Trees on the Delmar Divide

Final report by: Michael J. von Gebel

June 2025

History

L to r: Michael J. von Gebel, Russell Younker, Judith Arnold, and Alan Jankowski

On December 14, 2022, a strategy meeting took place involving St. Louis Commissioner of Forestry Alan Jankowski, City Arborist Russell Younker, Michael J. von Gebel, President of Vandeventer CDC, and Judith Arnold, Vice-President of Vandeventer CDC, to discuss plans for restoring the city's tree canopy. The historic significance of the Delmar Divide highlighted the importance of this project. On January 3, 2023, the four of us walked 0.07 miles between Vandeventer Ave. to Newstead Ave. to count and mark the placement for new trees.

Today, only a handful of trees older than 50 years remain, Sycamores, which are nearing the end of their lifespan. Efforts to replace trees in this area began approximately 26 years ago, primarily in the 3900 block of Delmar along the CWE neighborhood side of Delmar.

The Department of Forestry developed a planting design for Delmar, featuring Willow Oaks, Swamp White Oaks, Shumard Oaks, Shingle Oaks, Bald Cypress, Kentucky Coffee Trees, Redbud Trees, and Hackberry Trees. On March 27, 2023, at 10 a.m., a collaborative team: the St. Louis City Department of Forestry, Forest ReLeaf of Missouri, Vandeventer Community Development Corp., AmeriCorps, and Galilee Missionary Baptist Church, met at Galilee M.B. Church. On that Ninety trees were planted between Newstead and Vandeventer Avenue, and Delmar was cleaned.

On planting day Sam Lary from the AmeriCorps and Michael J. von Gebel from Vandeventer CDC gathered data on each tree, including address, species, height, soil pH, and moisture level. Paul Kukie created a database and system to record rainfall and extra water given to the trees.

November 17, 2023, the St. Louis Forestry Dept., Forest ReLeaf of Missouri, and Vandeventer CDC planted an additional nineteen trees between Newstead and Taylor on Delmar. Today all nineteen survive due to their larger size at planting. No data was collected on these nineteen trees. They did receive supplemental water.

Final Report Data

Water distribution

Over the following two years, Michael von Gebel diligently watered and noted observations on the ninety trees. During the first year, he loaded thirty-one-gallon jugs into the back of his Buick, providing three gallons of water to each tree. This process took about 1½ hours per trip, with a total of nine trips made. It became evident that the trees required more water as temperatures climbed into the nineties and rainfall became infrequent.

A new watering system was designed using 5-gallon containers, a sump pump powered by the cigarette lighter port, and a connecting hose and nozzle. This new method took 2 hours per trip and allowed the delivery of five gallons of water to each tree.

A small experiment measured the water trees received during extreme heat. When the heat index exceeded 95 degrees, a tree in full sunlight received five gallons of water. A moisture reading taken a week later indicated a level of one, which is classified as very dry. The tree received ten gallons of water, resulting in a moisture reading of three after one week. When the soil moisture reached a level of one, the tree received fifteen gallons of water. One week later, the moisture reading was 7.8.

2023 monthly water amounts			
Month	Supp. Water	Rainfall	No. of trees
April	540 gal.	1.59 in.	90
May	810 gal.	1.38 in.	90
June	1350 gal.	3.16 in.	90
July	756 gal.	3.86 in.	84
August	365 gal.	2.64 in.	73
September	305 ga.	1.87 in.	61
October	0 gal.	.82 in.	61
November	0 gal.	.11 in.	64
December	0 gal.	2.01 in.	64
Total	4126 gal.	28.33 in.	

2024 monthly water amounts			
Month	Supp. Water	Rainfall	No. of trees
January	0 gal.	1.44 in.	64
February	0 gal.	.32 in	64
March	0 gal.	1.07 in.	64
April	0 gal.	3.68 in.	64
May	0 gal.	3.29 in.	64
June	1915 gal.	.10 in.	64
July	320 gal.	3.49 in.	64
August	1280 gal.	.48 in.	64
September	320 gal.	3.61 in.	64
October	320 gal.	.35 in.	64
November	0 gal.	4.87 in.	64
December	0 gal.	1.76 in.	64
Totals	4155 gal.	24.46 in.	

There was 4.20 inches of precipitation in Jan.-March 2025. No water was supplied for three months.

Growth rates

In late March and early April 2025, Michael J. von Gebel collected height, soil pH and moisture readings along with final field observations. This formula calculates the annual growth rate of tree species.

Growth Rate: $\frac{h1 + h2 + h3....}{\text{\# trees same species}}$ = (2-year growth) ÷ 2 = avg yearly growth

Delmar Trees' average yearly growth rates:

13 Kentucky Coffee Trees- 10.31 inches

5 redbuds -15.2 inches

8 Bald Cypress - 8.96 inches

19 Hackberry Trees - 14.005 inches

7 Swamp White Oak - 8.63 inches

1 Shumard Oak - 5.5 inches

6 Willow Oak- 1.42 inches

1 Shingle Oak - 1 inch

1 Oak - 28.5 inches

3 trees with no data gathered, planted in Fall, 2023.

Soil pH on Delmar ranges from 6.6 to 8.0 and does not seem to be a factor in tree growth. A handful of residents supplied extra water to their trees. Resulting in substantial growth and healthy foliage.

Willow Oaks underperformed in growth. Cypress trees planted in the shade of a larger tree or shaded area grew at a faster rate or had healthier, denser foliage than those that received full sun.

