

# NATIONAL BASELINE ASSESSMENT

OF URBAN AND COMMUNITY FORESTS

MARCH | 2026





# National Baseline Assessment of Urban and Community Forests



As nature's largest and longest-lived creations, trees play an extraordinarily important role in our cities; they are living landmarks that define space, cool the air, soothe our psyches, and connect us to nature and our past.



**Jill Jonnes, *Urban Forests: A Natural History of Trees and People in the American Cityscape***

## **Acknowledgments**

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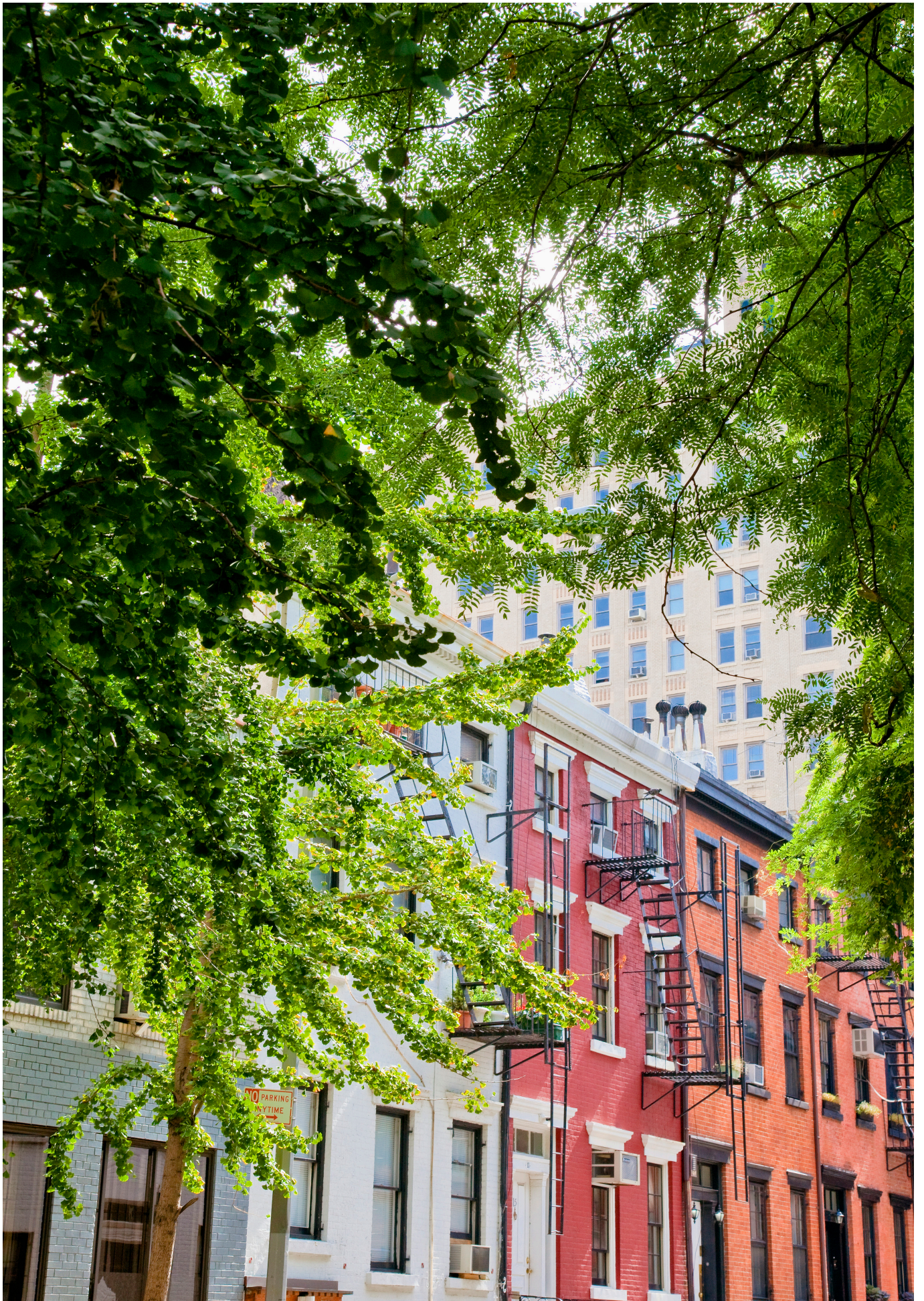


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# Executive --- Summary

## Introduction & Objectives

Above the hustle and bustle of our cities, the trees of our urban and community forests stand tall. Urban forests encompass a diverse range of green spaces, including tree-lined streets, schoolyards, parks, backyards, and other areas. These urban forests, also known as community forests, act as the lungs of our towns, inhaling carbon dioxide and producing oxygen that sustains our planet. Urban and community forests are vital infrastructure that protect cities from storms, mitigate extreme heat, and enhance public health. Despite their importance, a high-resolution, freely accessible national baseline of urban and community forests has never existed.

To address this gap, the Forest Service Urban and Community Forestry Program partnered with the Arbor Day Foundation and PlanIT Geo to develop a comprehensive national assessment of urban and community forests. This open access dataset helps track urban and community forestry work and address differences in canopy coverage across the country. Communities can use these data to:

- ▶ Identify areas that are more exposed to extreme heat and weather events
- ▶ Locate places where new trees can reduce noise, improve air quality, and support local economic activity
- ▶ Support data driven decision making for federal and state funding

## Project Methodology

This project established a national tree canopy baseline across all 50 states, Washington, D.C., U.S. territories, and affiliated islands. The assessment examined land cover in U.S. Census-designated urban areas and in smaller incorporated and unincorporated communities with populations as low as 1,000, which together represent where most U.S. residents live.

Tree canopy, also referred to as urban tree canopy (UTC), is the area of ground covered by the leafy tops of trees as viewed from above. Canopy data were derived from aerial imagery using advanced machine learning and image classification techniques to identify and map tree cover across the landscape. Classified imagery was then summarized into standardized metrics including total canopy area, percent coverage, and change over time to support comparison across municipalities and geographies.

Imagery from 2021-2023 and 2015-2018 were used to provide a current snapshot and to document how canopy has changed over time. The analysis calculated both net change and relative change between the two time periods. It also excluded regions with limited historical data and was validated across 210 communities to ensure that mapped canopy closely reflects real-world tree cover. *Values in this assessment may differ from state and local studies; see [Appendix A](#) for details.*



Figure 1. Aerial imagery of downtown Lexington, Kentucky (left), the derived land cover classification raster (center), and percent canopy cover summarized by census block groups (right).



Map-ready national tree canopy data are available through [TREECANOPY.US](#) and [TREES AT WORK](#), giving communities easy, free tools to visualize their local urban forest and integrate canopy insights into everyday planning and decision making.

## Project Deliverables

[TREECANOPY.US](#) is a free, interactive web mapping application that provides access to tree canopy data and analysis tools (Figure 2). The application is available in English and Spanish and includes an online tutorial to help users navigate its features. Users can explore neighborhood-level data on tree canopy and land cover, with statistics summarized by assessment boundaries as large as urban areas and as fine-grained as census block groups. This tool integrates high-resolution satellite imagery, census data, and heat data to support local analysis and planning decisions.

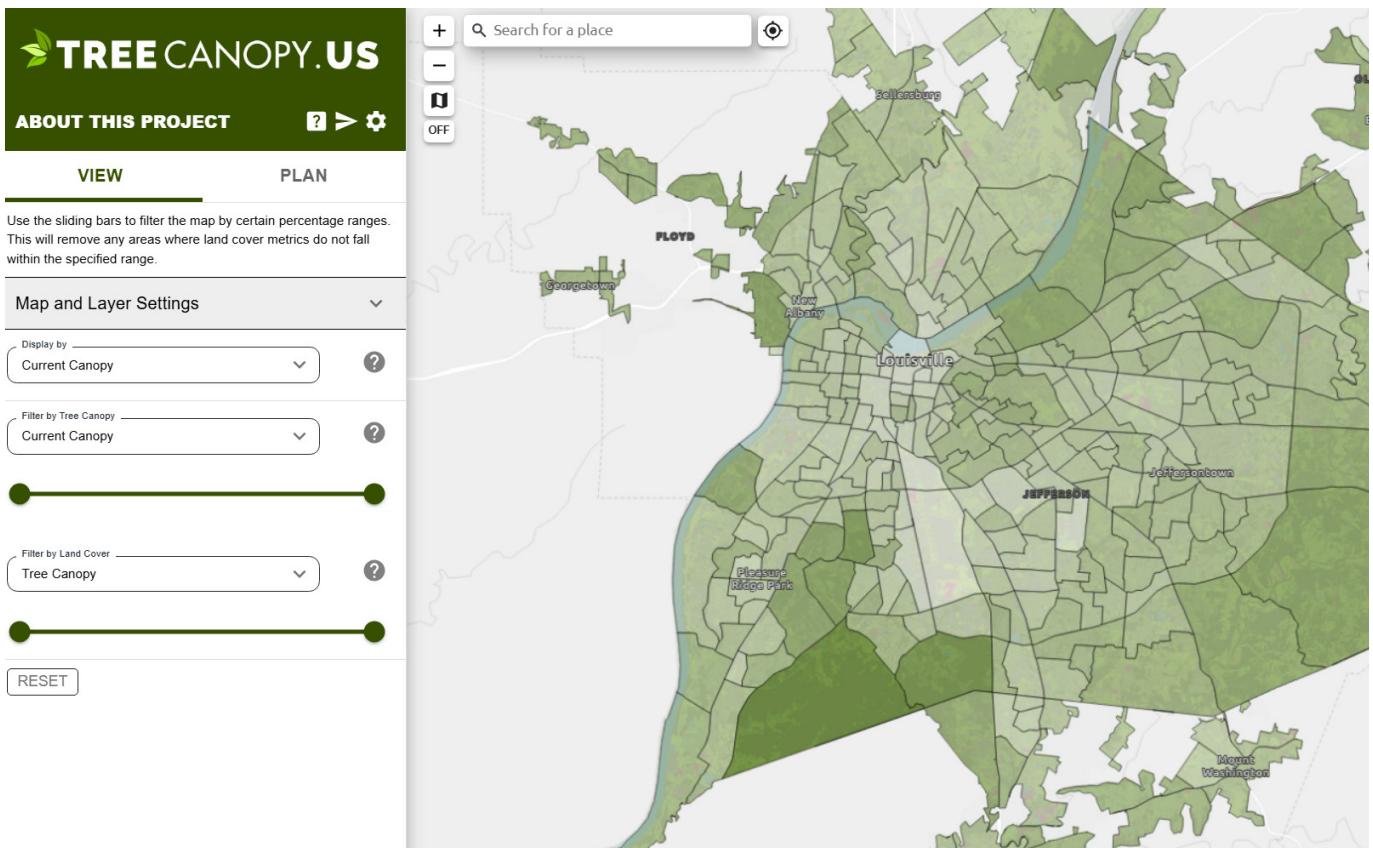


Figure 2. Screenshot from the National Canopy Application showing tree canopy by census block groups near Louisville, Kentucky.

The Trees at Work (TAW) online portal serves as the central hub for all project deliverables (Figure 3). Available at [HUB.TREESATWORK.ORG](https://HUB.TREESATWORK.ORG), TAW provides public access to detailed information about community forests across the United States, including downloadable reports and tools to help communities understand and manage their urban forest resources.

