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The Forest School



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NEWSLETTER OF THE URBAN RESOURCES INITIATIVE AT THE
YALE SCHOOL OF THE ENVIRONMENT



Founding URI GreenSkills Manager, Margaret Carmalt, is second from the right. Former Planting Crew Member and current URI Board Member Donald Williams is on the far left (Fall 2011).

GREENSKILLS RETROSPECTIVE

by Caroline Scanlan

URI Reaches a Milestone: 10,000 Trees Planted

This spring marks a major milestone for URI—the planting of our ten-thousandth tree! Such an achievement is the result of an enormous amount of dedication, hard work, and support from our volunteers, partners, staff members, funders, and advocates. Here we review the journey to reach those 10,000 trees; the impact they have on the urban landscape; and the partnerships that make a program like this possible. Finally, we conclude with a look ahead.

The Journey to Reach 10,000 Trees

With the beginning of its Community Greenspace program in 1995, URI formalized its tree-planting efforts in New Haven. For the first 13 years, tree planting was carried

out by Community Greenspace volunteers in locations chosen by the groups themselves. Some Greenspace groups, particularly those focused on caring for streetscapes, took to tree planting with gusto. Before the launch of the GreenSkills green jobs program in 2007, Greenspace volunteers had planted over 1,600 trees in New Haven. Each tree was watered and looked after by the volunteers and adjacent residents, and the survival rates for these trees were impressively high—higher than most contractor-planted trees in the city. In the fall of 2007, after over a decade of partnering closely with the New Haven Parks Department to implement the Greenspace program, URI initiated its GreenSkills pilot, planting trees on Saturdays with high school students.

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If you read last fall's newsletter, you may notice a trend we are pursuing. In that cover article, Anna Pickett described "ParkScore" findings, revealed by inventorying the acreage, facilities, and investments across New Haven's parks. Though nearly all New Haven residents live within a 10-minute walk of a park, the range of acreage and amenities is uneven across the city. As Anna reported, more must also be done to improve conditions in some neighborhoods

that have much less than others. We are beginning to address these concerns in partnership with the city staff, donors, neighbors, volunteers, and other stakeholders by prioritizing improvements first at Kimberly Field Park in the Hill. In our next newsletter I intend to include news of work under way at Kimberly Field.

In this issue, GreenSkills Manager Caroline (Caro) Scanlan shares reaching the colossal achievement of planting 10,000 trees in New Haven, which URI accomplished alongside many partners and supporters. Yet as with parks, it turns out there are also inequities in how many trees line the streets of the city. Working with Caro, Yale senior Bay Hanson carried out an analysis of our street-tree inventory data to measure the density of street trees per linear mile. In her article, Bay explains her results from evaluating this data set of nearly 30,000 trees. Her research provides a basis for URI to pinpoint specific blocks to invest time needed to canvass door-to-door, inviting residents to adopt a street tree in front of their home. We will continue this trend of seeking to reverse environmental inequities and ensure that the positive benefits of trees are equally available to everyone in our community.

I am grateful to all our former and current staff, volunteers, partners, and donors who made it possible to reach the significant 10,000th-tree-planted milestone. We are truly fortunate to work in such a supportive community who band together to solve problems and to improve the management of precious natural resources for the well-being of everyone.

Colleen Murphy-Dunning



Thank you, Matt and Suzanne!

CELEBRATING MATT VIENS

We celebrate with deep gratitude our colleague Matthew Viens, who served on the URI team for seven years. Matt filled our ears with puns and our hearts with mush, and performed so many different roles at URI.

Matt started off as a volunteer planting trees with us in Pardee Seawall Park in April 2014 while deciding to enroll in a program at Yale's School of the Environment. Chris Ozyck, URI Associate Director, who was running the volunteer event, enlisted Matt in some heavy lifting tasks, which planted the seed for a strong and healthy long-term friendship and mentorship. In 2015 Matt joined our Community Greenspace team, where he proved to be such an asset that we recruited him to take a leadership role on the GreenSkills crew that fall. Matt led the high school GreenSkills planting teams, where his attention to detail and training talents shined brightly. Upon graduation from Yale in 2016 and after a summer on the Yale Forest Crew, Matt was hired full-time to co-lead the GreenSkills program. He worked alongside our former colleague Katie Beechem, who could hold her own in the mini pun battles fought across the office and around a tree hole.