Conclusions

Trees in front of rental and vacant homes were either mowed over or removed. The church located at the corner of Delmar and Vandeventer removed five healthy trees. The church's ground crew made this decision to facilitate a more efficient mowing process on the city lawn.

Stats on trees' reasons for the demise:

Twenty-two trees were either removed by the owner or damaged by mowing. Two losses resulted from storm or insect damage. One loss caused by watering and location. One never leafed out.


Redbud is located at 4114 Delmar.

This Redbud tree located at 4114 Delmar had the bark chewed off by a squirrel during the Summer 2023. As a result, the tree came back in more of a shrubby form opposed to that of a tree. Squirrels chew tree bark to obtain nutrients from the cambium, build nests, and seek water or minerals. Water shortages can also lead squirrels to turn to bark for moisture and access to sap. As a result, the tree shape may not be desirable.

Redbud is located at 4258 Delmar.

A careless mower partially ran over the Redbud at 4258 Delmar during its first year. The Redbud was pruned for easier mower access as it grew horizontally. The result is a tree that will not

develop properly. and will succumb before achieving maturity. Pruning too heavily can stress the tree, making it more susceptible to disease and pests. Improper cuts can also create entry points for disease and decay.

Southside of the 4200 Block of Delmar, Central West End Neighborhood

Today, you can drive down Delmar Blvd and see thriving trees. It will be another 15 years until the tree canopy starts to form. The focus has been on the restoration of the tree canopy throughout underserved neighborhoods north of Delmar.

The more foliage a tree has, the more carbon it can trap. Hardwood trees grow at a slower rate, thus less foliage. I propose that in future tree planting every fourth tree on a street be a Silver Maple, they grow faster and can remove a greater amount of carbon from the air. Replace the Silver Maple with a hardwood species after ten years. This also ensures that an entire street of trees will not age out at the same time. We must think outside of long-held conventional thinking and approaches and be open to ideas that deliver the desired results. Waiting 40 years for a tree canopy to form to address carbon buildup today will only allow for the heat dome and air quality over the city to worsen. We need to get ahead of this existential climate crisis.

We did learn during the tornado of May 16, 2025, that the predominance of felled trees were soft wood species primarily Tree of Heaven and Chinese Elm. Removal of these two species of tree should be a city-wide priority. Using Silver Maples to address carbon buildup, also supplies nesting habitat for the bird species, who also have lost their availability of a “home.”

Water evaporation from tree leaves can reduce the temperature slightly in neighborhoods during hot periods. Tree leaves also absorb and filter local air pollution, a crucial benefit, since heat waves can worsen urban smog, sending people to the hospital with asthma and other illnesses.

Urban areas are hotter than rural ones due to dark roofs, roads, and parking lots that absorb and retain heat. The extensive use of brick in house construction also contributes to St. Louis having warmer nighttime temperatures. Trees alone are not the answer. We must turn to using green roofs, paint roofs white, reducing the use of brick in new house construction, and using lighter reflective materials in street construction.

The implementation of widened city tree lawns not only calms traffic by narrowing streets, but it also provides a better environment for trees to thrive. This also reduces the asphalt surface absorbing heat and lowers long term street maintenance costs. Trees add aesthetic value to real estate. Studies show people's perception of houses sitting back further from the street create a feeling of stateliness. Mature trees add about 10% to a home's value. Lowering the temperature means lowering cooling bills, and less strain on our power grid. Public education should include information on financial benefits and utility savings for homeowners.

All these components are necessary if we are to reduce temperatures and reduce the impact the heat dome over the city. Well-coordinated partnerships between City of St. Louis Dept. of Forestry, Forest ReLeaf of Missouri, Missouri Dept. of Conservation, and individual neighborhood organizations are necessary for any successful implementation of tree canopy and environmental campaigns.

Why I love trees

I am wrapping up this report on why trees hold such significance for me. As a ten-year-old boy, my family relocated to rural farmland north of Lawrenceville, Illinois. With no other children my age around to play with, I set out to explore my new surroundings. Just a quarter of a mile from my home, I discovered a drop-off at the edge of a cornfield, leading to a vast swamp bordered by woods.

For the next four years, this swamp and the woods became my "kingdom." The dried seed husks of the Catalpa tree served as fantastic kindling for my campfires, where I brewed Earl Grey tea. At the Mulberry tree, I removed the honeysuckle that was strangling it, and two years later, I enjoyed all the juicy mulberries I could eat. The solitary Persimmon tree offered a delightful afternoon snack, with its slightly seedy fruit being perfect after the first frost.

A Red Maple, over 50 years old, managed to survive a storm, leaning at an angle, and became my lookout post. A small grove of Cedars provided me shelter. From the blackberry thickets to the edible cattail root, everything contributed sustenance during my adventures.
Even the dead trees stood nobly in my eyes. They became homes for a community of Red-Headed Woodpeckers, allowing life to persist even in death.

I remember the “snipe hunt,” a rite of passage when the older boys blindfolded me and led me into the swamp at night, leaving me behind. Little did they know that this swamp and woods were my domain. I was familiar with every tree, plant, Red Fox, Raccoon, Opossum, Skunk, Snake, Owl, and thicket. I felt no fear because friends surrounded me.

Fifteen years later, I returned from California to revisit the towns of my youth. Eager to see my "kingdom," I drove down the gravel road to the edge, only to feel my heart sink. It was all gone—drained and cleared. Tears welled up in my eyes, and a single tear rolled down my cheek; all that would remain were memories of another time. Everything in this place taught me about the cycle of life, connectivity, and the importance of balance. As I drove away, my absent friends imparted one last lesson: the trees would survive without us, but when would we learn that we cannot exist without them?