The vector data summarized in this report are available as ArcGIS Online feature layers that users can download and aggregate at the geographic scales most relevant to their needs. The underlying raster data are accessible as a hosted web map service. Additional resources, including the Accomplishment Dashboard, document the on-the-ground impact of Forest Service-funded urban and community forestry projects. For instructions on how to download and use the source data directly, refer to the user guide in [Appendix C](#).

**TREES AT WORK**

Arbor Day Foundation | PlanITGeo | UAS

Overview | Tree Canopy App ↗ | Accomplishment Dashboard ↗ | Awardee Resources | Data Gallery | Contact Us

# GROWING STRONGER COMMUNITIES THROUGH FORESTRY

Discover how USDA Forest Service funding is transforming community forestry and access to trees and green spaces. Explore the impact these projects are having through mapping, data, reports, and more.

## ASSESSMENT SUMMARY DATASETS

Explore urban tree canopy and land cover data summarized at several administrative levels.

[VIEW DATA](#)

## TREE CANOPY AND LAND COVER SERVICES

Access the raw raster datasets for visualization, delivered via web mapping services.

[REQUEST ACCESS](#)

Figure 3. Screenshot from the Trees at Work hub where users can access canopy tools and download source data.

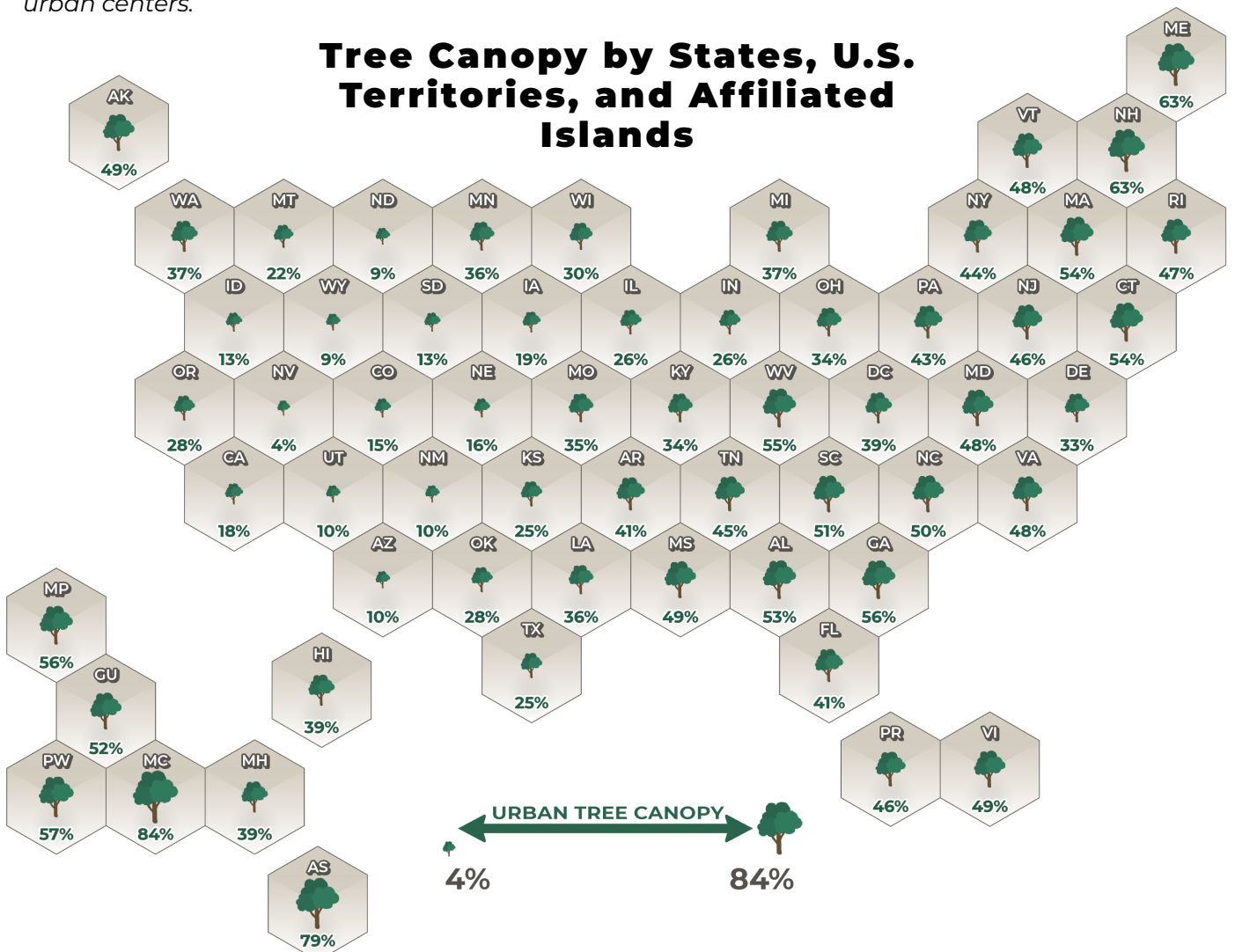
# Key Findings

## Nationwide Canopy

The results in this section pertain specifically to Census-designated areas, not to the entire state.<sup>1</sup> The assessment covers 114 million acres of land and water. After excluding surface water, the analysis focuses on approximately 110 million acres of land.

Within this footprint, tree canopy spans more than 38.5 million acres, representing 35% of the total land cover, an area roughly 17 times the size of Yellowstone National Park. Figure 4 displays a cartogram of the entire country with each state labeled and its canopy percentage included, illustrating the variability in coverage.

<sup>1</sup> In this report, “Census-designated areas” refers to Census-defined communities down to populations of approximately 1,000, including many small and rural places where residents live outside major urban centers.



Beyond trees, our community landscapes consist largely of herbaceous vegetation, which covers 37% of the area, and shrubs, which cover 2%, as shown in Figure 5. These vegetated areas offer key opportunities for future tree planting. In contrast, impervious surfaces such as roads and buildings cover about 23 million acres, or 20% of the land area, and contribute to trapped heat and increased stormwater runoff.

### Nationwide Land Cover Distribution

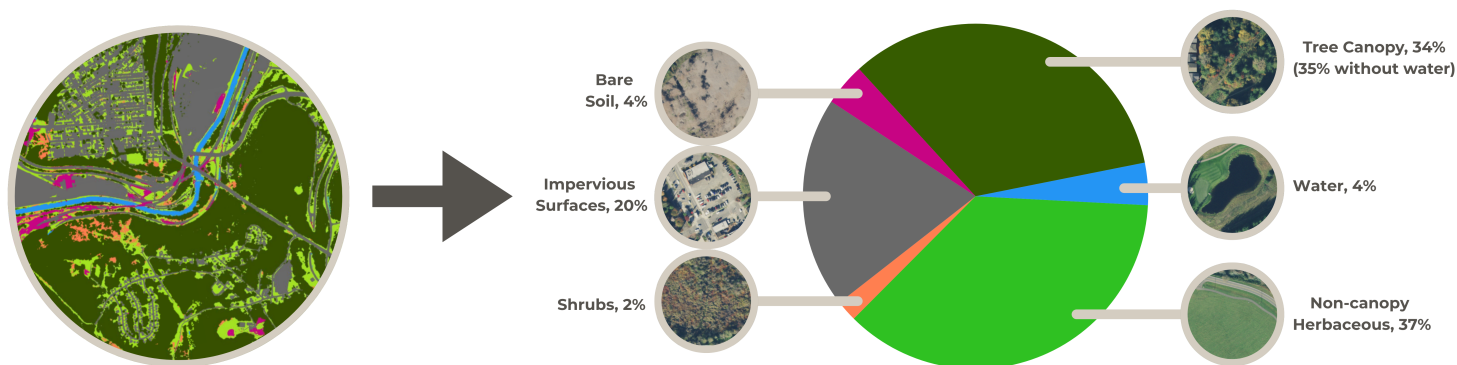


Figure 5. Distribution of land cover types throughout the national study area. Land cover types include tree canopy, non-canopy herbaceous vegetation, shrubs, impervious surfaces, water, and bare soil.



Community planting of the Rouge Park Cherry Orchard. The project created a public cherry orchard in Detroit, offering residents access to harvest and learn about the value of edible food forests in city parks. Photo provided by Friends of Rouge Park.

## Nationwide Canopy Change

By analyzing multi-year high-resolution imagery, the assessment identifies national canopy trends (Figure 6). Historical data (2015-2018) established a baseline of 35.9 million acres, with current data revealing a gain of 724,472 acres—a 0.7% net and 2.0% relative increase. Note that change analysis excludes regions limited to single-year data, specifically Alaska, Hawaii, and U.S. territories and affiliated islands.

To put this canopy gain into perspective, the acres gained over the study period are roughly equivalent to:

- ▶ 548,842 football fields
- ▶ Five times the size of Chicago
- ▶ The size of Rhode Island

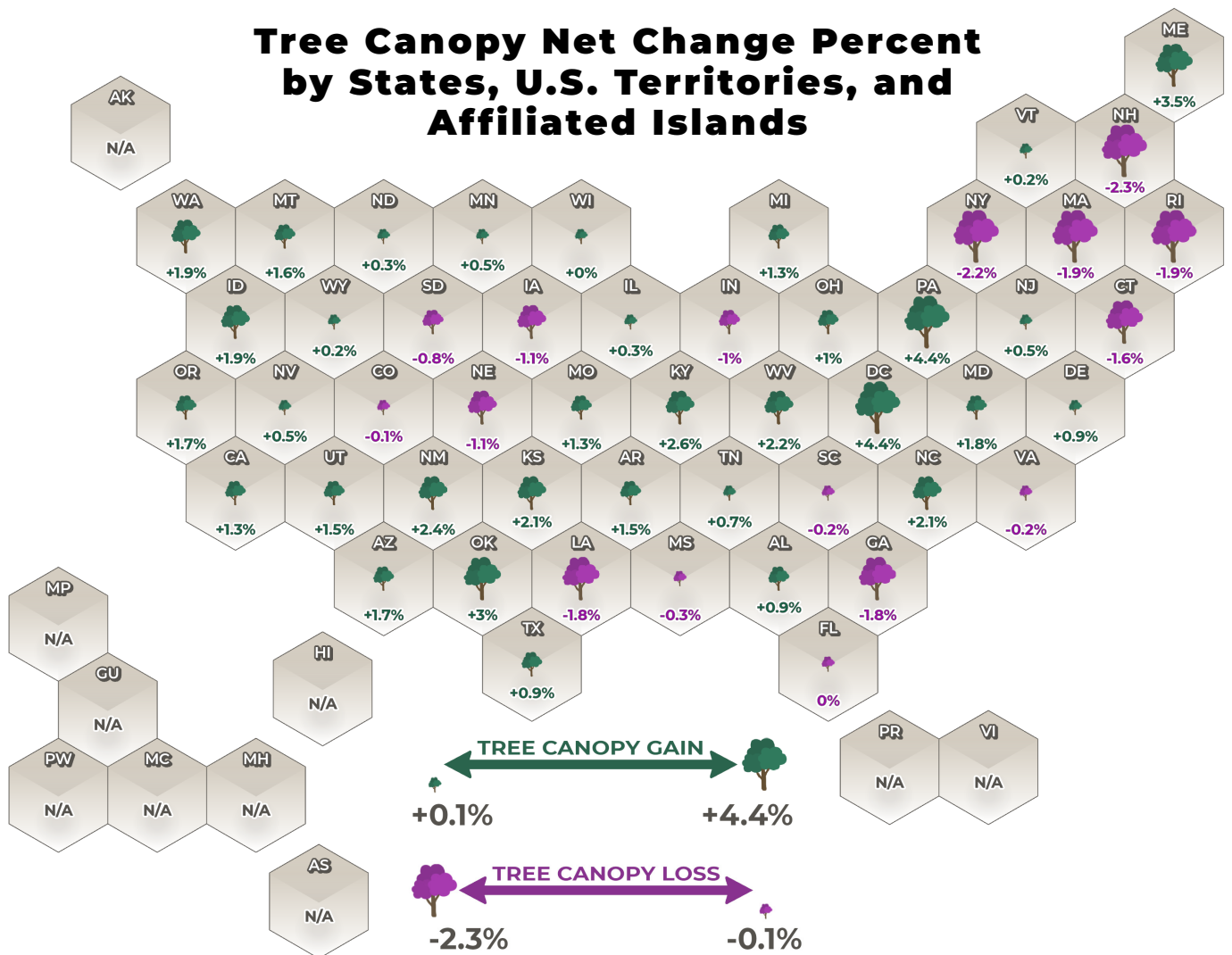


Figure 6. Tree canopy change across states, territories, and affiliated islands. Icon size reflects magnitude; color indicates direction of change (green for increase, purple for decrease). Alaska, territories, and islands were excluded from the change analysis due to a lack of available imagery.

