



PADUCAH, KENTUCKY COMMUNITY TREE REPORT



Paducah skyline. Source: Photo: J.T. Crawford/Paducah Life Magazine

PREPARED BY THE URBAN FOREST INITIATIVE
AT THE UNIVERSITY OF KENTUCKY

OVERVIEW

Trees offer a multitude of invaluable benefits for our health and the health of our environment. Trees enhance human well-being by reducing stress, improving happiness, and providing green spaces for relaxation and recreation. Beyond their natural beauty, trees play a crucial role in mitigating climate change. Trees intercept run-off and absorb stormwater; they absorb carbon dioxide and filter particulates from the air. They provide shade and lower temperatures through evapotranspiration. Trees enhance biodiversity, providing habitat for various wildlife and enhancing overall ecosystem benefits. Trees have also been shown to enhance property values.

With these benefits at the forefront of our minds, we, the Urban Forest Initiative (UFI) at the University of Kentucky, strive to improve tree canopy and community engagement with trees in Kentucky. This tree report provides a snapshot of our work in Paducah, outlining its community tree canopy, and can be used in education, outreach, and as a valuable planning tool.



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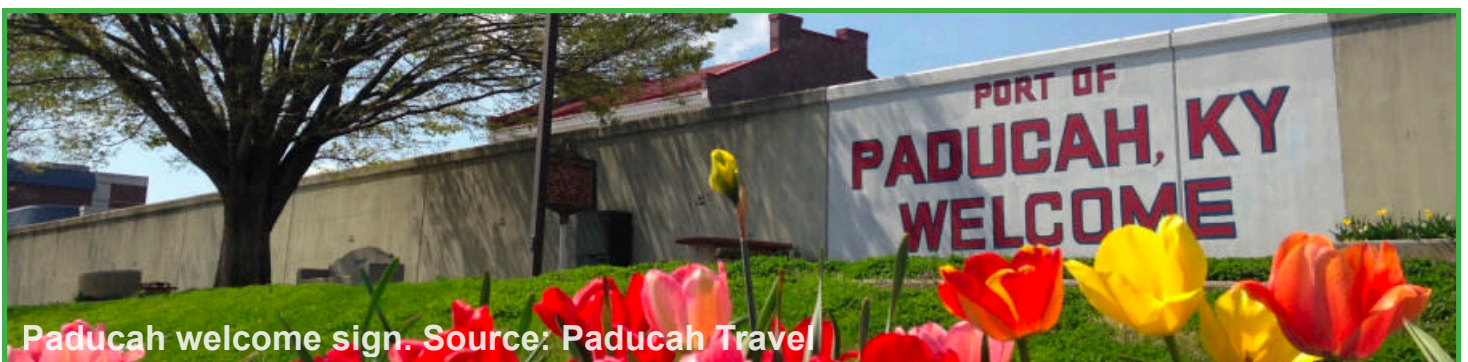
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Paducah welcome sign. Source: Paducah Travel

PROJECT INFORMATION

PROJECT PURPOSE AND FUNDING

The University of Kentucky Urban Forest Initiative (UFI) received grant funding through the U.S. Department of Agriculture Landscape Scale Restoration (LSR) Program to evaluate the tree canopy in four Kentucky communities with populations of less than 50,000: Berea, Georgetown, Hazard, and Paducah. The overall project goal is to enhance the community tree canopy, specifically through community forestry education, engagement and outreach, and skills training, with the longer-term goal of enhancing tree stewardship to build community resiliency to climate change.

In the winter of 2020, UFI selected Paducah as an appropriate community for inclusion in the project because of its status as an economic and cultural hub in western Kentucky. As part of the Purchase Territory, Paducah is situated at the confluence of the Tennessee and Ohio Rivers, near Lake Barkley and Kentucky Lake, and National Recreation Area Land Between the Lakes. It is home to an institution of higher education (West Kentucky Community and Technical College) and is also a Tree City USA with an active Tree Board.

Members of the Paducah community have shown a commitment to sustainability and green initiatives, evident in their active participation in tree and environmental programming such as Tree Week and Arbor Day. In this project, local residents were incorporated in community forestry data collection through volunteer opportunities. Others became more deeply trained through the UFI TreeCATs training program (explained later in this document). Direct engagement with local tree resources helps foster a sense of place, collective ownership, and stewardship of natural resources, and ultimately instills an active and engaged cohort of tree advocates. This engagement will empower individuals to raise awareness about the importance of trees and encourage active participation in community forestry initiatives.

This report presents an analysis of tree canopy at specific public sites in

Paducah between 2020 and 2023. It provides information about overall tree canopy coverage, as well as site specific details regarding tree species, size, health, and geographic location across specific public sites. Information within this report can contribute to effective management and stewardship of Hazard's community tree resources, contributing to the long-term sustainability, climate resiliency, and well-being of the area.



Volunteers plant trees at Kolb Park, October 2023. Source: UFI



Paducah resident volunteers prepare to help map trees at Paducah Housing Authority site, November 2021. Source: UFI

TREE INVENTORY VS. TREE CANOPY ASSESSMENT

A tree inventory and a tree canopy assessment serve distinct but complementary purposes in understanding and managing community forests. A tree inventory is site-specific; it involves systematically cataloging individual trees within a specific area, capturing relevant data such as species, size, condition, and location. A tree inventory helps identify the number, distribution, and diversity of trees, providing a detailed snapshot of a local tree population; it is an outstanding management tool.

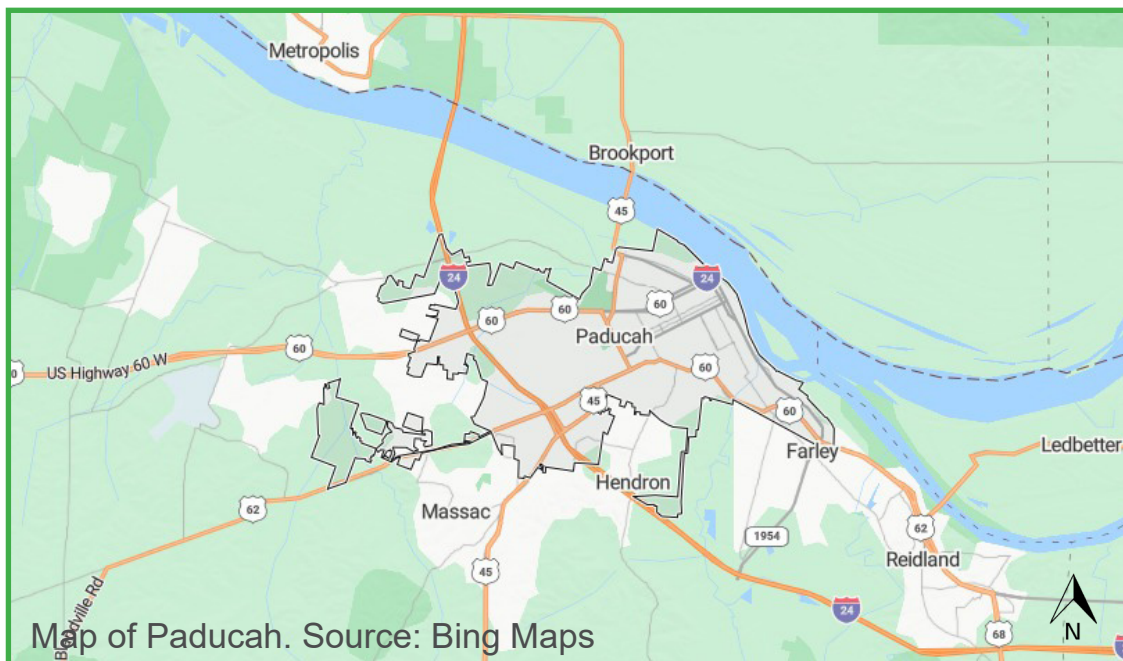
In contrast, a tree canopy assessment provides general information about the extent of tree cover within a given area. It involves analyzing spatial coverage of tree canopies, measuring factors such as the percentage of ground shaded by tree canopies, tree density, and vertical stratification. A tree canopy assessment offers insights into the overall benefits provided by the community forest, such as stormwater mitigation, shade provision, temperature regulation, and carbon sequestration. By assessing the canopy, it becomes possible to quantify the ecosystem services provided by trees and understand their contribution to the natural environment.

For this project UFI staff utilized both tree inventory and canopy assessment. Tree inventories were completed at specific sites; canopy assessments were completed using i-Tree Landscape to draw comparisons at different scales and assess patterns within the community. Both lend important insights to the overall composition, value, and potential of Paducah's community forest, and provide guidance for management decisions.¹

¹Calculating existing tree canopy coverage is done via aerial imagery and remote sensing using a USFS website called i-Tree Landscape that assesses the natural benefits and fiscal value of urban trees and forests. i-Tree Landscape utilizes various data inputs and analyses regarding ecosystem services were calculated using i-Tree Eco©.

BACKGROUND

Located on the southern banks of the Ohio River, McCracken County is situated in western Kentucky at a bend in the river just upstream of Metropolis, Illinois. Paducah is situated at the confluence of the Tennessee and Ohio Rivers, approximately 30 miles upstream from where the Ohio meets the Mississippi.



HISTORY OF PADUCAH

The development history of Paducah, Kentucky, is directly related to its location along the Ohio River. Paducah was chartered as a city in 1856. It was site to a red brick manufacturing facility, and a foundry for making locomotive and rail components. It became a site for dry docking steamboats and tugboats, an important railway hub for the Illinois Central Railroad due to Paducah's proximity to Kentucky and Illinois coal fields, and eventually became an important headquarters for barge line companies.



Some of Paducah's floodwall murals. Source: UFI

A major flood occurred in 1937 when the Ohio River at Paducah rose and submerged 95% of the city. Water levels swelled to 60.8 feet (50 feet is considered flood stage) and city residents lobbied Congress to build a flood wall, which was completed in 1949. Today, the floodwall contains murals depicting Paducah's rich history; the areas on the river side of the flood wall include a boat launching ramp, a dock facility with gasoline, and benches for spectators.