In 2018, Matt switched gears to work on our bioswale construction team. Throughout the pandemic, Matt supervised bioswale crews in the field. He became a rock for us and the EMERGE CT team and somehow managed to support the Greenspace team, all while recording arborist-training videos and steering EMERGE crews in major infrastructure projects in Cherry Ann, Beaver Ponds, Edgewood, and East Rock Parks. He became a jack-of-all-trades and got pretty jacked in the process. We are excited to see how Matt continues to have an impact on his home state's landscape, as he has now moved on to become the Land Steward at the Greenwich Audubon Center. Join us in wishing Matt the very best in his future endeavors and thanking him for his countless contributions to URI and New Haven's parks, streetscape, and green infrastructure.



"Matt's Way" is a section of the URI tree yard that has been dedicated in honor of Matt Viens. Matt, in the center, is surrounded by URI staff members, from left, Caro Scanlan, Anna Pickett, Will Tisdale, Colleen Murphy-Dunning, and Chris Ozyck.

THANK YOU, SUZANNE KELLEY!

The spirit of URI's mission and how we accomplish it centers on volunteers' efforts. Whether it is Community Greenspace volunteers engaging in stewardship of their surrounding landscape or Tree Ambassadors asking their neighbors to adopt a street tree, we achieve our mission through the generous contributions of many people.

We are particularly grateful and fortunate to have incredible assistance from Suzanne Kelley, who volunteers as URI's Newsletter Editor. Newsletter readers sometimes send appreciative notes to our staff sharing their interest in different articles. They may be unaware the finished articles are a result of both the writers' and Suzanne's hard work. Over the past six years, she has meticulously reviewed each story (with the notable exception of this one) and has guided authors to polish their writing. Suzanne gently encourages our writers to reconsider a word choice, double-checks uncertain facts, eliminates extraneous narrative, and corrects punctuation (including the proper use of em dash versus en dash). Her masterful editorial guidance has been invaluable to our authors. After many hours of advising and improving draft iterations, Suzanne's efforts result in the enjoyment by our readers of the final published version. THANK YOU SO MUCH, SUZANNE!

Greenskills Retrospective

by **Caroline Scanlan** (continued from page 1)

The impetus for Tree Haven 10k, the 10,000-trees campaign, came in 2010. A few years earlier, Yale master's student Suzy Oversvee had conducted an ecosystem services assessment of New Haven's street-tree forest. Her study estimated that New Haven's street trees were providing solid benefits to the city valued at over \$4 million a year. These trees, however, were being cut down due to old age, pest and storm damage at higher rates than they were being planted. Subsequently, then-Mayor John DeStefano, convinced that street trees were hugely worthwhile for the city, introduced the Tree Haven 10k campaign and increased the capital budget for street-tree planting. This investment in tree planting opened the doors for the GreenSkills program to evolve into the 500+ trees-a-year program that it is now.

10,000 Trees: Part of the Urban Infrastructure

In the past few decades, we have come to understand street trees as pieces of critical infrastructure in our urban landscapes. When people think about infrastructure, they tend to envision roads, bridges, tunnels, and other elements of the built environment.

However, when you reflect on the sheer scale and significance of our urban-forestry efforts and impacts, looking at trees as infrastructure becomes more obvious. Each tree weighs roughly 300 pounds when it is planted. This means that these 1,500 tons of trees, transported from tree farms on the East Coast to our storage yard, and then onward to locations across New Haven, are literally a mighty fixture of our city's landscape. Today, there are approximately 29,000 street trees growing in New Haven, meaning that URI has contributed a significant percentage of this total stock. Together, they provide vital functions to our city: trees protect against pollution and climate change—including by remediating environmental toxins in

the air and soil, cooling our neighborhoods and reducing extreme heat and energy costs, alleviating flooding, preserving biodiversity, and even more.