## Forces Shaping Canopy Change

Many different forces drive canopy change, and they affect community forests in different ways depending on region, policies, and community size. Tree canopy coverage varies widely with climate, land use, and geography, which highlights the need for strategies tailored to each region.



Community trees must be resilient to constant pressure from invasive species, natural disasters, encroaching development, and poor tree management practices. Wildfires are a particularly volatile threat; several million acres of existing canopy can be lost in an instant in the western U.S. during wildfire season (Figure 7). Natural aging and mortality also continually shape the urban forest landscape.



These dynamics underscore the need for active forest management. When management is informed and proactive, community forests are better able to deliver ecological, economic, and social benefits and to withstand the threats they face.

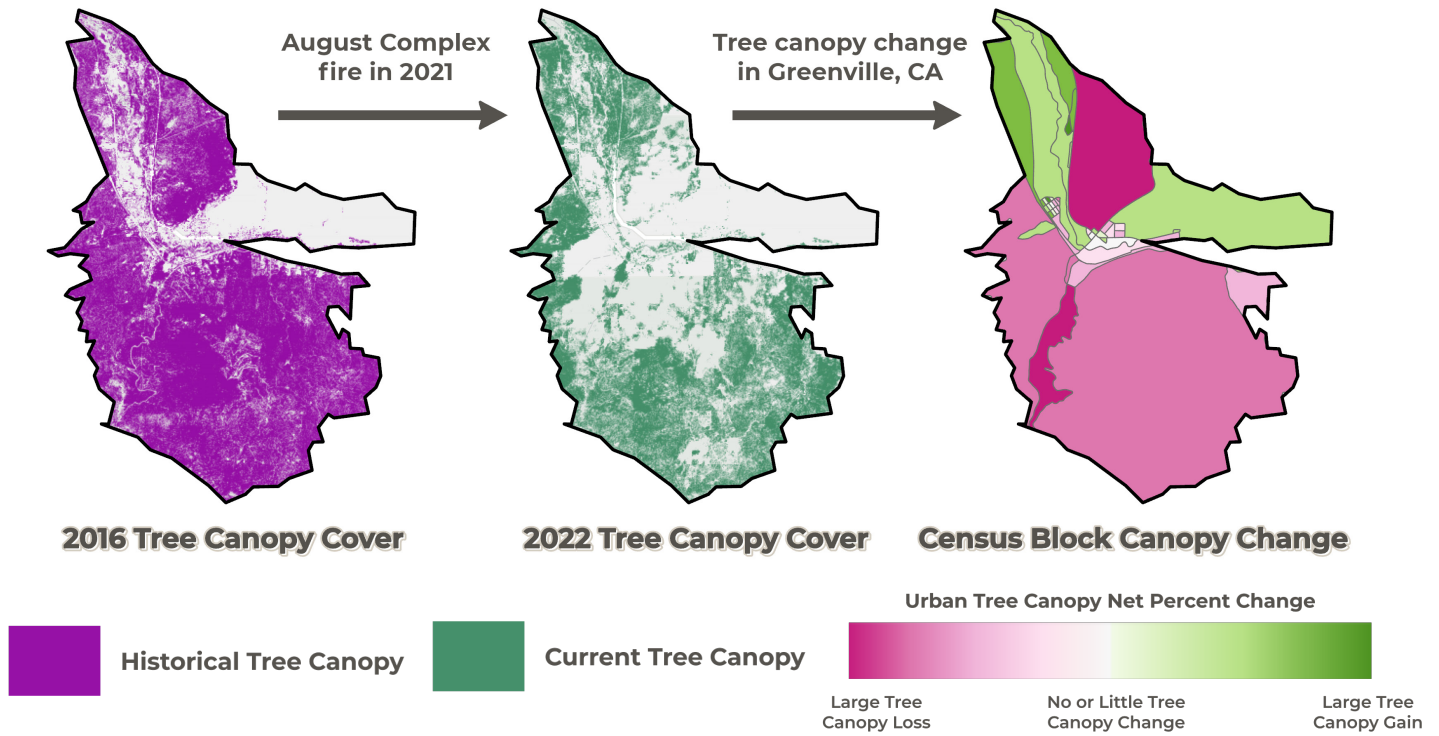


As the landscape changes, data collection and analysis must keep pace. Repeating these assessments over time is crucial for tracking trends, investing resources efficiently, and ensuring that local green spaces continue to thrive.



As you will see on the following pages, community forests can thrive despite challenges. The most prevalent causes of canopy growth observed in aerial imagery are the expansion of existing trees (tree crowns) and natural regeneration through seed dispersal, which can lead to new trees growing in open spaces between existing trees or in unmanaged areas. Proactive tree-planting and maintenance initiatives consciously contribute to the growth of community canopy cover.

### Wildfire Impacts on Urban Tree Canopy: Greenville, CA



### Severe Weather Impacts on Urban Tree Canopy: Cedar Rapids, IA

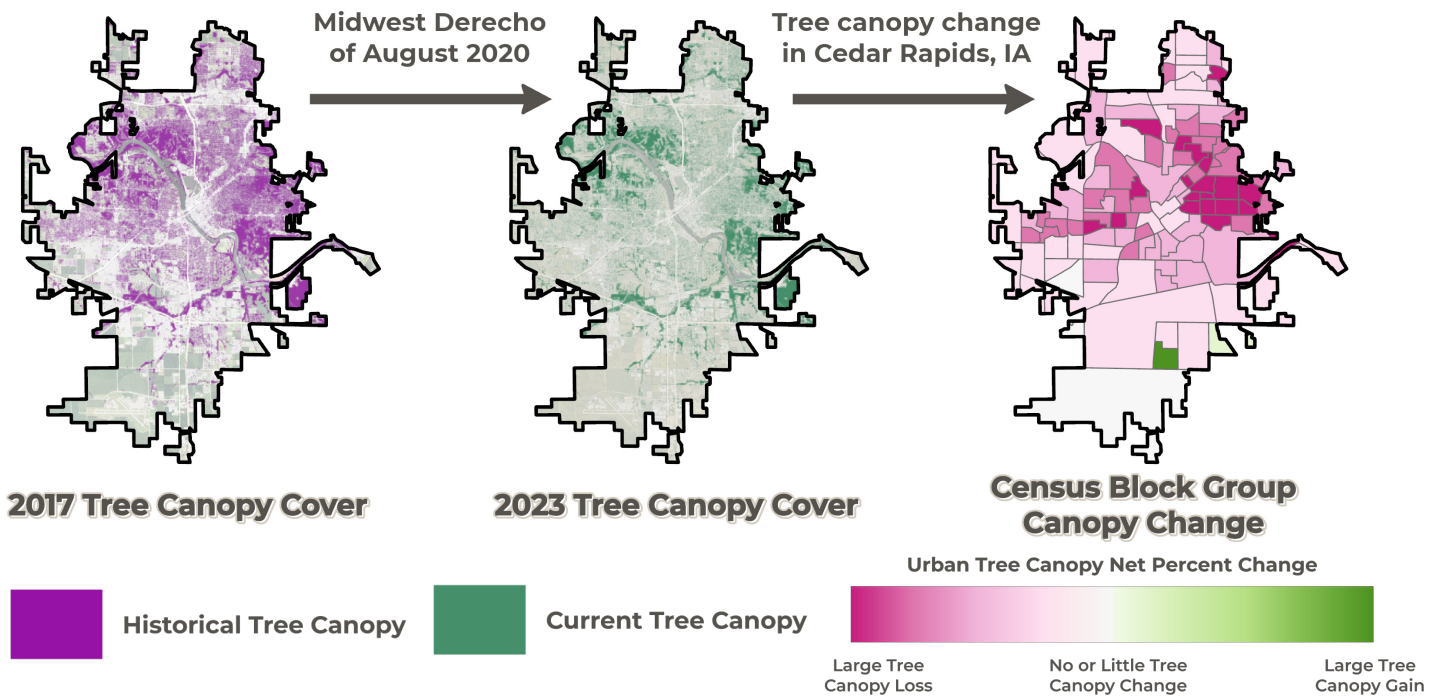


Figure 7. Tree canopy change in Greenville, California, is shown down to census blocks (top), and in Cedar Rapids, Iowa, down to census block groups (bottom).

## Multi-State Canopy Trends

Aggregating regional canopy metrics enables a wide view of conditions across communities with similar ecology, forest patterns, and species. By reviewing data at the regional level, similarities in ecology and approaches to program delivery become clearer, offering practical pathways for collaboration.

In this chapter, state-level data are combined into three overarching regions that share similar climates, vegetation types, and administrative structures (Figure 8). Community forests in these regions often face similar challenges and can benefit from shared resources and coordinated planning.