Top employers today include Ingram Barge, Lourdes Hospital and Western Baptist Hospital, James Marine, Marquette Transportation, and McCracken County public schools. Paducah's surrounding fertile lands support a strong agricultural economy, growing tobacco, corn, and wheat. The city has been a regional center for tobacco processing and distribution.

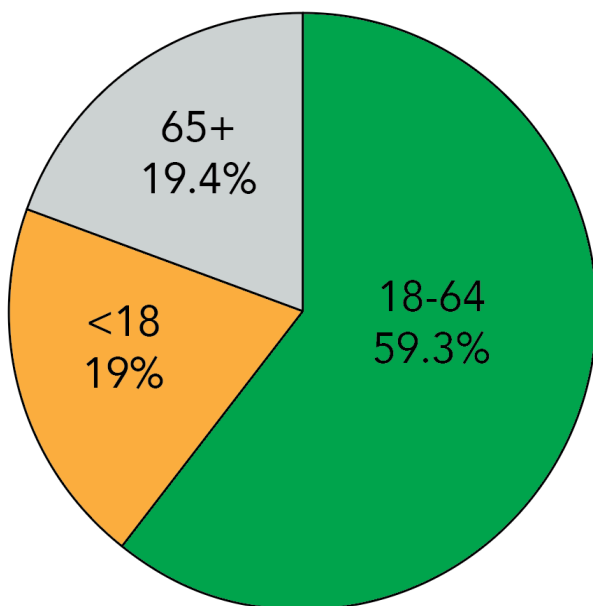
Paducah's downtown area is rich with well-preserved historic architecture, including Victorian-era buildings and brick-lined streets. The city has made efforts to preserve its historical character and attract tourism through initiatives like the LowerTown Arts District and the Artist Relocation Project.

In recent years, Paducah has focused on revitalizing its downtown and waterfront areas, investing in infrastructure, cultural amenities, and tourism. The city has also promoted the arts and creative industries as part of its economic development strategy. Paducah is also home to several healthcare facilities, including the Baptist Health Paducah hospital. The city hosts institutions of higher

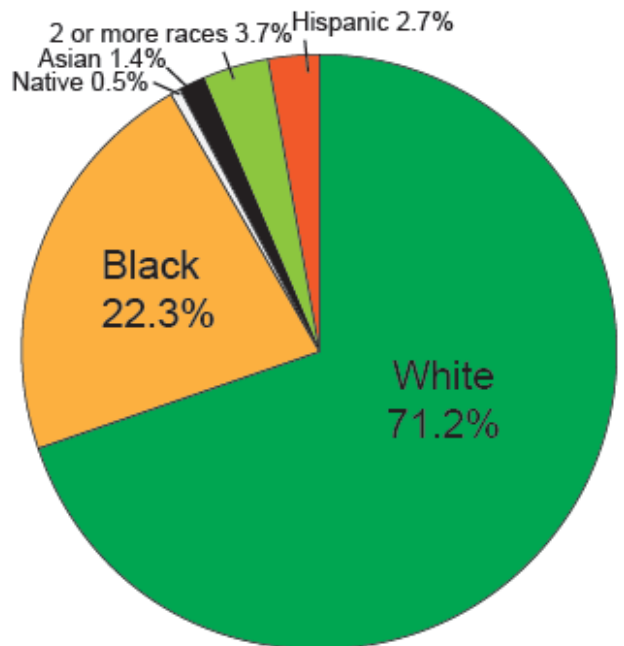
education, such as West Kentucky Community and Technical College (WKCTC), the University of Kentucky - Paducah campus, and the Paducah School of Art and Design. Paducah’s development history reflects its evolution from a small riverfront settlement to a thriving city with a diverse economy and a keen cultural heritage. Today, it continues to embrace its historic roots while seeking new opportunities for growth and development.

Paducah’s population was 26,834 in the 2020 Census, with 71.2% of those identifying as White, 22.3% identifying as Black, 0.5% identifying as American Indian or Alaska Native, 1.4% identifying as Asian, 3.7% identifying as two or more races, and 2.7% identifying as Hispanic or Latino. Paducah’s population is, on average, older than the rest of the state. The percentage of persons under the age of 18 in Paducah is 19%, compared to 22.3% for the state. However, those 65 years and older represent 19.4% which is greater than the statewide average of 17.6%.

AGE DISTRIBUTION OF PADUCAH



RACIAL DISTRIBUTION OF PADUCAH

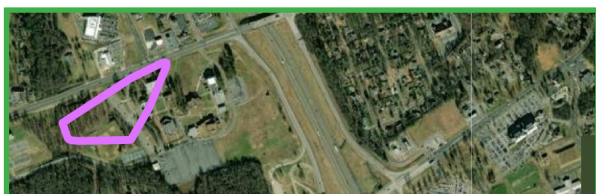


OVERVIEW OF STUDY AREAS

For tree mapping and identification, UFI selected sites on public lands, including six public housing sites and several parks. Inasmuch as Noble Park represents an ideal mature tree landscape, UFI staff focused on smaller and less well-shaded sites:

- + Housing Authority of Paducah public housing sites, including:
 - Anderson Court
 - Blackburn
 - Dolly McNutt
 - Ella Munal
 - Elmwood Court
 - Pierce Lackey Village
- + Public parks, including:
 - Blackburn Park, also known as Robert Coleman Park
 - Kolb Park
 - Pat & Jim Brockenborough Rotary Health Park, also known as Fountain Avenue Health Park
- + Paducah School of Art and Design
- + Dolly McNutt Memorial Plaza and McCracken County Public Library
- + Selected sites on the West Kentucky Community and Technical College (WKCTC) campus

Figure 1. Sites in Paducah where trees were inventoried and mapped in association with this project.



Paducah's city limits encompass nearly 20 square miles and 23.6% of those lands have tree coverage per i-Tree calculations. UFI staff and Paducah volunteers measured, identified, and geolocated 794 trees across 12 different sites in Paducah. Predictably, tree abundance, diversity, and health vary among sites.

A summary of each site's mapped trees is provided in Table 1, in addition to their collective ecological benefits calculated by I-Tree Eco© (see Appendix for I-Tree Eco methodology).

Table 1. Summary of tree mapping sites in Paducah and estimates of the ecosystem services those trees provide.

SUMMARY OF ECOSYSTEM BENEFITS ACROSS ALL SITES						
Site	Site Aea (acres)	No. trees mapped	Stormwater captured (gal.)	Pollution removed (oz.)	Carbon sequestered (lbs.)	Monetary benefit (\$)
Parts of Main campus, WKCTC	42.1*	178	77,648	3,702	7,376	\$1,819
Dolly McNutt Plaza	4	94	53,927	2,046	3,956	\$1,262
Pat & Jim Brock-enborough Rotary Health Park	6.2	41	11,101	550	1,228	\$281
Paducah School of Art and Design	1.8	30	6,479	329	667	\$157
Blackburn Park	2.8	15	7,335	339	689	\$172
Kolb Park	1.6	8	3,750	201	367	\$90
Ella Munal (HAP)	20.8	154	86,624	4,101	7,516	\$1,987
Pierce Lackey Village (HAP)	17.4	114	68,806	3,194	7,638	\$1,718
Elmwood Court (HAP)	24	64	47,569	2,480	3,838	\$1,066
Blackburn (HAP)	8.9	48	38,308	1,882	3,406	\$903
Dolly McNutt (HAP)	6.3	33	16,988	791	1,364	\$397
Anderson Court (HAP)	8	15	11,318	639	1,128	\$276
Total	144	794	429,853	20,254	39,173	\$10,128

ECOSYSTEM BENEFITS

- + **Stormwater captured** is an estimate of the ability of trees measured based on their size and leaf canopies. This number is a metric which evaluates the trees' ability to reduce erosion caused by falling rain, provide a surface area where rain can land and evaporate, and take up water through root networks and soil infiltration.
- + **Pollution removed** addresses the collective power of trees measured to capture carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter less than 2.5 microns (PM_{2.5}), particulate matter between 2.5 and 10 microns (PM₁₀), and sulfur dioxide (SO₂). These pollutants negatively impact air quality and public health concerns, such as asthma and heart disease.
- + **Carbon sequestered** estimates the amount of atmosphere-warming carbon embedded within the trees measured, including their growth, minus estimated carbon lost through decomposition due to tree mortality. Trees are especially important stores of carbon; through the process of photosynthesis, plants convert carbon dioxide and water into oxygen. Trees absorb carbon dioxide and release oxygen.
- + **Annual monetary benefit** quantifies the three metrics described above; that is, it estimates the monetized value of wholesale ecosystem benefits of trees on site. It estimates the compensatory value trees provide to that site, based on 2016 dollars.

Detailed tree canopy reports with ecosystem benefits summaries for each of the sites in Paducah follows.

TREE INVENTORY REPORT: PHA

HOUSING AUTHORITY OF PADUCAH: ANDERSON COURT

Anderson Court is the most northern of the public housing sites evaluated. It is located off N 7th and N 8th Streets, between Boyd and Campbell Streets. It spans four acres and is comprised of 100 1-4 bedroom units.



Figure 2. Trees inventoried and mapped at Anderson Court.

Of the few trees, Bradford pear is the most abundant species. Limiting the proliferation of Bradford pear and planting and promoting growth of large, fast-growing, shade-producing native species will benefit this site. Bradford pear do not provide significant shade and are not very resilient to high winds; it is recommended these non-native species be replaced in due time. While there are a few large shade trees at this site, future planting should utilize shade-producing trees and increase species diversity.

15 trees measured **7 species identified**

Table 2. All tree species measured at Anderson Court.*

ANDERSON COURT PHA TREES					
Species (Common name)	Species (Scientific name)	Number of trees	Species relative abundance (%)	Relative basal area (% of site total)	Relative importance value (%)
Bradford pear	<i>Pyrus calleryana</i>	4	26.67%	11.7%	19.2%
Water oak	<i>Quercus nigra</i>	3	20%	16.2%	18.1%
Willow oak	<i>Quercus phellos</i>	3	20%	24.5%	22.3%
Sugarberry	<i>Celtis laevigata</i>	2	13.3%	11.6%	12.5%
Scarlet oak	<i>Quercus coccinea</i>	1	6.67%	3.6%	5.1%
Cherrybark oak	<i>Quercus pagoda</i>	1	6.67%	15.2%	10.9%
Pin oak	<i>Quercus palustris</i>	1	6.67%	17.2%	11.9%
	Total	15	100%	100%	100%

*See appendix for definitions of relative abundance, basal area, and importance value.