Partnerships to Achieve This Milestone

For URI's tree-planting program, champions and partners have always been critical. The program has been supported by three mayors' administrations who have advocated for tree planting, funded our work, and granted us permission to operate in the public sphere; by The Community Foundation for Greater New Haven, which has sponsored our efforts for nearly three decades; by 380+ Yale interns who have learned about urban-forestry operations, supervised our planting teams and volunteer workdays, and helped us improve our programs along the way; by 170+ adult crew members from EMERGE CT, Crossroads, and Strive who have gone through our job-skills training program and provided much of the people-power to plant the trees; by 200+ high school students from Common Ground, Sound School, and Solar Youth who have worked on our Saturday youth crews; and by tens of hundreds of Community Greenspace volunteers who have planted trees since 1995, well before the green-jobs program even got off the ground.

We would be remiss to not also salute the 3,100+ individual tree recipients who have "adopted" new trees over the years. Some tree adopters have had trees planted in honor of their newborn babies, others in memory of loved ones who have passed away, and still others to celebrate major life milestones, such as retirements and graduations. Most tree adopters are simply excited to contribute to the shade, clean air, wildlife habitat, and beauty of their block. Without the residents, businesses, community institutions, and tree advocates who have taken on the responsibility of caring for new trees, these newly planted trees could never have survived and flourished.



South-of-Humphrey ("SoHu") Community Greenspace group hard at work during a big tree-planting day (Summer 2008).

Looking Ahead

With 10,000 trees behind us, we now look toward the future of the next 10,000 trees. What are lessons we've learned from the past 30 years of urban forestry in New Haven that we can carry into the next phase of tree planting and care?

One—we know that trees are living and dying every day. By planting an average of 550 trees a year, we are surprisingly only keeping up with the removal rate of street trees in New Haven. If we are to expand the street-tree canopy of our city, it will simply not be enough to maintain our planting efforts. Instead, we will need to stretch our tree-planting capability over time as well as invest in stewardship of our existing trees through such activities as preventative pruning, invasive-vine removal, and enforcement of tree-protection measures.

Two—with the present and mounting pressures of climate change, we know that urban trees will not only be crucial to our adaptation and survival as a community, but many of the trees themselves will also suffer from warmer temperatures and everything that comes with them—storms, heat waves, drought, and pest pressures. Thus, we will need to be smart about our tree selections,

choosing a diverse and climate-adapted species palate for a more resilient forest.

Three—we know that it's not only important what trees we plant but where we plant them. Dismally, as is typical in most US cities, street trees are not distributed equally across New Haven. On average, neighborhoods with more poverty and fewer white residents have fewer trees. This means that the benefits that residents experience from trees are unfairly spread as well. Since its beginnings, URI has strived to plant more trees in neighborhoods with less tree cover. Yale senior Bay Hanson's work on developing tree-planting prioritization maps will help URI continue to guide our outreach and investment into areas of the city where trees are needed most.

Finally—we know we'll be able to build upon the existing foundation of trusted relationships and collaborations that have made the first 10,000 trees possible. We have always conducted our work driven by community interests and hand-in-hand with local residents. We eagerly look ahead to forging new partnerships with neighbors, crew members, advocates, researchers, and practitioners who will push the work forward and join us as we roll up our sleeves for many more seasons of tree planting to come.

Remapping New Haven's Street Trees

by Bay Hanson

In URI's tree-inventory map, each tree is just a dot—tiny compared to the entire city of New Haven. But each of these dots represents the efforts of many. Aside from the hard work put in by outreach, planning, and planting teams, every tree has been planted because a community member decided it should be. The tree-inventory map, so much more than dots, can show not only where the city might need more street trees, but also where it would be beneficial to get the word out about the work that URI is doing so that anyone who does want a tree can be empowered to request one.

In choosing where to plant trees, URI follows the desires of each resident and their community. Though this strategy limits where trees can be planted, it is ultimately one of the organization's greatest strengths. In URI's constant effort to improve, the community-led approach means that change doesn't necessarily begin with planting a tree. Rather, this work begins from within the community.