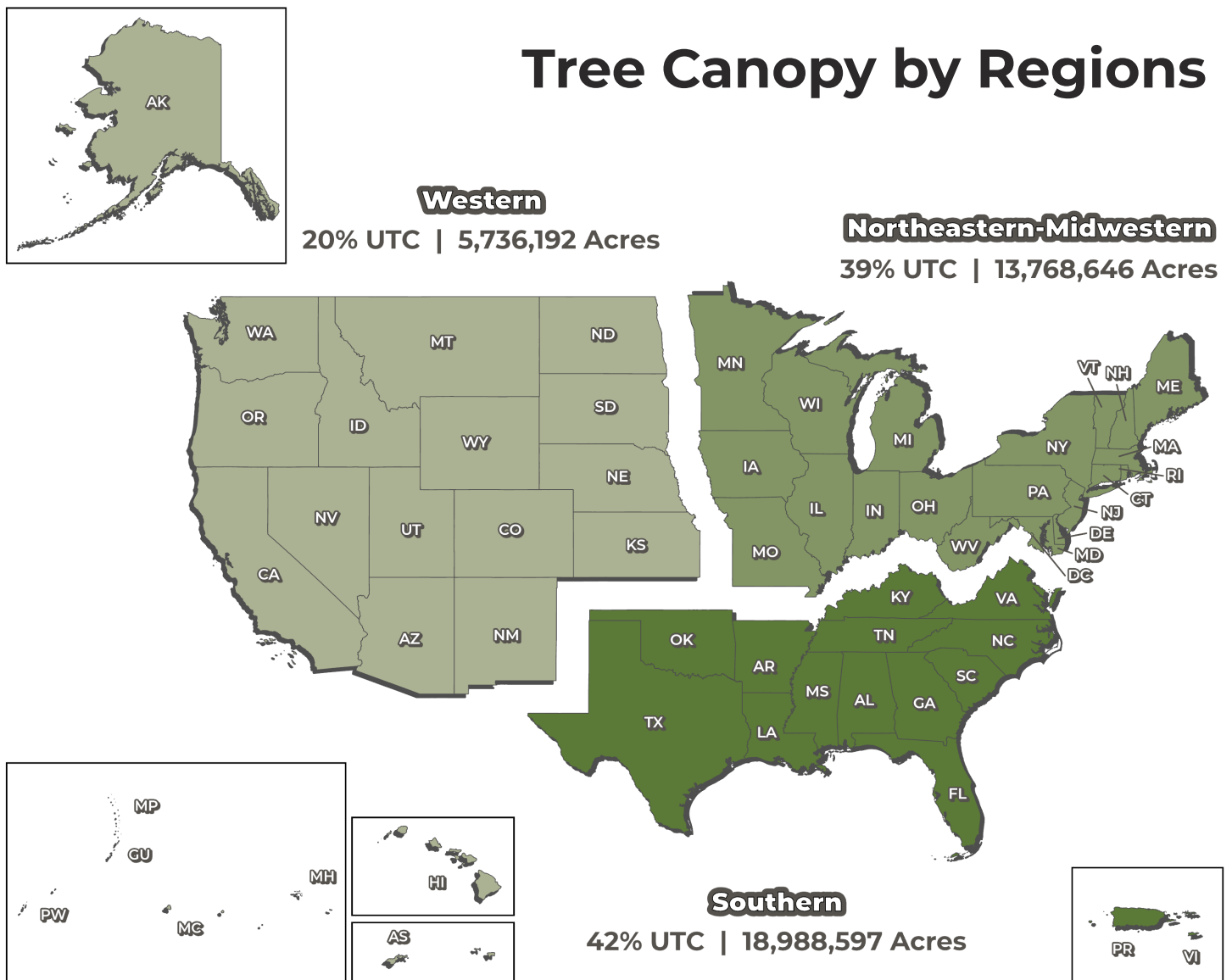
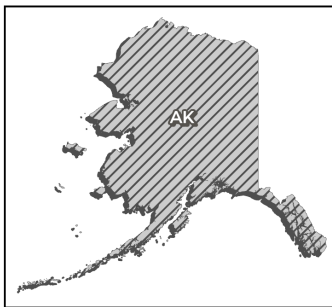


Figure 8. This map illustrates urban tree canopy coverage, categorized by the three primary state forestry regions used in this report. States, territories, and affiliated islands are labeled with their two-letter abbreviations and colored the same within regions.

Urban forestry programs frequently work across state lines when regional priorities align. Neighboring states may share training workshops for arborists or combine grant funding to launch multi-city tree-planting efforts across a shared watershed. These cross-border partnerships help small communities access expertise and tools they could not otherwise develop on their own. Understanding these regional trends provides the foundation necessary to scale local cooperation into national impact. Figure 9 shows the tree canopy cover acreage and percentage point change among the three regions.

# Tree Canopy Change by Regions

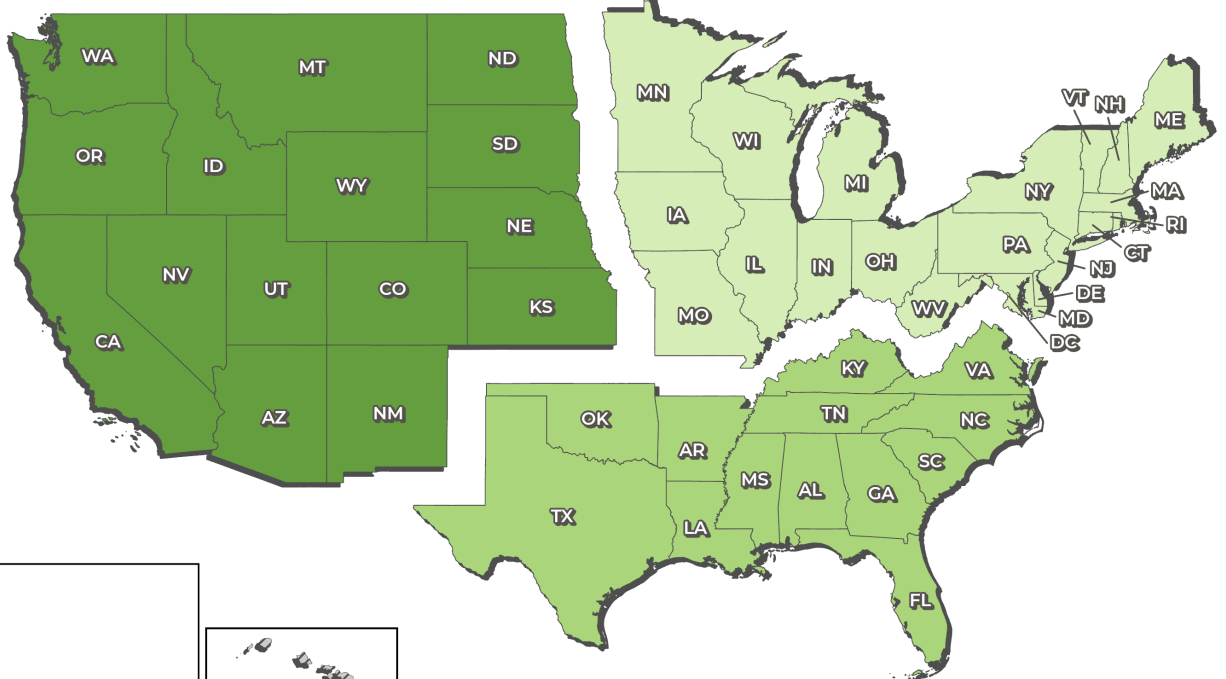


## Western

+1.32% UTC | +347,890 Acres

## Northeastern-Midwestern

+0.46% Change | +161,885 Acres



## Southern

+0.48% Change | +214,697 Acres

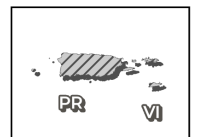
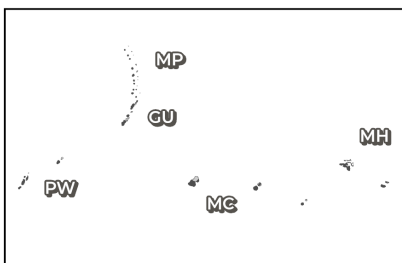


Figure 9. This map illustrates the change in urban tree canopy coverage, categorized by the three regions used in this report. States, territories, and affiliated islands are labeled with their two-letter abbreviations. Alaska, Hawaii, and the U.S. affiliated islands were excluded from the change analysis due to a lack of available imagery.



Community kickoff event hosted by Nature Niños in Albuquerque’s South Valley. The event distributed 42 trees and tree vouchers with bilingual care kits and brought together over 28 community partners for youth activities, local resources, and the launch of an urban forestry and youth empowerment project.



## Northeastern-Midwestern Region

Twenty states from New England, the Mid-Atlantic, and the Midwest, together with the District of Columbia, share a temperate climate and common goals in forest management, conservation, and land protection (Figure 10). Forests in this region span a diverse mix of urban, suburban, and rural areas, from the Great Lakes to the Atlantic coast. States and districts in this region include **Connecticut, Delaware, the District of Columbia, Illinois, Indiana, Iowa, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, West Virginia, and Wisconsin.**

### Urban Tree Canopy in Northeastern-Midwestern Census Places

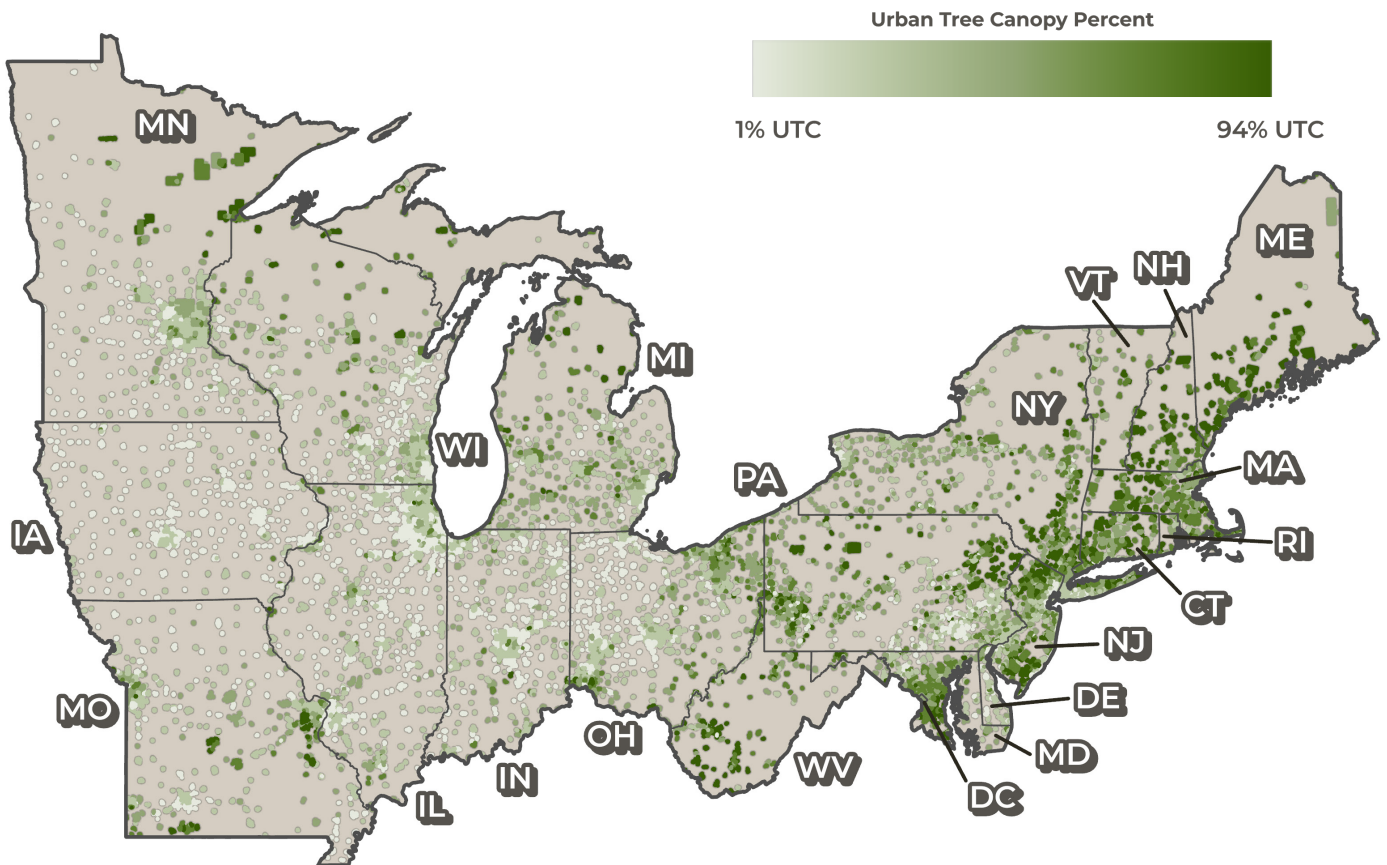


Figure 10. Areas assessed in the Northeastern-Midwestern region are displayed in green. Darker green tones indicate higher canopy cover and lighter green tones indicate lower canopy cover.