TREE INVENTORY REPORT: PHA

HOUSING AUTHORITY OF PADUCAH: BLACKBURN

Blackburn is one of six sites owned by the Housing Authority of Paducah. It is located off Walter Jetton Boulevard and includes two tracts: a 4.6 acre tract south of Husbands Street and a 3-acre plot west of Walter Jetton and south of Caldwell Street. Collectively, these two sites are home to 77 1-5 bedroom units. Blackburn Park is immediately across the street from both sites.



Figure 3. Trees inventoried and mapped at Blackburn.

The most abundant species are sugarberry and pine oak, and oaks and maples are prevalent. Future planting efforts should incorporate different tree genera to increase diversity.

48 trees measured **13** species identified

Table 3. Tree species at Blackburn having a Relative Importance Value $\geq 2\%$.*

BLACKBURN PHA TREES					
Species (Common name)	Species (Scientific name)	Number of trees	Species relative abundance (%)	Relative basal area (% of site total)	Relative importance value (%)
Sugarberry	<i>Celtis laevigata</i>	12	25%	24.2%	24.6%
Pin oak	<i>Quercus palustris</i>	11	22.9%	31.5%	27.2%
Willow oak	<i>Quercus phellos</i>	7	14.6%	14.4%	14.5%
Red maple	<i>Acer rubrum</i>	5	10.4%	4.9%	7.7%
Sugar maple	<i>Acer saccharum</i>	4	8.3%	1.6%	5%
Cherrybark oak	<i>Quercus pagoda</i>	2	4.2%	6.7%	5.4%
Redbud	<i>Cercis canadensis</i>	1	2.1%	3.6%	2.8%
American sycamore	<i>Platanus occidentalis</i>	1	2.1%	4.5%	3.3%
Shumard oak	<i>Quercus shumardii</i>	1	2.1%	2.8%	2.5%
	Other	4	8%	5.8%	N/A
	Total	48	100%	100%	N/A

*See appendix for definitions of relative abundance, basal area, and importance value.

TREE INVENTORY REPORT: PHA

HOUSING AUTHORITY OF PADUCAH: DOLLY MCNUTT

Dolly McNutt includes 6.27 acres of housing on both sides of Bridge Court, located off Bridge Street. Dolly McNutt is home to 52 1-3 bedroom units.



Figure 4. Trees inventoried and mapped at Dolly McNutt.

The most abundant species are Hawthorn and Bradford pear. Limiting the proliferation of Bradford pear and planting and promoting growth of large, fast-growing, shade-producing native species will benefit this site. Bradford pear do not provide significant shade and are not very resilient to high winds; it is recommended these non-native species be replaced in due time.

33 trees measured **12** species identified

Table 4. All tree species measured at Dolly McNutt.*

DOLLY MCNUTT PHA TREES					
Species (Common name)	Species (Scientific name)	Number of trees	Species relative abundance (%)	Relative basal area (% of site total)	Relative importance value (%)
Hawthorn	<i>Crataegus sp.</i>	6	18.2%	6%	12.1%
Bradford pear	<i>Pyrus calleryana</i>	6	18.2%	13.8%	16%
Pin oak	<i>Quercus palustris</i>	4	12.1%	16.7%	14.4%
Eastern redbud	<i>Cercis canadensis</i>	3	9.1%	8.6%	8.9%
Southern Magnolia	<i>Magnolia grandiflora</i>	2	6.1%	2%	4.1%
White pine	<i>Pinus strobus</i>	2	6.1%	5%	5.6%
Ornamental cherry	<i>Prunus sp.</i>	2	6.1%	11.5%	8.8%
Cherrybark oak	<i>Quercus pagoda</i>	2	6.1%	6.5%	6.3%
Willow oak	<i>Quercus phellos</i>	2	6.1%	12.2%	9.2%
Northern red oak	<i>Quercus rubra</i>	2	6.1%	10.7%	8.4%
Shumard oak	<i>Quercus shumardii</i>	1	3%	5.9%	4.5%
Norway spruce	<i>Picea abies</i>	1	3%	0.6%	1.8%
	Total	33	100%	100%	100%

*See appendix for definitions of relative abundance, basal area, and importance value.

TREE INVENTORY REPORT: PHA

HOUSING AUTHORITY OF PADUCAH: ELLA MUNAL

Ella Munal is a 20.79 acre site controlled by the Housing Authority of Paducah. It includes 133 1-4 bedroom units located within a street network on both sides of Legion Drive off Bridge Street.



Figure 5. Trees inventoried and mapped at Ella Munal.

Sugarberry, also commonly known as southern hackberry, is the most abundant species. There are also a significant number of willow oak and silver maple, and numerous species represented in lower numbers. Size and species diversity is good at Ella Munal, and management should focus on tree maintenance and tree care. Future tree plantings should be mindful of maintaining species diversity.

154 trees measured **25** species identified

Table 5. Tree species at Ella Munal having a Relative Importance Value $\geq 2\%$.*

ELLA MUNAL PHA TREES					
Species (Common name)	Species (Scientific name)	Number of trees	Species relative abundance (%)	Relative basal area (% of site total)	Relative importance value (%)
Sugarberry	<i>Celtis laevigata</i>	51	33.1%	27.7%	30.4%
Willow oak	<i>Quercus phellos</i>	19	12.3%	26.3%	19.3%
Silver maple	<i>Acer saccharinum</i>	17	11%	7.8%	9.4%
Sugar maple	<i>Acer saccharum</i>	6	3.9%	3.9%	3.9%
Green ash	<i>Fraxinus pennsylvanica</i>	9	5.8%	3.2%	4.5%
Sweetgum	<i>Liquidambar styraciflua</i>	6	3.9%	5.9%	4.9%
Hackberry	<i>Celtis occidentalis</i>	4	2.6%	1.8%	2.2%
Catalpa	<i>Catalpa speciosa</i>	4	2.6%	2.5%	2.6%
Cherrybark oak	<i>Quercus pagoda</i>	4	2.6%	7.3%	5%
Southern red oak	<i>Quercus falcata</i>	3	1.9%	4%	3%
Pin oak	<i>Quercus palustris</i>	3	1.9%	2.1%	2%
	Other	28	18.4%	7.5%	N/A
	Total	154	100%	100%	N/A

*See appendix for definitions of relative abundance, basal area, and importance value.

TREE INVENTORY REPORT: PHA

HOUSING AUTHORITY OF PADUCAH: ELMWOOD COURT

Located behind Brooks Stadium, Elmwood Court is a 24-acre Housing Authority of Paducah site. It is home to 259 1-4 bedroom units.

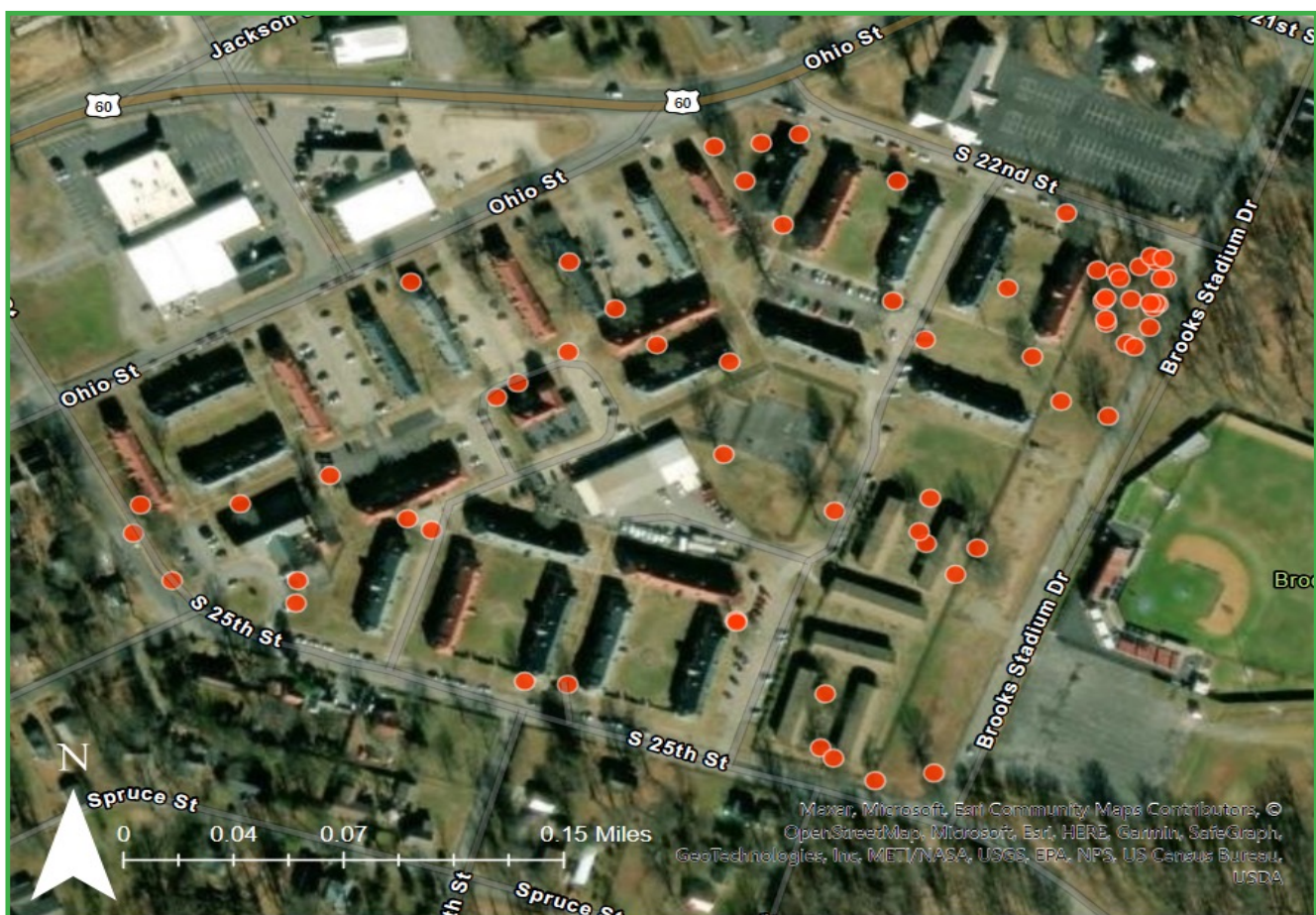


Figure 6. Trees inventoried and mapped at Elmwood Court.

