth Street Park

6

Eastgate Park

1

River Launch

7

In addition to existing trees, some potential planting sites were also marked. Within City Park no planting sites were mapped as the mapped stumps serve as an indicator of potential spots for new trees. Potential planting sites are marked based on a surface level visual assessment alone. When planning to plant a new tree, please be sure to check for underground utilities.

Tree Planting Tips:

- Plant trees so that the trunk flare is flush with the soil level
- Remove the top 2/3rds of cage and burlap from balled and burlap trees
- Break up the roots of containerized trees to prevent girdling
- Use tree guards to protect new trees from deer and lawnmowers
- Trees require 10 gallons of water per inch of trunk diameter per week for the first 3 years after planting

RECOMMENDATIONS

- Avoid planting invasive callery pear and Norway maple
- Avoid planting oak and maple species until they each make up under 10% of the tree population
- Plant large, longer-lived species where appropriate
- Avoid damage to existing trees to ensure long life spans
- Prioritize the 24 dead trees that need to be removed. These sites can be assessed and replaced if appropriate.
- Slowly fill in potential planting sites while also planting to replace removed trees. Make sure not to plant more than can be well cared for (watered, mulched, and training pruned) each year.
- Increase community involvement in tree care through trainings such as Tree Tenders and volunteer planting of replacement trees
- Keep inventory up-to-date. As trees are planted and removed they can be edited in the inventory. The Bureau of Forestry can train shade tree commissioners, volunteers, or other groups to assist with this.
- Seek grant opportunities such as the TreeVitalize Bare Root Tree program to help fund new tree planting.
- Monessen would make a good candidate for a Tree City USA. Applications open September-December.

**The Pennsylvania Bureau of Forestry is available
for free consultations. (724) 238-1200**