The temperate forests of the Northeast and Midwest feature a mix of hardwood forests, productive woodlands, and fertile agricultural landscapes. Key ecosystems range from maple, oak, and beech forests to the prairies and floodplain forests found farther west. From urban centers to rural landscapes, these regions provide essential ecosystem services like clean water, wildlife habitat, and a variety of recreation opportunities.

- ▶ Total canopy: 13,768,646 acres
- ▶ Mean canopy cover in the Northeastern-Midwestern Region: 39.35%
- ▶ Mean net canopy change in the Northeastern-Midwestern Region: +0.46%

State forestry programs in this region coordinate Forest Action Plans to conserve working forests and address threats from invasive species, such as the emerald ash borer, which has decimated millions of trees since its arrival in 2002. Ash trees are common shade trees in cities across the region; as this pest spreads, communities must plan and prepare to avoid similar catastrophic losses. To understand how these cumulative threats and restoration efforts have physically altered the landscape, location of census places showing canopy growth and decline can be seen in Figure 11.

### ***Net Percent Tree Canopy Change in Northeastern-Midwestern Census Places***

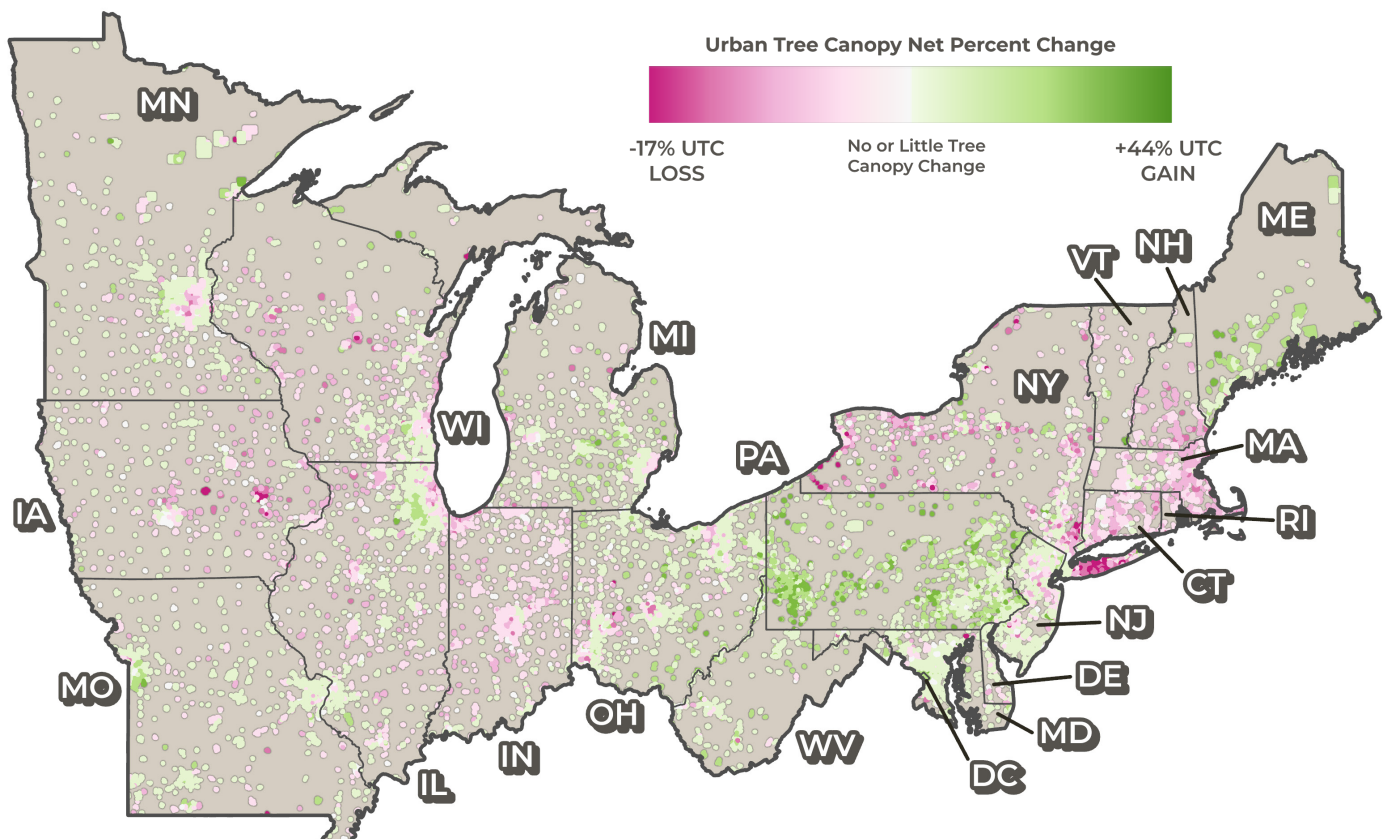


Figure 11. Areas assessed in the Northeastern-Midwestern region are displayed on the map. Areas that gained canopy between the two assessment periods are shown in green, and areas that lost canopy are shown in pink.



*Fruit trees planted at Boyd Street Urban Farm, in collaboration with The Giving Grove, will provide several thousand pounds of produce annually in Portland, Maine. The orchard serves as a site for public education and urban agricultural engagement. Photo by Richard Hodges.*



## Southern Region

The Southern region stretches from Texas and Oklahoma through the Gulf Coast and up to Virginia (Figure 12). Warm, humid conditions and diverse soils support pine and hardwood uplands, cypress wetlands, and tropical forests. The states and territories in this region include **Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, Puerto Rico, South Carolina, Tennessee, Texas, the U.S. Virgin Islands, and Virginia.**

### Urban Tree Canopy in Southern Census Places

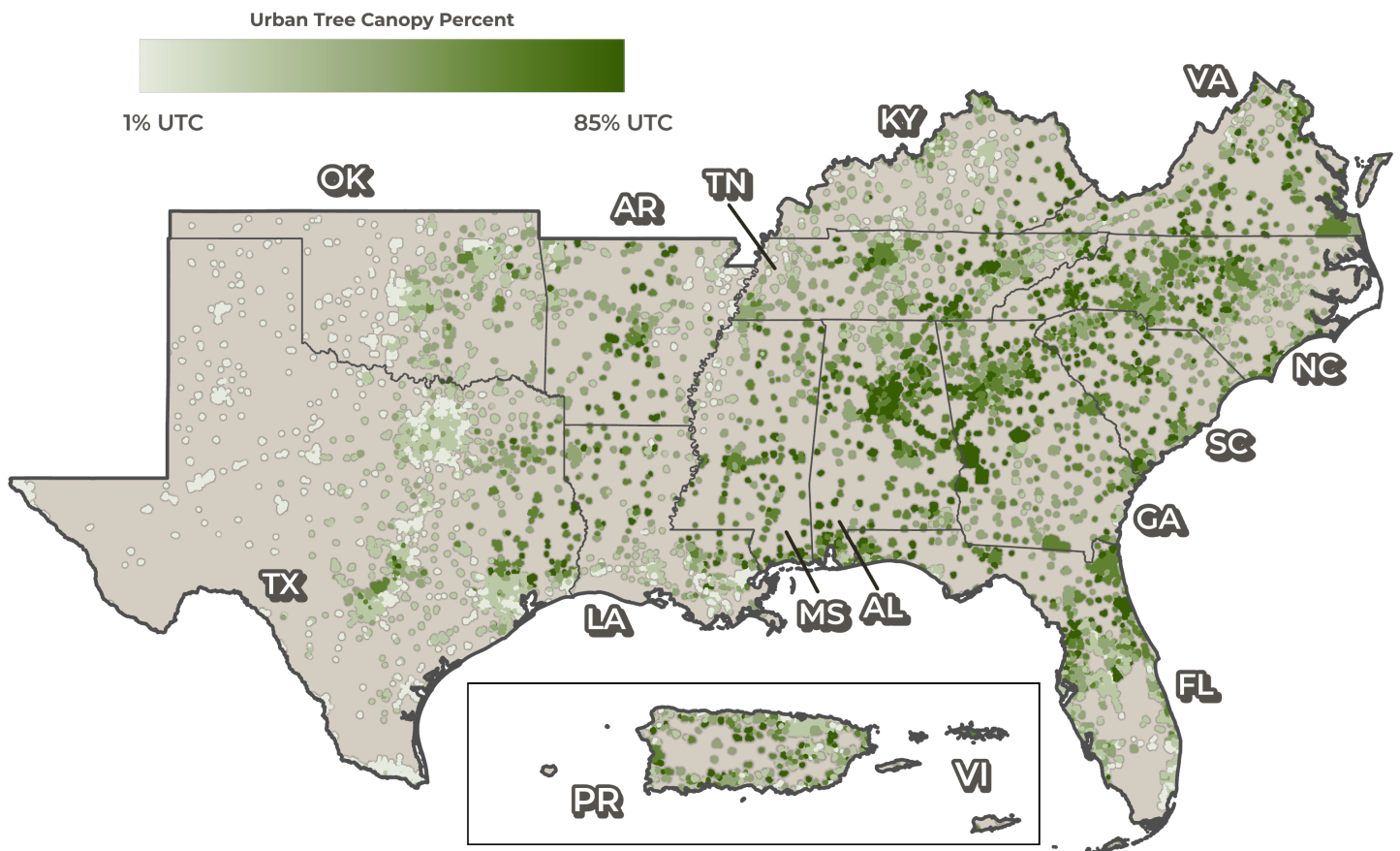


Figure 12. Areas assessed in the Southern region are displayed in green. Darker green tones indicate higher canopy cover and lighter green tones indicate lower canopy cover.

The population in this region exceeds 28 million, with 40% living in rural areas. Approximately 86% of the South's forestland is privately owned, making it the nation's stronghold for private forest ownership and active forest management. The long-term viability of the Southern region's \$251 billion forest economy depends on an equilibrium among intensive timber production, forest restoration, and proactive canopy conservation.

From providing jobs in rural timberlands to cooling urban neighborhoods, Southern forests support a wide range of livelihoods. Ensuring these benefits reach every resident requires continued investment in canopy conservation, local forestry partnerships, and community-based restoration. Figure 13 illustrates how these efforts and environmental pressures manifest across the region within its Census-defined communities.