The most abundant species is cherrybark oak, making up over 40% of the canopy measured. There is also a significant number of willow oak. Effort should be made to plant a more diverse mix of species suited to the site to minimize pest and pathogen risk.

64 trees measured **13** species identified

Table 6. Tree species at Elmwood Court having a Relative Importance Value \geq 2%.*

ELMWOOD COURT PHA TREES					
Species (Common name)	Species (Scientific name)	Number of trees	Species relative abundance (%)	Relative basal area (% of site total)	Relative importance value (%)
Cherrybark oak	<i>Quercus pagoda</i>	27	42.2%	39.4%	40.8%
Willow oak	<i>Quercus phellos</i>	11	17.2%	14.7%	31.9%
Common pear	<i>Pyrus communis</i>	5	7.8%	1.2%	4.5%
Pin oak	<i>Quercus palustris</i>	3	4.7%	5.8%	5.3%
Post oak	<i>Quercus stellata</i>	3	4.7%	4.6%	4.7%
Green ash	<i>Fraxinus pennsylvanica</i>	2	3.1%	2.1%	2.6%
Sweetgum	<i>Liquidambar styraciflua</i>	2	3.1%	2.6%	2.9%
Southern red oak	<i>Quercus falcata</i>	1	1.6%	4.4%	3%
	Other	10	15.6%	25.2%	N/A
	Total	64	100%	100%	N/A

*See appendix for definitions of relative abundance, basal area, and importance value.

TREE INVENTORY REPORT: PHA

HOUSING AUTHORITY OF PADUCAH: PIERCE LACKEY VILLAGE

Pierce Lackey Village is a 17.35 acre site home to 169 apartments, ranging from studios to 2-bedroom units. This neighborhood has many mature trees, with great diversity.



Figure 7. Trees inventoried and mapped at Pierce Lackey Village.

The most abundant species are red maple, silver maple, and willow oak. Size and species diversity is good; management should focus on maintenance and care. Future tree planting should maintain species diversity.

114 trees measured **28** species identified

Table 7. Tree species at Pierce Lackey Village having a Relative Importance Value $\geq 2\%$.*

PIERCE LACKEY VILLAGE PHA TREES					
Species (Common name)	Species (Scientific name)	Number of trees	Species relative abundance (%)	Relative basal area (% of site total)	Relative importance value (%)
Red maple	<i>Acer rubrum</i>	26	22.8%	19.9%	21.4%
Silver maple	<i>Acer saccharinum</i>	20	17.5%	18.1%	17.8%
Willow oak	<i>Quercus phellos</i>	16	14%	24.5%	19.3%
Cherrybark oak	<i>Quercus pagoda</i>	5	4.4%	11.5%	7.9%
Scarlet oak	<i>Quercus coccinea</i>	2	1.8%	4.5%	3.2%
Eastern red cedar	<i>Juniperus virginiana</i>	4	3.5%	1%	2.2%
Sweetgum	<i>Liquidambar styraciflua</i>	3	2.6%	1.8%	2.2%
Post oak	<i>Quercus stellata</i>	3	2.6%	3.3%	3%
	Other	35	30.8%	15.5%	N/A
	Total	114	100%	100%	N/A

*See appendix for definitions of relative abundance, basal area, and importance value.

TREE INVENTORY REPORT: PARKS

BLACKBURN PARK (ROBERT COLEMAN PARK)

Blackburn is an approximately 3-acre park across Walter Jetton Boulevard from the Housing Authority of Paducah Blackburn neighborhood. This park includes an baseball/softball diamond, horseshoe pits, a basketball court, playground, and splash pad. UFI staff and volunteers also measured trees in the medians on Walter Jetton Blvd.



Figure 8. Trees inventoried and mapped at Blackburn Park.

Of the few trees, willow oak, eastern redbud, and American elm are the most abundant. While species diversity is high, this park could benefit from additional shade trees. However, management should take into consideration the need for open play areas in advance of future plantings to minimize potential conflicts.

15 trees measured **7** species identified

Table 8. All tree species measured at Blackburn Park.*

BLACKBURN/ROBERT COLEMAN PARK TREES					
Species (Common name)	Species (Scientific name)	Number of trees	Species relative abundance (%)	Relative basal area (% of site total)	Relative importance value (%)
Willow oak	<i>Quercus phellos</i>	4	26.7%	19.8%	23.2%
American elm	<i>Ulmus americana</i>	3	20%	25.2%	22.6%
Green ash	<i>Fraxinus pennsylvanica</i>	1	6.7%	22.3%	14.5%
Sugarberry	<i>Celtis laevigata</i>	1	6.7%	16.4%	11.5%
Eastern redbud	<i>Cercis canadensis</i>	3	20%	1.9%	10.9%
American holly	<i>Ilex opaca</i>	2	13.3%	5.9%	9.6%
Red maple	<i>Acer rubrum</i>	1	6.7%	8.5%	7.6%
	Total	15	100%	100%	100%

*See appendix for definitions of relative abundance, basal area, and importance value.

TREE INVENTORY REPORT: PARKS

KOLB PARK

Kolb Park includes 2 acres off South 6th Street. In the past, this site was home to a public swimming pool that was removed several decades ago. Today, Kolb includes a playground, picnic shelters and open space. In October 2023, UFI assisted in planting six trees around the playground, which led the site to receive a Beautification Award from the City of Paducah. The section of the park where the pool existed has not been planted with trees, but there are trees located along the perimeter of the site.



Figure 9. Trees inventoried and mapped at Kolb Park.

Of the eight trees on site, sugarberry, also commonly known as southern hackberry, was the most abundant. Because there are so few trees, it is difficult to generalize regarding species diversity. However, Kolb park could benefit from planting additional trees to add shade, taking into consideration land use to minimize potential conflicts.

8 trees measured **4 species identified**

Table 9. All tree species measured at Kolb Park.*

KOLB PARK TREES					
Species (Common name)	Species (Scientific name)	Number of trees	Species relative abundance (%)	Relative basal area (% of site total)	Relative importance value (%)
Sugarberry	<i>Celtis laevigata</i>	3	37.5%	66%	51.8%
Northern red oak	<i>Quercus rubra</i>	1	12.5%	29.3%	20.9%
Swap white oak	<i>Quercus bicolor</i>	2	25%	3.1%	14.1%
Redbud	<i>Cercis canadensis</i>	2	25%	1.5%	13.3%
	Total	8	100%	100%	100%

*See appendix for definitions of relative abundance, basal area, and importance value.

TREE INVENTORY REPORT: PARKS

PAT & JIM BROCKENBOROUGH ROTARY HEALTH PARK

The Pat & Jim Brockenborough Rotary Health Park is situated between 13th and 14th Street, bordered by Martin Luther King, Jr. Drive and Madison Street. This 10-acre multi-use park incorporates a 1/3 mile perimeter walking path, playground, splash pad, agility course, and community garden. There are mature shade trees located on the perimeter of the park.



Figure 10. Trees inventoried and mapped at Pat & Jim Brockenborough Rotary Health Park.

Age and species diversity are good. The most abundant species are willow oak and pin oak, but there are also five mature and well-established sugar maple. Management should take into consideration the need for open play areas in advance of future plantings to minimize potential conflicts.

41 trees measured **7** species identified

Table 10. All tree species measured at Pat & Jim Brockenborough Rotary Health Park.*

ROTARY HEALTH PARK TREES					
Species (Common name)	Species (Scientific name)	Number of trees	Species relative abundance (%)	Relative basal area (% of site total)	Relative Importance Value (%)
Willow oak	<i>Quercus phellos</i>	11	26.8%	40.7%	33.8%
Sugar maple	<i>Acer saccharum</i>	5	12.2%	27.9%	20%
Pin oak	<i>Quercus palustris</i>	10	24.4%	12.2%	18.3%
American elm	<i>Ulmus americana</i>	1	2.4%	17.9%	10.2%
Red maple	<i>Acer rubrum</i>	7	17.1%	0.4%	8.7%
London plane tree	<i>Platanus x acerifolia</i>	4	9.8%	0.5%	5.1%
American sycamore	<i>Platanus occidentalis</i>	3	7.3%	0.5%	3.9%
	Total	41	100%	100%	100%

*See appendix for definitions of relative abundance, basal area, and importance value.

TREE INVENTORY REPORT

PADUCAH SCHOOL OF ART AND DESIGN

The Paducah School of Art and Design operates as Western Kentucky Community and Technical College's arts campus. The school is in the Lower Town Arts District of Paducah, situated between N. 9th and N. 10th Streets, south of Martin Luther King, Jr. Drive. Nearly half of this approximately 8 acre tract is covered in parking lot. Most of the trees measured were on medians in the parking lot.



Figure 11. Trees inventoried and mapped at Paducah School of Art and Design.

The most abundant species are sweetbay magnolia and eastern redbud although there are mature and well-established catalpas on a narrow strip also owned by PSAD. Many of the trees in the parking lot were small as they lacked room and soil nutrients to grow to maturity. Although greater species and larger trees are desirable, the limitations of strips and medians for growing larger trees must be recognized.

30 trees measured **10** species identified

Table 12. Tree species at Paducah School of Art and Design having a Relative Importance Value \geq 3%*.