Recently, to determine how trees are distributed in New Haven and which areas to consider for future plantings, URI has been using estimates of the city's Urban Tree Canopy (UTC), developed by the Spatial Analysis Lab in a project with the University of Vermont. These UTC maps don't represent individual trees but instead calculate the cumulative cover of all trees in the city. The maps are extremely helpful for answering big-picture questions about tree equity in New Haven. Determining which areas have few parks or minimal tree cover can show what parts of New Haven might be especially susceptible to very hot temperatures. Since URI's GreenSkills program focuses mostly on street trees, we wanted to determine where there was the most oppor-

tunity for street-tree planting. Although residential trees and park trees are a fundamental part of the canopy, street trees are where URI has the greatest capacity to improve environmental conditions.

To gain a better understanding of how street trees are distributed across New Haven, we can use Geographic Information Systems (GIS) mapping to measure tree distribution in New Haven on a tree-by-tree basis, focusing on each individual tree rather than the overall canopy. Using the street-tree inventory and New Haven's roads, we calculated the number of street trees per mile of road for each census block group in the city. Census block groups are the smallest available unit of measurement for the census that still includes demographic data. A neighborhood in New Haven can include anywhere from one census block group to more than ten.

We also wanted to add a vulnerability component to identify parts of New Haven that might be a priority for planting based on socioeconomic factors. Areas with higher poverty rates or with higher proportions of residents of color can be at an ecological disadvantage because of systemic inequality in environmental conditions. To factor in these considerations for areas we want to prioritize, we created an index, assigning higher scores to areas with higher rates of poverty or higher proportions of residents of color. These socioeconomic scores, compounded with scores corresponding to the tree-density measurements, add up to an overall prioritization score, identifying blocks with fewer street trees that also have other elements of socioeconomic priority. Most of the block groups with the highest-priority socioeconomic scores are located in Newhallville, West River, Fair Haven, Amity, and the Hill.

The block group with the most street trees overall was in Prospect Hill, with a total of 400 street trees and a measurement of 108 trees per mile. For comparison, the block group with the fewest overall street trees was in Fair Haven Heights, with 22 street trees and 15.6 trees per mile. Other

Planting Prioritization Index Based on Street Tree Density, Race, and Income



Planting Prioritization Index: Darkest shaded areas indicate highest priority for planting due to lower density of trees per linear mile, high-percent poverty and high-percent people of color.

block groups with few street trees were located in Amity, the Hill, and West River. The distribution of street trees across these block groups reflects the broader pattern of street-tree distribution in New Haven—these neighborhoods, along with Long Wharf, Quinnipiac Meadows, and West Rock, are the neighborhoods with the fewest street trees per mile.

These findings are especially interesting in comparison with New Haven's tree-canopy maps. In these maps, the

neighborhoods with the most tree cover were areas like West Rock, partly because of the park trees included in these calculations. However, when looking at street trees alone, neighborhoods known for their parks and greenspace like West Rock and Quinnipiac Meadows received much lower scores for street trees per mile relative to their tree-cover results. Other neighborhoods, like Prospect Hill, have middling scores for UTC but still have very high rates of street trees. Since the areas where URI has the capacity to plant are already so saturated there, it makes sense to focus on outreach in other parts of the city. The areas where the lack of tree cover and lack of street trees really overlap—the Hill, Long Wharf, West River, the Annex—are places with a lot more to concentrate on.

Because of this analysis, we have a better idea of where to prioritize planting. While URI will continue to plant trees all over the city, this analysis reveals patterns of inequity and places where there is more work to be done.

Since the model relies on tree requesters, URI hopes to reverse these patterns of inequity through strategic outreach work in high-priority areas, to work toward remedying inequity without imposing our idea of what should happen on someone else's street. These are areas where we want to continue URI's canvassing efforts, knocking on doors and hanging banners and signs to encourage tree requests, but these are also areas where we hope to especially connect with people, whether face-to-face or through representatives like community leaders or alders. These connections root each dot on the inventory map with the driving force behind all of New Haven's street trees—people.