- ▶ Total canopy: 18,988,597 acres
- ▶ Mean canopy cover in the Southern Region: 41.59%
- ▶ Mean net canopy change in the Southern Region<sup>2</sup>: +0.48%

### **Net Percent Tree Canopy Change in Southern Census Places**

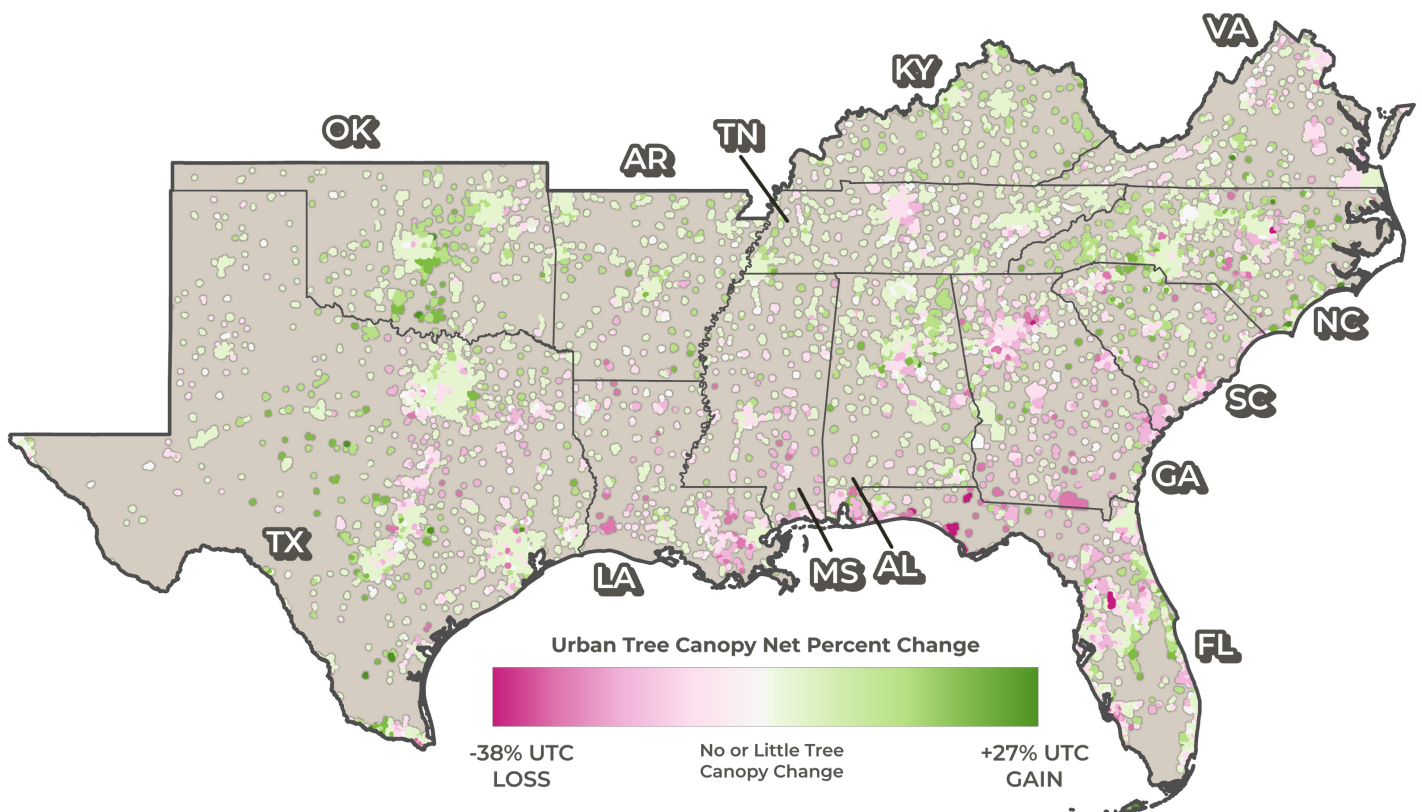


Figure 13. Areas assessed in the Southern region are displayed on the map. Areas that gained canopy between the two assessment periods are shown in green and areas that lost canopy are shown in pink. <sup>2</sup>Puerto Rico and the U.S. Virgin Islands are included in the regional canopy cover totals but are excluded from the net change analysis due to the absence of historical imagery for those areas.



*Phase one of the ECOSISTEMA projects in Caguas, Puerto Rico, represents 25% of a comprehensive initiative to establish an accessible, diverse urban forest for the Borinquen community. The project focuses on long-term stewardship and resident participation in forest maintenance.*



## Western Region

The Western region consists of 17 states, three U.S. territories, and three affiliated Pacific islands, focusing on collective action, resource sharing, and partner engagement (Figures 14 & 15). Jurisdictions in this region include **Alaska, Arizona, California, Colorado, Hawaii, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming**; American Samoa and Guam; and the Commonwealth of the Northern Mariana Islands, the Federated States of Micronesia, Republic of the Marshall Islands, and Palau.

### Urban Tree Canopy in Western Census Places

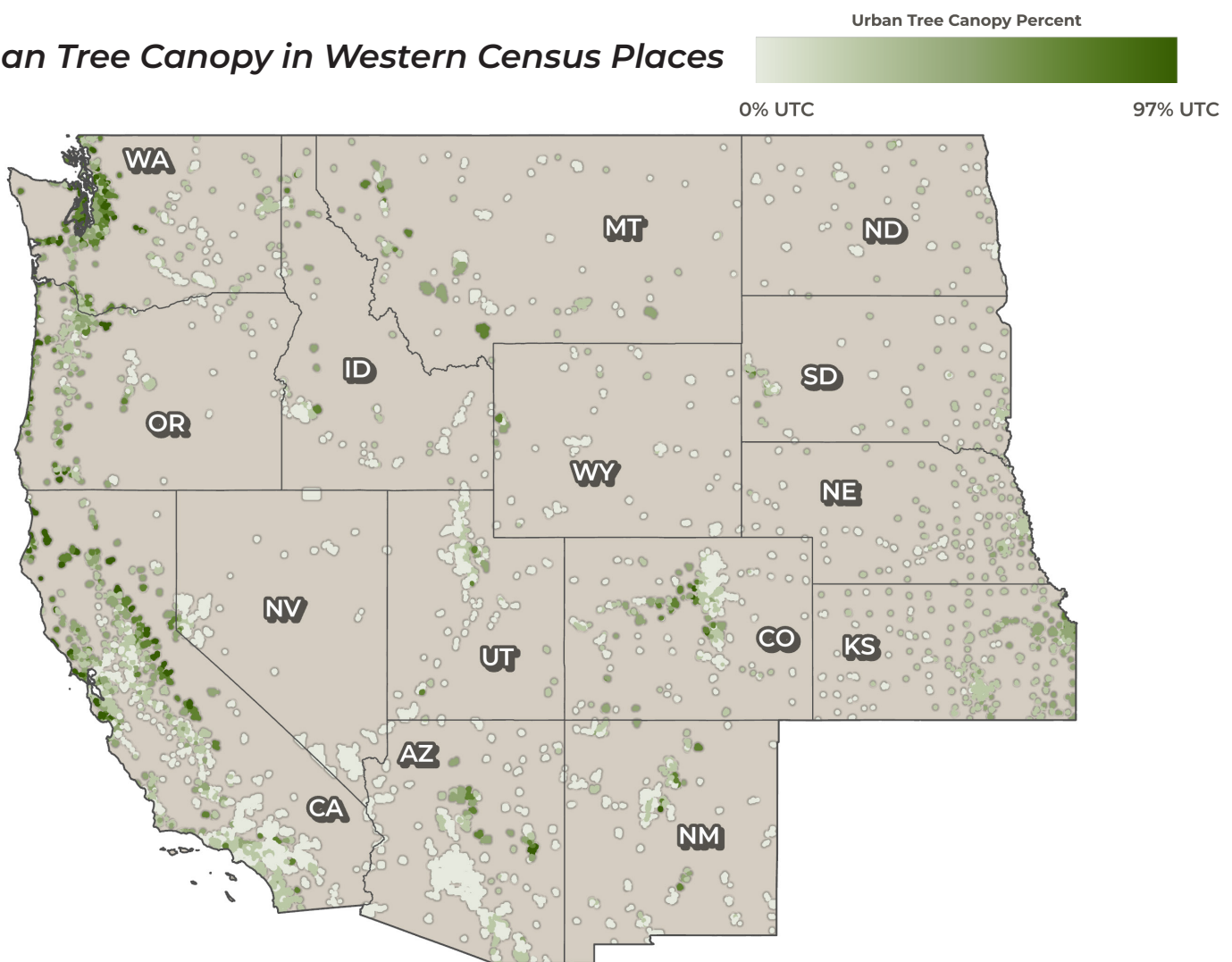


Figure 14. Areas assessed in the Western region are displayed in green. Darker green tones indicate higher canopy cover and lighter green tones indicate lower canopy cover.

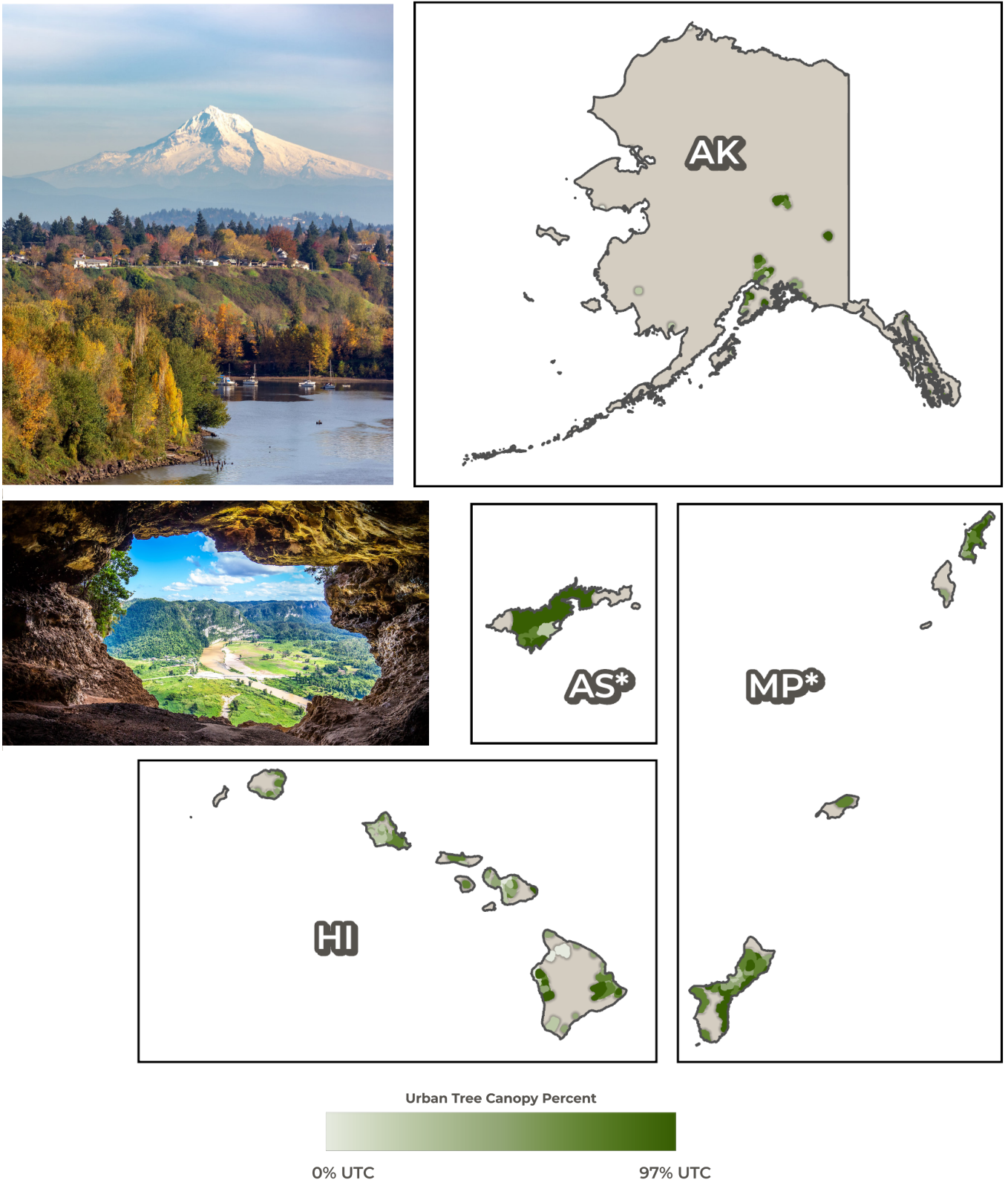


Figure 15. Additional assessed areas in the Western region are shown in green. For American Samoa (AS) and the Commonwealth of the Northern Mariana Islands (MP), only the designated urban areas included in the study are shown rather than the full extent of each territory. Guam, Federated States of Micronesia, Republic of the Marshall Islands, and Palau were included in the analysis, but are not depicted in this graphic.