PADUCAH SCHOOL OF ART AND DESIGN TREES					
Species (Common name)	Species (Scientific name)	Number of trees	Species abundance (%)	Relative basal area (% of site total)	Relative importance value (%)
Catalpa	<i>Catalpa speciosa</i>	3	10%	37.2%	23.6%
Cherrybark Oak	<i>Quercus pagoda</i>	2	6.7%	19.8%	13.2%
Sugarberry	<i>Celtis laevigata</i>	2	6.7%	15.3%	11%
Sweetbay Magnolia	<i>Magnolia virginiana</i>	6	20%	1.1%	10.6%
Eastern Redbud	<i>Cercis canadensis</i>	5	16.7%	0.2%	8.5%
American Sycamore	<i>Platanus occidentalis</i>	4	13.3%	1.6%	7.5%
Trident Maple	<i>Acer buergeranum</i>	4	13.3%	1.1%	7.2%
Black Maple	<i>Acer nigrum</i>	1	3.3%	3.9%	3.6%
Red Maple	<i>Acer rubrum</i>	2	6.7%	0.5%	3.6%
	Other	1	3.3%	19.2%	N/A
	Total	30	100%	100%	N/A

*See appendix for definitions of relative abundance, basal area, and importance value.

TREE INVENTORY REPORT

DOLLY MCNUTT MEMORIAL PLAZA AND MCCRACKEN COUNTY PUBLIC LIBRARY

The Dolly McNutt Plaza encompasses one square city block between City Hall and the McCracken County Courthouse. The plaza contains many mature trees, memorials for veterans, and seating for visitors to enjoy. It was designed by American architect Edward Durell Stone, also credited with designing Radio City Music Hall, and the lodge at Lake Barkley State Resort Park, and other notable accomplishments. Located immediately across Washington Street, the McCracken County Public Library serves as a communal space for events and reading.



Figure 13. Trees inventoried and mapped at Dolly McNutt Plaza and McCracken County Public Library.

Willow oak is the most abundant species, making up 70% of the canopy measured. Edward Durell Stone incorporated willow oaks at many of his designed sites in Kentucky. Species and age diversity is low, as often occurs with memorial plantings. As replacement plantings occur, focus should be put on increasing species and age diversity for better resilience to host-specific pests.

94 trees measured **6** species identified

Figure 13. Trees inventoried and mapped at Dolly McNutt Plaza and McCracken County Public Library.*

PLAZA AND LIBRARY TREES					
Species (Common name)	Species (Scientific name)	Number of trees	Species relative abundance (%)	Relative basal area (% of site total)	Relative Importance Value (%)
Willow oak	<i>Quercus phellos</i>	66	70.2%	96.7%	85.4%
Flowering dogwood	<i>Cornus florida</i>	17	18.1%	0.5%	9.3%
White pine	<i>Pinus strobus</i>	4	4.3%	0.4%	2.3%
Bald cypress	<i>Taxodium distichum</i>	2	2.1%	1.2%	1.7%
Southern magnolia	<i>Magnolia grandiflora</i>	2	2.1%	0.0%	1.1%
Chinese dogwood	<i>Cornus kousa</i>	1	1.1%	0.0%	0.5%
	Total	94	100%	100%	100%

*See appendix for definitions of relative abundance, basal area, and importance value.

TREE INVENTORY REPORT

WESTERN KENTUCKY COMMUNITY AND TECHNICAL COLLEGE (WKCTC)

Western Kentucky Community and Technical College (WKCTC) was established in 2003. The campus sprawls on the fringes of the city limits, parallel to Alben Barkley Drive across Interstate 24 from the rest of the city. Since Main Campus extends linearly along the highway, campus locations are commonly described as being on the West End or East End. Tree identification and mapping efforts were focused on the East End of campus, including the Nature Path that connects the eastern and western parts of campus. This work occurred in June 2021.



Figure 14. Trees inventoried and mapped on WKCTC's campus.

Sites inventoried on the East End of campus included the lawn in front of Waller and Carson Halls, the east side of the Main Campus Gate entrance, and parts of the Nature Trail. The Nature Trail is situated among a woodland area north of the baseball diamond between the East and West Ends of campus.

UFI did not map 100% of the trees in this woodland area; only select trees adjoining the path were identified, measured, and mapped. Across these sites, species diversity is good, with no species making up more than 20% of the canopy measured. The most abundant of the species mapped are southern red oak, red maple and black oak. Management efforts should focus on retaining species diversity as replacement trees are installed.

178 trees measured **51** species identified

Table 14. Tree species at WKCTC having a Relative Importance Value \geq 2%.*

WKCTC TREES					
Species (Common name)	Species (Scientific name)	Number of trees	Species relative abundance (%)	Relative basal area (% of site total)	Relative Importance Value (%)
Southern red oak	<i>Quercus falcata</i>	25	14%	24.6%	19.3%
Black oak	<i>Quercus velutina</i>	16	9%	12.5%	10.8%
Red maple	<i>Acer rubrum</i>	20	11.2%	6.9%	9%
White oak	<i>Quercus alba</i>	8	4.5%	5.7%	5.1%
American sycamore	<i>Platanus occidentalis</i>	13	7.3%	1.8%	4.6%
Catalpa	<i>Catalpa speciosa</i>	3	1.7%	4.7%	3.2%
Scarlet oak	<i>Quercus coccinea</i>	7	3.9%	1.9%	2.9%
Sugar maple	<i>Acer saccharum</i>	5	2.8%	2.5%	2.6%
Southern magnolia	<i>Magnolia grandiflora</i>	4	2.2%	2.9%	2.6%
Post oak	<i>Quercus stellata</i>	5	2.8%	2.3%	2.5%
	Other	49	27.5%	30.3%	28.9%
	Total	178	100%	100%	N/A

*See appendix for definitions of relative abundance, basal area, and importance value.

PROJECT OUTCOMES

+ **Tree inventory:** A total of 794 community trees were mapped, identified, and georeferenced across 12 sites in the community. Site reports and ecosystem services were generated for each.

+ **Training:** Offered by UFI annually, TreeCATs workshops have graduated 100 students to date, including 8 from Paducah as a part of this project (4 in 2023, 3 in 2022, 1 in 2021). TreeCATs is a 20-hour virtual urban and community forestry workshop that introduces participants to concepts addressing urban and community forestry infrastructure, tree identification and stewardship, tree pests and diseases, planning and design, trees and wellness, greenspace equity, and career paths. Paducah TreeCATs have leveraged the knowledge, skills, and professional connections that they've acquired through this program into active engagement in tree stewardship within the community.

+ **Lunch-n-Learn:** On June 6, 2023, UFI hosted a Lunch-n-Learn for the landscaping/grounds teams of City of Paducah Parks and Recreation Department and the Housing Authority of Paducah. Mary Hank, the McCracken County Extension Agent, provided training on tree care. There were 18 attendees, including six representatives from the Housing Authority of Paducah, three from the Parks Department, and five from the Public Works – Streets. The chair of the Paducah Tree Board, plus a planner from the city Planning Department, also attended. The event was held from 12-1 in the Parks Office at 1400 HC Mathis Drive in Paducah.

+ **Engagement:** Tree Week is an annual volunteer-driven event celebrating trees and greenspaces where we live. In response to UFI's work in Paducah, the city held its first Tree Week in 2021. In 2022, Mayor George P. Bray signed a Tree Week Proclamation declaring the week of October 8, 2022 as Tree Week across the city.

Tree mapping activities drew the attention of the media during summer 2022, and the Paducah Sun published a story about WKCTC student involvement:

https://www.paducahsun.com/news/wkctc-students-participate-in-uk-tree-program/article_6e17f114-0642-5918-a980-4cdec2d0236e.html

Tree mapping is labor intensive and cannot be done without numerous volunteers. The UFI team benefited from the assistance of helpers during three site visits to Paducah. These volunteers included residents of the Lowertown Arts District, staff from River Discovery Center, students and faculty from WKCTC, and students from the UK Paducah campus and Murray State University. In total, nearly 25 volunteers helped with tree mapping and measurement, and left the experience as tree ambassadors in their communities.

In October 2023, UFI and the City of Paducah Departments of Planning, Parks and Recreation, and Public Works conducted a tree planting event at Kolb Park, situating three cypress and three oaks on site. This event was the culmination of coordination between residents of the Southside Neighborhood Association, the Paducah Tree Board, Paducah Power, and the city's plans to beautify the public spaces around Kolb Park. See news article:

https://www.paducahsun.com/news/city-to-plant-six-trees-in-kolb-park/article_806cde6a-d603-5317-ac76-dd33c2928583.html



**Volunteers turned out in full force to help plant trees at Kolb Park, October 2023.
Source: UFI**

SUGGESTIONS

- + **Develop a Tree Management Plan.** A comprehensive tree management plan should outline goals, strategies, and guidelines for tree planting, maintenance, and removal. The plan should address tree species selection, keeping in mind the “10-20-30 rule of thumb,” which suggests that a community tree canopy should comprise no more than 10% of any particular species, 20% of any particular tree genus, and 30% of any particular plant family. The comprehensive plan should also consider planting locations, making the most optimal species selection for any particular location, and considering the final size of the mature tree, its tolerance to environmental stresses, and any additional characteristics (pollen production, fruit production, tree shape, maintenance needs) that may make a specific species a better choice than another. Tree maintenance practices and long-term care should be incorporated into the management plan.
- + **Protect mature trees.** Large trees provide the greatest benefits, so protect them now and into the future! Develop and enforce a clearly defined plan for tree protection during construction and development efforts. The Urban Tree Foundation (UTF) provides many useful resources for cities in the form of tree protection, planting and care standards and specifications, all found online at urbantree.org.
- + **Consider replacing non-native trees.** A long-term tree canopy plan should include plans to replace non-native tree species. In particular, Bradford pears are over-represented in Paducah’s community tree canopy. This species is often selected for their shape and quick growth, but they are short-lived, their wood is weak, they are not resilient to windstorms, and they damage natural habitats and push out native species.
- + **Plant properly.** Properly plant young trees in appropriate locations (account for maximum height and ensure adequate rooting space) to avoid conflicts with wires, buildings, and pavement. Provide plenty of water for the first 3 years while new roots establish.