The region includes biomes ranging from prairie grasslands to coniferous forests, deserts to tropical wetlands. Coniferous species (pine, fir, spruce, etc.) dominate higher elevations, while grassland and scrub species (cottonwood, oak, etc.) prevail farther east. Despite the great diversity across Western and Pacific Island forests, common forest management issues and best practices span different forest types and jurisdictions. These collective efforts allow for the tracking of regional progress, as illustrated in Figure 16.

- ▶ Total canopy: 5,736,192 acres
- ▶ Mean canopy cover in the Western Region: 19.59%
- ▶ Mean net canopy change in the Western Region<sup>3</sup>: +1.32%

### Net Percent Tree Canopy Change in Western Census Places

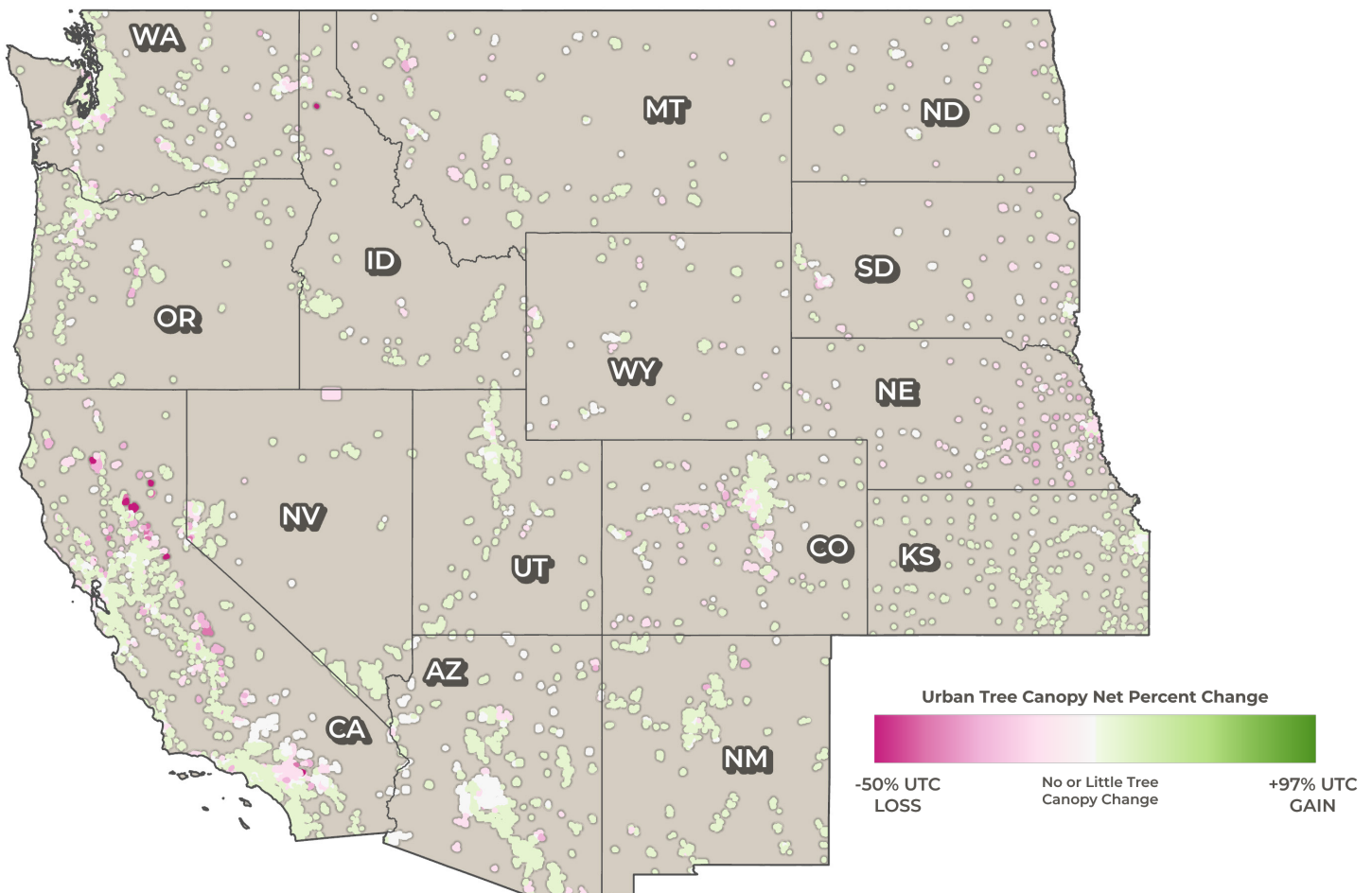


Figure 16. Areas assessed in the Western region are displayed on the map. Areas that gained canopy between the two assessment periods are shown in green and areas that lost canopy are shown in pink. <sup>3</sup>Alaska and the Pacific islands are included in the regional canopy cover totals but are excluded from the net change analysis due to the absence of historical imagery for those areas.



*Tree San Diego and community volunteers planted 99 climate-resilient trees in Chula Vista, California to celebrate Arbor Day.*

## Community Forestry Across Population Ranges

Community forests take many forms, from street trees that shade sidewalks in compact cities to woodlands that border smaller towns. In every setting, healthy trees near communities bring direct benefits to residents and visitors.

A community's population size and density play a major role in shaping its forest. Large cities, small towns, and rural areas each use and manage trees in different ways, and strategies that work for a busy metropolis may not suit a small community. Managing the canopy in line with local needs and resources is the best way to ensure the forests and communities thrive.

Success depends on recognizing the specific local forces that shape green spaces. Growth patterns, municipal goals, environmental conditions, and how people value trees strongly influence community forest management. Canopy data also plays a key role, highlighting how the forest is changing and where new trees will have the greatest impact. The following four case studies illustrate how different communities use canopy data and local knowledge to translate these metrics into lasting results.

### **Small Communities** (*Fewer than 5,000 people*)

In towns, villages, and boroughs with fewer than 5,000 people, nature is closely tied to daily life. These communities generally sit near or among swaths of open and/or agricultural land and have the potential for high canopy coverage. Limited staffing and budgets mean that tree-related activities often rely on grants, partnerships, and volunteers. Since volunteers often drive the health of these forests, the community's shared values and traditions regarding nature are essential to long-term success.

The close-knit collaboration among local leaders, residents, and nature directly shapes the canopy around town. Volunteer tree boards or commissions boost canopy through planting events, while keeping an eye out for threats such as insects and disease outbreaks. For these communities, responsible growth is often a top priority, ensuring that new homes and businesses do not diminish small town charm. Ultimately, maintaining healthy trees preserves this essential character even as a small town grows and changes.

- ▶ **Mean Canopy Cover: 36.39%**
- ▶ **Mean Net Canopy Change: +2.94%**

## Small Communities Case Study: Hummelstown, Pennsylvania

### HUMMELSTOWN AT A GLANCE

- ▶ Population: 4,450
- ▶ Current Canopy Cover: 27%
- ▶ Net Canopy Change (2017 -2022): +5.2%

### Pennsylvania Tree Canopy Change Across Scales

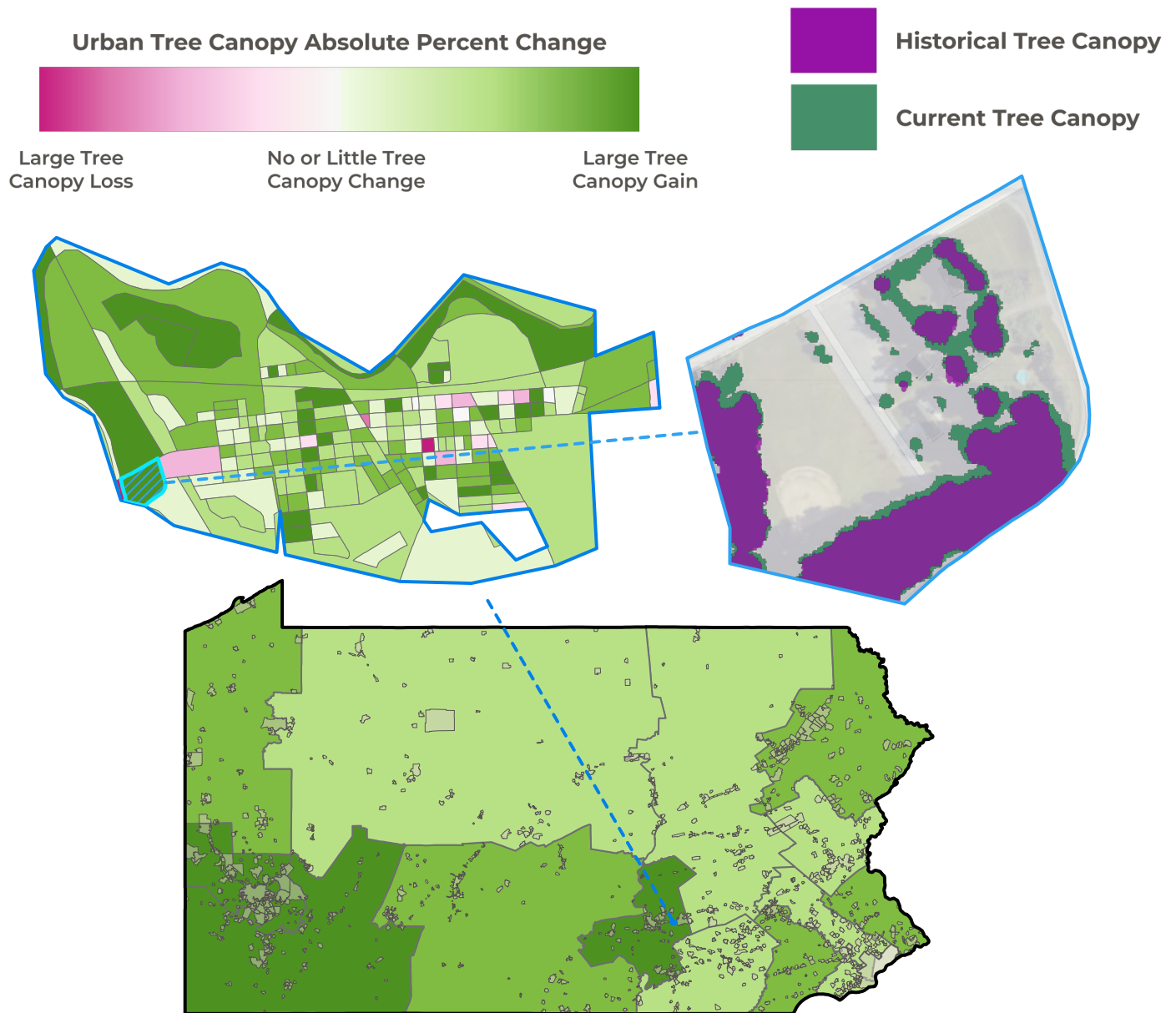


Figure 17. This figure illustrates tree canopy change across Pennsylvania at the Congressional District level (bottom), across census blocks within a single urban area (top left), and within a single census block (top right). The urban area depicted is Hummelstown, Pennsylvania.