Source: UFI archives

BEYOND THE BASICS: WHAT CAN PADUCAH DO?

There are numerous ongoing efforts beyond this Landscape Scale Restoration project that promote community forestry in Paducah.

+ **Promote Tree Planting and Green Spaces:** Encourage community members to plant and care for trees on their properties. Organize tree planting initiatives in public spaces, parks, and along streets. Promote the benefits of green spaces and educate residents about the positive impacts of trees on the environment, health, and quality of life.

+ **Engage and Educate the Community:** Conduct workshops, seminars, and educational campaigns to raise awareness about urban and community forestry. Teach community members about proper tree care, the importance of biodiversity, and the role trees play in mitigating climate change and improving air quality.

- + **Establish Partnerships:** Collaborate with local government agencies, nonprofit organizations, and businesses to support urban forestry initiatives. Seek partnerships to secure funding, expertise, and resources for tree planting, maintenance, and education programs.
- + **Implement Tree Inventories and Monitoring:** Expand tree inventory to further assess the existing tree population in the community. Use the data to identify areas where tree planting is needed and to monitor the health and growth of existing trees. Regular monitoring helps identify issues such as pests, diseases, or hazardous trees that require attention.
- + **Implement Tree Protection Policies:** Advocate for tree protection ordinances and policies that regulate tree removal and encourage tree preservation during development projects. Encourage the enforcement of existing tree protection regulations and work towards strengthening them if needed.
- + **Foster Community Engagement:** Participate in Tree Week! Organize volunteer events, tree care workshops, and community tree planting days to engage residents actively. Encourage community ownership and involvement in urban forestry projects by establishing neighborhood tree stewardship programs or tree adoption programs.
- + **Support Professional Training and Certification:** Provide opportunities for individuals to receive training and certification in urban forestry and arboriculture. This helps ensure that there are skilled professionals available to guide and assist with tree planting, maintenance, and tree care practices within the community. Apply to be a part of the TreeCATs training program when the opportunity arises.
- + **Monitor and Evaluate Progress:** Regularly assess the effectiveness of urban and community forestry initiatives. Monitor the growth and health of trees planted, track community engagement, and evaluate the impact of urban forestry efforts on the environment and community well-being.

APPENDIX

METHODOLOGY

The following terms are commonly used to describe trees.

+ **Relative abundance (%)** is defined as the number of individuals of a species (or genus, or family) out of the total number of trees in a given area.

+ **Basal area** is a measure of the trunk area an individual tree occupies, which is strongly correlated with the canopy size. Basal area is calculated using: Basal area = $\pi \cdot r^2$ where r = radius (1/2 of tree DBH).

+ **Relative basal area** is the sum of the basal area of each tree of a given species divided by the total basal area of all trees in the area.

+ **Importance value** is an average of the relative basal area and relative abundance of each tree species. Here 'importance value' refers to the extent to which a tree species occupies a given land area, calculated from the proportion of individual trees (rel. abundance) and proportion of tree basal area (rel. basal area) of each tree species relative to the total.

+ **Diameter at breast height (DBH)** is a common measure of tree size and is defined as trunk diameter 4.5 feet above the ground. Many factors can affect tree size and growth, including species, age, site, soil, and land use history.



Paducah residents help measure trees at Paducah Housing Authority site, August 2022.
Source: UFI

Data Collection Tools: Arc Collector, Microsoft Excel, and i-Tree Eco©

Tree inventory data were collected using Arc Collector, a mobile field data collection application developed by Environmental Systems Research Institute (ESRI) using a tree inventory form developed by Nic Williamson (ISA Certified Arborist; former UFI Coordinator). Statistics on tree diversity, size and health were collected analyzed and graphs were created using Microsoft Excel. Information on tree ecosystem benefits was calculated using i-Tree Eco©, a peer-reviewed and freely available software.

Data Collection Process & Volunteer Training

UFI tree experts trained staff and volunteers to provide the knowledge and skills needed for accurate data collection, and a quality control process was implemented to ensure reliability and consistency. Trained supervisors and experienced arborists were present during data collection, actively overseeing data collection and providing real-time guidance and support. By incorporating volunteer training and implementing quality control measures the tree inventory data collection process benefited from a collaborative and systematic approach. Incorporating volunteer tree mappers fosters community engagement and participation and strengthens one's sense of place. Our quality control checks ensured production of reliable and high-quality data that will serve as a valuable resource for community planning, tree management, and decision-making processes.

In June 2021 the UFI team mapped and inventoried trees at Western Kentucky Community and Technical College (WKCTC), Dolly McNutt Plaza, Pat and Jim Brockenborough Rotary Health Park, Paducah School of Art and Design, Blackburn Park and Kolb Park. Elmwood Court and parts of the Pierce Lackey Village neighborhood were measured and mapped in November of 2021. In August 2022, the remaining Housing Authority of Paducah sites were mapped and inventoried, including Ella Munal, Blackburn, Dolly McNutt, Anderson Court, and remaining areas of Pierce Lackey. Individual trees within a designated area were identified, measured, and georeferenced.



Mapping Paducah trees, Summer 2021. Source UFI

SITE REPORTS

McCracken County Public Library & Dolly McNutt Memorial Plaza

Paducah, KY



Background

In June 2021, the University of Kentucky Urban Forest Initiative (UFI) team and Paducah volunteers mapped trees at the library and adjacent plaza. Here is a tree canopy summary of our findings. This effort was part of the UFI Landscape Scale Restoration project.

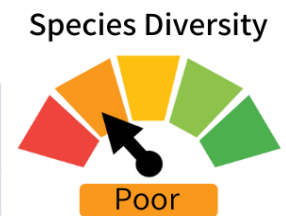
About the Trees

94 trees, 6 species

The biggest story at the library and plaza are the many large canopied willow oaks, accounting for 66 of the 94 trees mapped. With adequate root and canopy space for growth, these trees have matured and lend lots of social and environmental benefits. The canopy is healthy now, but the tree collection lacks species and size diversity. Planning the future canopy will continue to beautify and benefit these Paducah tree sites.

Trees (top 5) mapped at the Paducah library and plaza

Tree species	# of trees	% total
willow oak	66	70%
flowering dogwood	17	18%
white pine	4	4%
southern magnolia	2	2%
bald cypress	2	2%
other	3	3%
total	94	100%



Considerations

- Library and plaza trees are in **good health** and provide many **tree benefits** (e.g. cooling shade, aesthetics) in these important Paducah communal gathering spaces.
- Mostly defined by one species (willow oak), library and plaza trees have **poor species diversity**, lowering the resilience to host-specific pests. As replacement plantings occur they should focus on increasing diversity in this tree collection.
- Mature trees like the willow oaks are incredibly important players in urban forests, but they don't live forever. A variety of tree sizes within each species and across a collection of trees is important. Planting small trees is recommended to improve the **size diversity** of the library and plaza tree canopy structure for years to come.

Annual tree benefits ... and growing!

53,927

gallons of stormwater captured

2,046

ounces of pollution removed

3,956

pounds of carbon sequestered

\$1,262

annual monetary benefits

Housing Authority of Paducah, Kentucky

Ella Munal

Bridge Street



Background

Ella Munal is one of six sites owned by the Housing Authority of Paducah and is home to 133 1-4 bedroom units. This 21-acre site is also home to 154 mature trees made up of 25 different species. Ella Munal has trees that are mature, which suggests they could have been planted when the site was first developed. The Urban Forest Initiative (UFI) coordinated with local volunteers to measure and map Ella Munal's trees to develop an inventory and aid in management. While mapping, residents shared stories about the trees' histories and their appreciation for the shade they provide!



About the Trees 154 trees, 25 species

Health: The overall tree canopy health is fair. Many trees suffer mowing and pruning scars from improper maintenance.

Diversity: Sugarberry dominates the tree population at Ella Munal. As more tree plantings occur, introducing new species to the canopy raises the resilience to host-specific pests.

Age: Although there are many mature trees on site, planting young trees is recommended for a variety of tree sizes within each species and to improve the overall size diversity of the tree canopy.

Overall health



Species Diversity



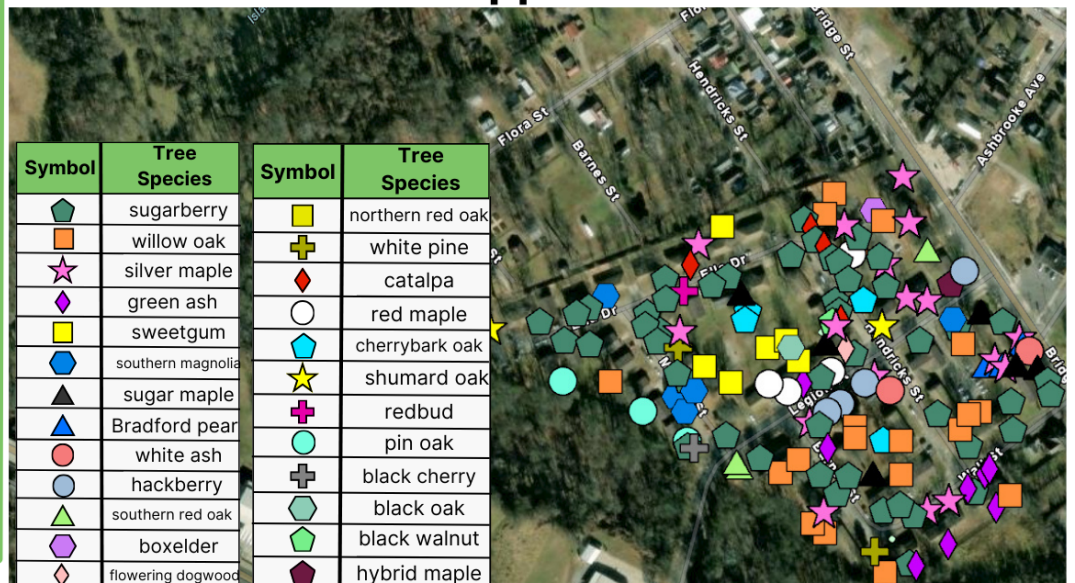
Size Diversity



Top 5 trees at Ella Munal

Tree species	# of trees	% total
sugarberry (<i>Celtis laevigata</i>)	51	33%
willow oak (<i>Quercus phellos</i>)	19	12%
silver maple (<i>Acer saccharinum</i>)	17	11%
green ash (<i>Fraxinus pennsylvanica</i>)	9	6%
sweetgum (<i>Liquidambar styraciflua</i>)	6	4%
other	52	34%
total	154	100%

Trees of Ella Munal Mapped



Housing Authority of Paducah, Kentucky

Pierce Lackey

S. 28th Street



Background

Pierce Lackey is one of six sites owned by the Housing Authority of Paducah and is home to 169 studio and 1-2 bedroom units. This 17-acre site is also home to 114 mature trees made up of 28 different species. Pierce Lackey has many trees that are mature, which suggests they could have been planted when the site was first developed. The Urban Forest Initiative (UFI) coordinated with local volunteers to measure and map Pierce Lackey's trees to develop an inventory and aid in management. While mapping, residents shared stories about the trees' histories and their appreciation for the shade they provide!



About the Trees **114** trees, **28** species

Health: Although the tree canopy was in good health overall, trees needed maintenance like pruning and mulching.

Diversity: Maples and oaks dominate the tree population at Pierce Lackey. As more tree plantings occur, introducing new species to the canopy raises the resilience to host-specific pests.

Age: Although there are mature trees on site, planting young trees is recommended for a variety of tree sizes within each species and to improve the overall size diversity of the tree canopy.



Top 5 trees at Pierce Lackey

Tree species	# of trees	% total
red maple (<i>Acer rubrum</i>)	26	23%
silver maple (<i>Acer saccharinum</i>)	20	18%
willow oak (<i>Quercus phellos</i>)	16	14%
cherrybark oak (<i>Quercus pagoda</i>)	5	4%
eastern red cedar (<i>Juniperus virginiana</i>)	4	4%
other	43	37%
total	114	100%

Trees of Pierce Lackey Mapped

Symbol	Tree Species	Symbol	Tree Species
○	red maple	▲	callery pear
☆	silver maple	+	eastern redbud
□	willow oak	△	ginkgo
⬠	cherrybark oak	⬡	sweet chestnut
⬢	eastern red cedar	●	post oak
●	hawthorn	⊕	white pine
▲	sugar maple	◊	blue ash
⬠	southern magnolia	■	sweetgum
⬢	Japanese zelkova	⬢	American holly
●	pin oak	⊕	black cherry
★	red mulberry	◇	green ash
◆	scarlet oak	○	bigtooth aspen
⬢	boxelder	◇	princess tree
■	northern red oak	★	Shumard oak

Housing Authority of Paducah, Kentucky

Elmwood Court

Ohio Street



Background

Elmwood Court is one of six sites owned by the Housing Authority of Paducah and is home to 259 1-4 bedroom units. This 24-acre site is also home to 64 mature trees made up of 13 different species. Many of Elmwood Court's trees are mature, which suggests they could have been planted when the site was first developed. The Urban Forest Initiative (UFI) coordinated with local volunteers to measure and map Elmwood Court's trees to develop an inventory and aid in management. While mapping, residents shared stories about the trees' histories and their appreciation for the shade they provide!



About the Trees

64 trees, **13** species

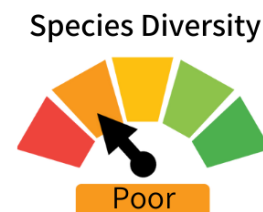
Health: The overall tree canopy health is good, but some trees showed mowing scars or need routine maintenance such as pruning and mulching.

Diversity: Oaks dominate the tree canopy at Elmwood Court. A lack of diversity within the tree canopy lowers the resilience to host-specific pests. As replacement plantings occur, other species should be considered.

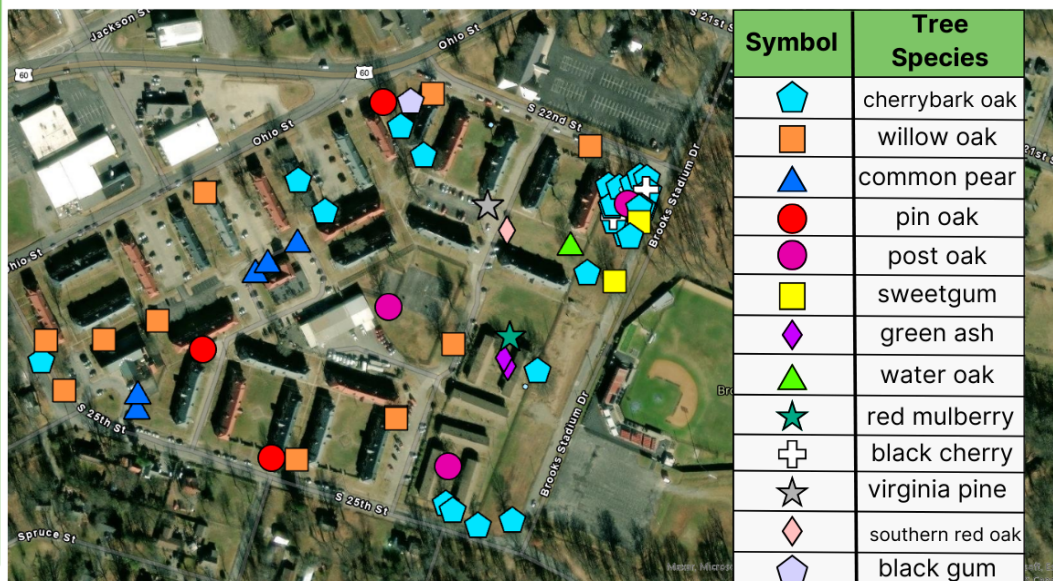
Age: Although there are many mature trees on site, planting young trees is recommended for a variety of tree sizes within each species and to improve the overall size diversity of the tree canopy.

Top 5 trees at Elmwood Court

Tree species	# of trees	% total
cherrybark oak (<i>Quercus pagoda</i>)	27	42%
willow oak (<i>Quercus phellos</i>)	11	17%
common pear (<i>Pyrus communis</i>)	5	8%
pin oak (<i>Quercus palustris</i>)	3	5%
post oak (<i>Quercus stellata</i>)	3	5%
other	15	23%
total	64	100%



Trees of Elmwood Court Mapped



Housing Authority of Paducah, Kentucky Blackburn Walter Jetton Drive



Background

Blackburn is one of six sites owned by the Housing Authority of Paducah and is home to 77 1-5 bedroom units. This 9-acre site is also home to 48 mature trees made up of 13 different species. Most of Blackburn's trees are approximately 60 years old, which suggests they were planted when the site was first developed. The Urban Forest Initiative (UFI) coordinated with local volunteers to measure and map Blackburn's trees to develop an inventory and aid in management. While mapping, residents shared stories about the trees' histories and their appreciation for the shade they provide!



About the Trees

48 trees, **13** species

Health: The overall tree canopy health is fair. Many trees suffer mowing and pruning scars from improper maintenance.

Diversity: Tree diversity is high at Blackburn. As more tree plantings occur, introducing new species to the canopy raises the resilience to host-specific pests.

Age: Although there are many mature trees on site, planting young trees is recommended for a variety of tree sizes within each species and to improve the overall size diversity of the tree canopy.

Overall health



Species Diversity



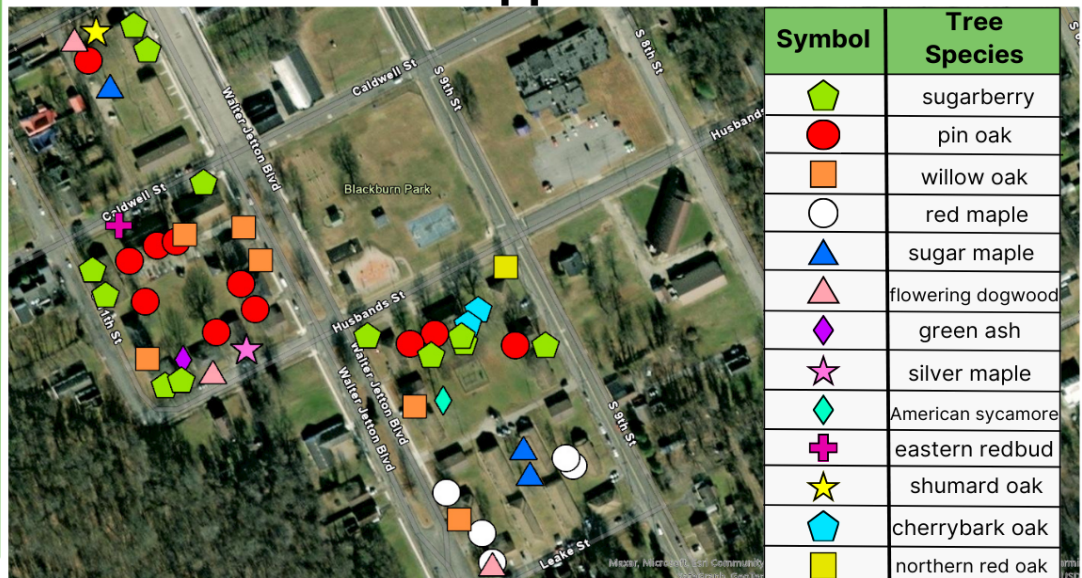
Size Diversity



Top 5 trees at Blackburn

Tree species	# of trees	% total
sugarberry (<i>Celtis laevigata</i>)	12	25%
pin oak (<i>Quercus palustris</i>)	11	23%
willow oak (<i>Quercus phellos</i>)	7	15%
red maple (<i>Acer rubrum</i>)	5	10%
sugar maple (<i>Acer saccharum</i>)	4	8%
other	9	19%
total	48	100%

Trees of Blackburn Mapped



Housing Authority of Paducah, Kentucky

Dolly McNutt

Bridge Court



Background

Dolly McNutt is one of six sites owned by the Housing Authority of Paducah and is home to 52 1-3 bedroom units. This 6-acre site is also home to 33 mature trees made up of 12 different species. Dolly McNutt has many trees that are mature, which suggests they could have been planted when the site was first developed. The Urban Forest Initiative (UFI) coordinated with local volunteers to measure and map Dolly McNutt's trees to develop an inventory and aid in management. While mapping, residents shared stories about the trees' histories and their appreciation for the shade they provide!



About the Trees

33 trees, **12** species

Health: The overall tree canopy health is fair. Many of the trees need maintenance such as pruning, mulching, and invasive species removal.

Diversity: Tree diversity is high at Dolly McNutt. As more tree plantings occur, introducing new species to the canopy raises the resilience to host-specific pests.

Age: Planting more trees, especially young ones, is recommended for a variety of tree sizes within each species and to improve the overall size and diversity of the tree canopy.

Overall health



Species Diversity



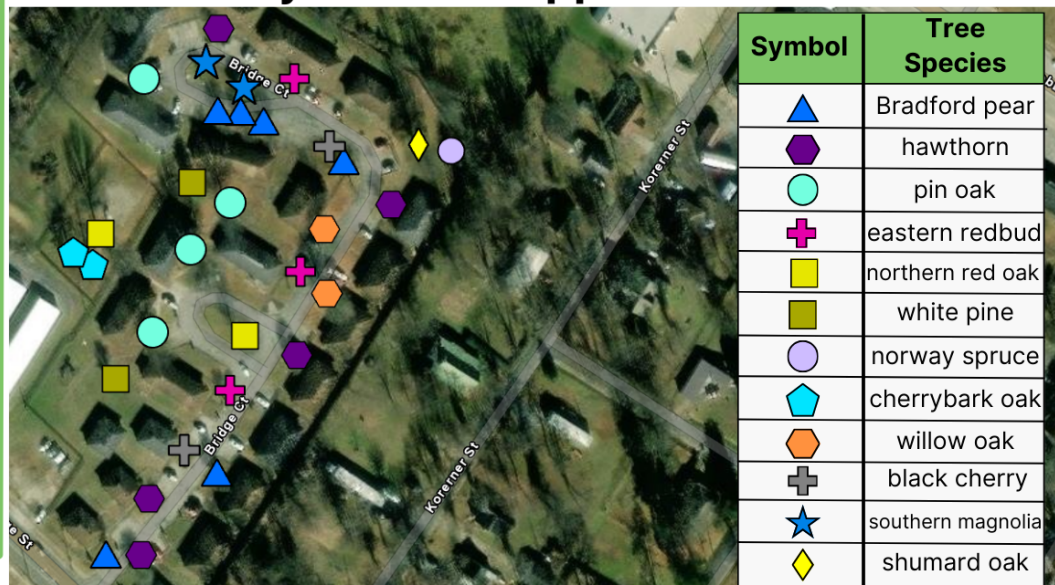
Size Diversity



Top 5 trees at Dolly McNutt

Tree species	# of trees	% total
Bradford pear (<i>Pyrus calleryana</i>)	6	18%
hawthorn (<i>Crataegus sp.</i>)	6	18%
pin oak (<i>Quercus palustris</i>)	4	12%
eastern redbud (<i>Cercis canadensis</i>)	3	9%
northern red oak (<i>Quercus rubra</i>)	2	6%
other	12	37%
total	33	100%

Trees of Dolly McNutt Mapped



Housing Authority of Paducah, Kentucky

Anderson Court

North 8th Street



Background

Anderson Court is one of six sites owned by the Housing Authority of Paducah and is home to 100 1-4 bedroom units. This 8-acre site is also home to 15 mature trees made up of 7 different species. Anderson Court has trees that are mature, which suggests they could have been planted when the site was first developed. The Urban Forest Initiative (UFI) coordinated with local volunteers to measure and map Anderson Court's trees to develop an inventory and aid in management. While mapping, residents shared stories about the trees' histories and their appreciation for the shade they provide!



About the Trees

Health: Although the tree canopy was in good health overall, a few trees needed maintenance such as pruning, mulching, and invasive species removal.

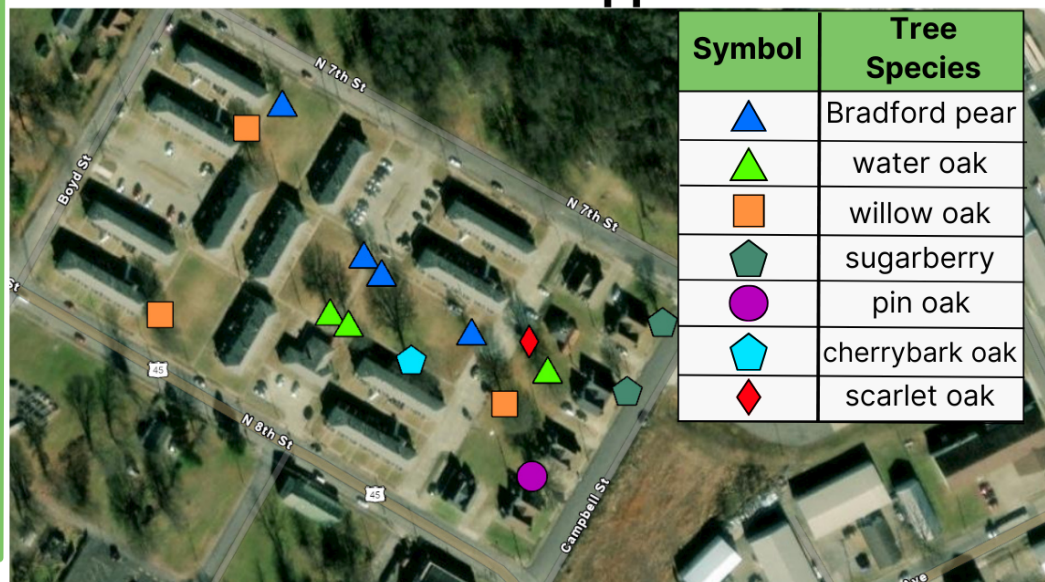
Diversity: There is a fair amount of diversity of the few trees at Anderson Court. As more tree plantings occur, introducing new species to the canopy raises the resilience to host-specific pests.

Age: Planting more trees, especially young ones, is recommended for a variety of tree sizes within each species and to improve the overall size and diversity of the tree canopy.

Top 5 trees at Anderson Court

Tree species	# of trees	% total
Bradford pear (<i>Pyrus communis</i>)	4	27%
water oak (<i>Quercus nigra</i>)	3	20%
willow oak (<i>Quercus phellos</i>)	3	20%
sugarberry (<i>Celtis laevigata</i>)	2	13%
pin oak (<i>Quercus palustris</i>)	1	7%
other	2	13%
total	15	100%

Trees of Anderson Court Mapped



15 trees,

7 species

Overall health



Species Diversity



Size Diversity



RESOURCES + CITATIONS

ADDITIONAL RESOURCES

Ecological regions of Kentucky: <https://www.uky.edu/hort/?q=Ecological-Regions-of-Kentucky>

Tree Identification resources: [https://forestry.ca.uky.edu/tree_id\](https://forestry.ca.uky.edu/tree_id/)

Urban Tree Foundation: <http://www.urbantree.org/index.shtml>

Trees are good, tree owner information: <https://www.treesaregood.org/treeowner>

Green Cities, Good Health: <http://depts.washington.edu/hhwb/>

Vibrant Cities Lab: <https://www.vibrantcitieslab.com/>

Tree Equity Score: <https://treeequityscore.org/>

CITATIONS

i-Tree Eco© (n.d.). i-Tree Software Suite v6. Web accessed 11 November. 2019. <http://www.itreetools.org>

McKinney (2008). Effects of urbanization on species richness: A review of plants and animals. *Urban Ecosystems*, 11(2), 161–176. <https://doi.org/10.1007/s11252-007-0045-4>

Richards, Norman A (1983). “Diversity and stability in a street tree population.” *Urban Ecology* 7.2: 159-171.

Santamour, F (1990). “Trees for urban planting: diversity, uniformity, and common sense in 7th Conference of the Metropolitan Tree Improvement Alliance.” The Morton Arboretum, Lisle.

PROJECT TEAM

The LSR Team includes UFI co-leads Lynn Phillips, Ph.D., A.I.C.P., Associate Professor of Geography, Lynne Rieske-Kinney, Ph.D., Professor of Forest Entomology, Ignazio Graziosi, Ph.D., UFI Coordinator, and Carly Cecil UFI Outreach Coordinator. The broader LSR team includes Mary Arthur, Ph.D., emeritus professor of Forestry, Ned Crankshaw, Ph.D., Professor of Landscape Architecture and Dean of the College of Design, Ellen Crocker, Ph.D., Assistant Professor of Forestry Extension, Jonathon Larson, Ph.D., Assistant Professor of Entomology Extension, Mr. Rob Paratley (Adjunct Instructor of Forestry), Chris Sass, Ph.D., Associate Professor of Landscape Architecture, Jeff Stringer, Ph.D., Professor of Forestry Extension, Mr. Shane Tedder (UK Facilities Sustainability Coordinator), Nic Williamson (Facilities, former UFI Coordinator and Forestry Extension), Grace Coy, Shelby Grow, and Allison Eades. This project could not have been completed without UFI interns Felix Lowery, James Worthington, Clare Rose, and Charles Petty, and numerous citizens of the greater Paducah area.

ABOUT THE URBAN FOREST INITIATIVE

The Urban Forest Initiative (UFI) at the University of Kentucky works to improve understanding and appreciation of the role of trees in and near human communities. UFI focuses on tree inventory work on community trees, linking those trees to the ecosystem benefits they provide while addressing areas for improvement in the diversity and distribution of trees among species, age, and size. UFI also contributes to the greater collaborative network of community forestry professionals and advocates across the state to promote sharing knowledge and best practices of trees canopy stewardship in and beyond Kentucky.

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