Nestled between Hershey and Harrisburg in Central Pennsylvania, the Borough of Hummelstown takes immense pride in its abundant nature. From their tree-lined Main Street to the forested trails along Swatara Creek, the community recognizes that healthy trees are essential assets. This value is reflected in the borough's shady, appealing environments that support both economic prosperity and resident well-being. Hummelstown has long prioritized its canopy, earning the Arbor Day Foundation's Tree City USA award for 20 years running.

The borough's trees are managed through a partnership between the Public Works Department and a volunteer Shade Tree Commission, which work together to care for the community forest. While Public Works handles maintenance in parks, the Commission manages the shade tree ordinance, oversees permit approvals for tree removals, and organizes an annual street tree program to provide free trees to residents for planting in the public right-of-way.

To build on this 20-year legacy, the borough has integrated forestry directly into its core infrastructure goals. The Downtown Hummelstown Master Plan treats trees as essential assets rather than canopy decoration. By prioritizing tree-lined sidewalks and retrofitting paved areas with landscape buffers, the plan uses the community forest to enhance walkability, reduce heat, and manage stormwater.

## HOW HUMMELSTOWN USES TREE CANOPY DATA

[TREECANOPY.US](https://treecanopy.us) provides clear evidence that Hummelstown's commitment to its urban forest is paying off. Between 2017 and 2022, the borough added 43 acres of new canopy, with growth recorded in every census block (Figure 17). This increase was driven by two factors: the natural expansion of creekside forests and the strategic planting of new street trees.

- ▶ **Targeted Planting:** The Shade Tree Commission identifies neighborhoods with lower canopy cover to prioritize future planting campaigns.
- ▶ **Policy Validation:** The data confirms that canopy growth is outstripping tree removals, proving the shade tree ordinance is working.
- ▶ **Maintenance Planning:** Public Works tracks tree canopy shifts in parks and the borough cemetery to guide maintenance schedules.
- ▶ **Watershed Health:** Monitoring canopy growth along the Swatara Creek is crucial for protecting the Chesapeake Bay by identifying potential issues such as bank erosion or insufficient shade.

Decades of local tradition and volunteer dedication, enhanced by these new mapping tools, guarantee Hummelstown's canopy will remain a defining community asset.

## Mid-Sized Communities (5,000-50,000 people)

Medium-sized towns and cities serve as vital hubs, often acting as rural centers or compact suburbs with a high density of schools, businesses, and services. Residents in these areas prioritize economic opportunity and welcoming public spaces. In this context, trees are viewed as both a necessity and an opportunity, essential for cooling streets, supporting property values, and enhancing community life.

Local governments and leaders often collaborate with residents to manage the canopy as an appreciating asset. Common strategies include maintaining shaded commercial corridors, planting street trees, and protecting nearby riparian areas. By investing in trees along streets and in parks, these communities ensure that growth does not come at the expense of the character and green spaces residents value.

- ▶ **Mean Canopy Cover: 32.15%**
- ▶ **Mean Net Canopy Change: +0.90%**



*Boys and Girls Club members plant trees at Linear Park in Lancaster City, enhancing their local playground with shade and habitat while learning about the importance of community forestry.*

## *Mid-Sized Communities Case Study: Mountlake Terrace, Washington*

### **MOUNTLAKE TERRACE AT A GLANCE**

- ▶ Population: 21,286
- ▶ Current Canopy Cover: 32.3%
- ▶ Net Canopy Change (2017-2023): +1.4%

Located 13 miles north of Seattle, Mountlake Terrace is transitioning from a period of heavy suburban expansion to a new focus on ecological restoration. The city is strengthening its urban and community forestry program through compact community design and conservation policies that will build on a strong natural foundation provided by Lake Ballinger and local parks. To achieve this, tree management has been made a shared priority across several departments. Public Works maintains 6,800 trees in the right-of-way, while Recreation & Parks oversees those in parks and open spaces. Additionally, the Community Development and Engineering teams ensure that new construction projects adhere to strict tree-related regulations and standards.

### **HOW MOUNTLAKE TERRACE USES TREE CANOPY DATA**

The city uses high-resolution data to identify the specific factors driving urban forest growth and loss. This insight allows staff to move beyond general observations and implement precise management strategies.

- ▶ **Infrastructure Impact:** Data revealed concentrated losses along the I-5 corridor due to clearing for the Sound Transit light rail and bus station.
- ▶ **Aging Neighborhoods:** In 1950s-era residential districts, the data identify scattered losses as mature trees reach the end of their natural lifespan and are removed, largely for safety reasons.
- ▶ **The Road to 2050:** The Mountlake Terrace Urban Forest Management Plan uses this data to set a citywide goal of increasing canopy cover by 4.5% by 2050, creating an urban ecosystem more closely resembling nearby undeveloped areas.
- ▶ **Targeted Planting:** To meet this goal, the city aims to plant 137 trees annually, using canopy maps to pinpoint available space on both public and private land.

By pairing long-term ecological restoration goals with spatial data, Mountlake Terrace is ensuring its urban forest adapts to future infrastructure needs.

While Mountlake Terrace demonstrates proactive canopy management in a growing Seattle suburb, different environmental pressures threaten mid-sized communities in the Mountain West. For example, known as Idaho's Hometown in the Mountains, Hailey faces a growing challenge as 40% of its land is now covered by impervious surfaces, a shift that affects both tree canopy and community character (Figure 18). This shifting landscape has resulted in the loss of 76 acres of tree canopy, driving coverage down from 20% to 18%. This represents a significant 11% relative decrease that threatens the community's rural charm.

### Idaho Tree Canopy Change Across Scales

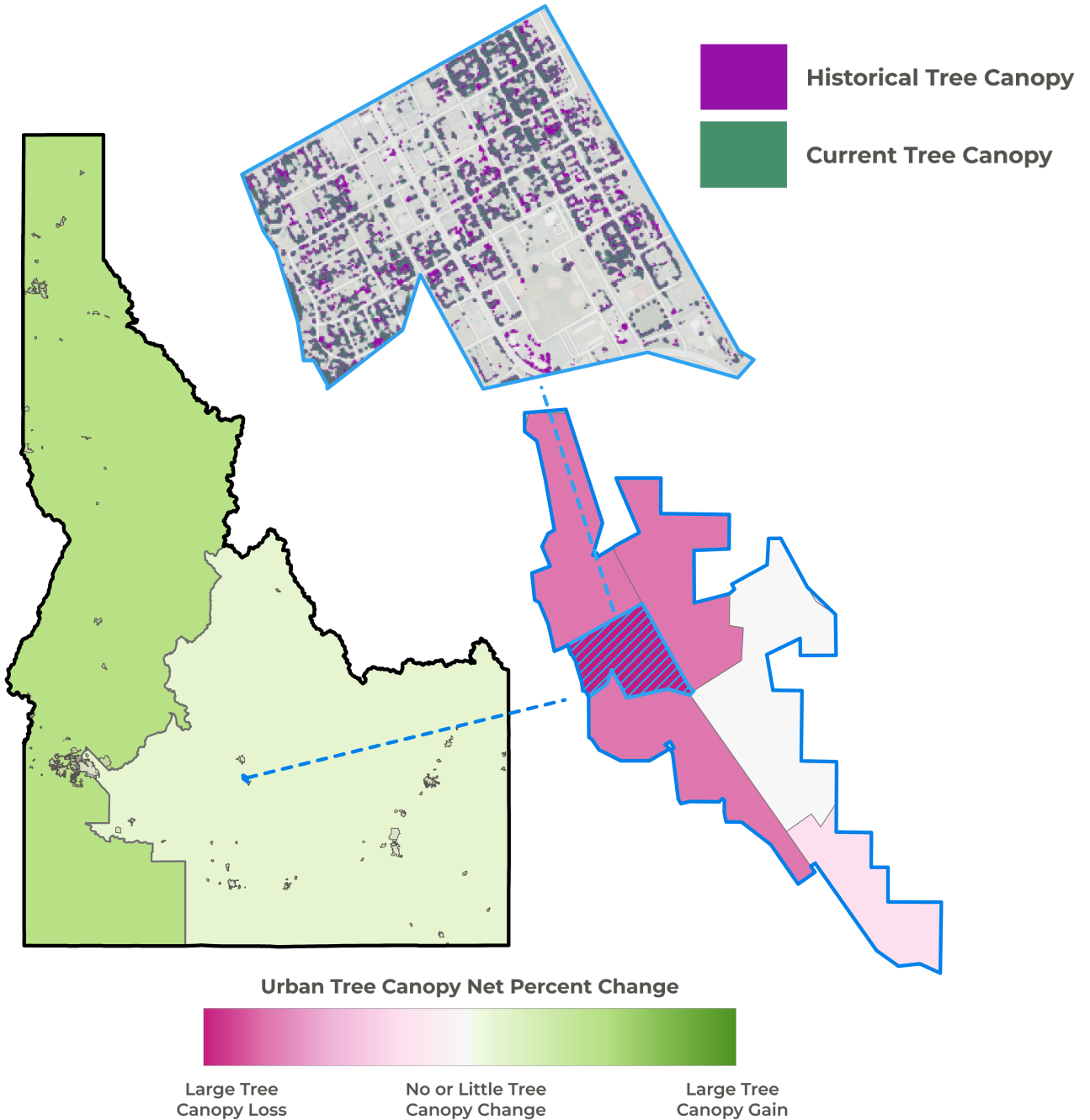


Figure 18. This figure illustrates tree canopy change across Idaho at the Congressional District level (bottom), across census block groups within a single urban area (top left), and within a single census block group (top right). The urban area depicted is Hailey, Idaho.

## Large Communities (50,000-250,000 people)

Cities with populations between 50,000 and 250,000 act as regional hubs, offering jobs and a sense of community while facing intense pressure from new housing and infrastructure development. Residents look for safe, livable neighborhoods that balance economic growth with vibrant parks and open spaces. In these environments, planning and caring for the tree canopy becomes a central challenge and opportunity.

To meet this challenge, city leaders use data to set clear goals and target areas with the greatest need, such as busy commercial corridors and under-shaded neighborhoods. By partnering with schools, nonprofits, and businesses, these cities incorporate trees into their growth plans to promote public health and preserve community character.

- ▶ **Mean Canopy Cover: 25.10%**
- ▶ **Mean Net Canopy Change: +0.79%**

The impact of multi-sector partnerships is best seen in cities that use spatial data to prioritize planting in their most in-need neighborhoods.



Baton Rouge, the capital of Louisiana, is situated along the Mississippi River. Aerial imagery shows that tree canopies account for 37% of the city's land area. Analysis reveals that 4,657 acres of tree canopy have been lost between 2017 and 2023. This loss represents a 2% net decrease in canopy cover and a nearly 5% relative decrease compared to the 2017 canopy acres. Baton Rouge's experience highlights the urgent need for strategic planning to address canopy loss. To see how proactive management and policies can successfully reverse these trends, we can look to the Town of Collierville, Tennessee.

## Large Communities Case Study: Collierville, Tennessee

### COLLIERVILLE AT A GLANCE

- ▶ Population: 51,324
- ▶ Current Canopy Cover: 40.5%
- ▶ Net Canopy Change (2018-2023): +3.6%

### Tennessee Tree Canopy Change Across Scales

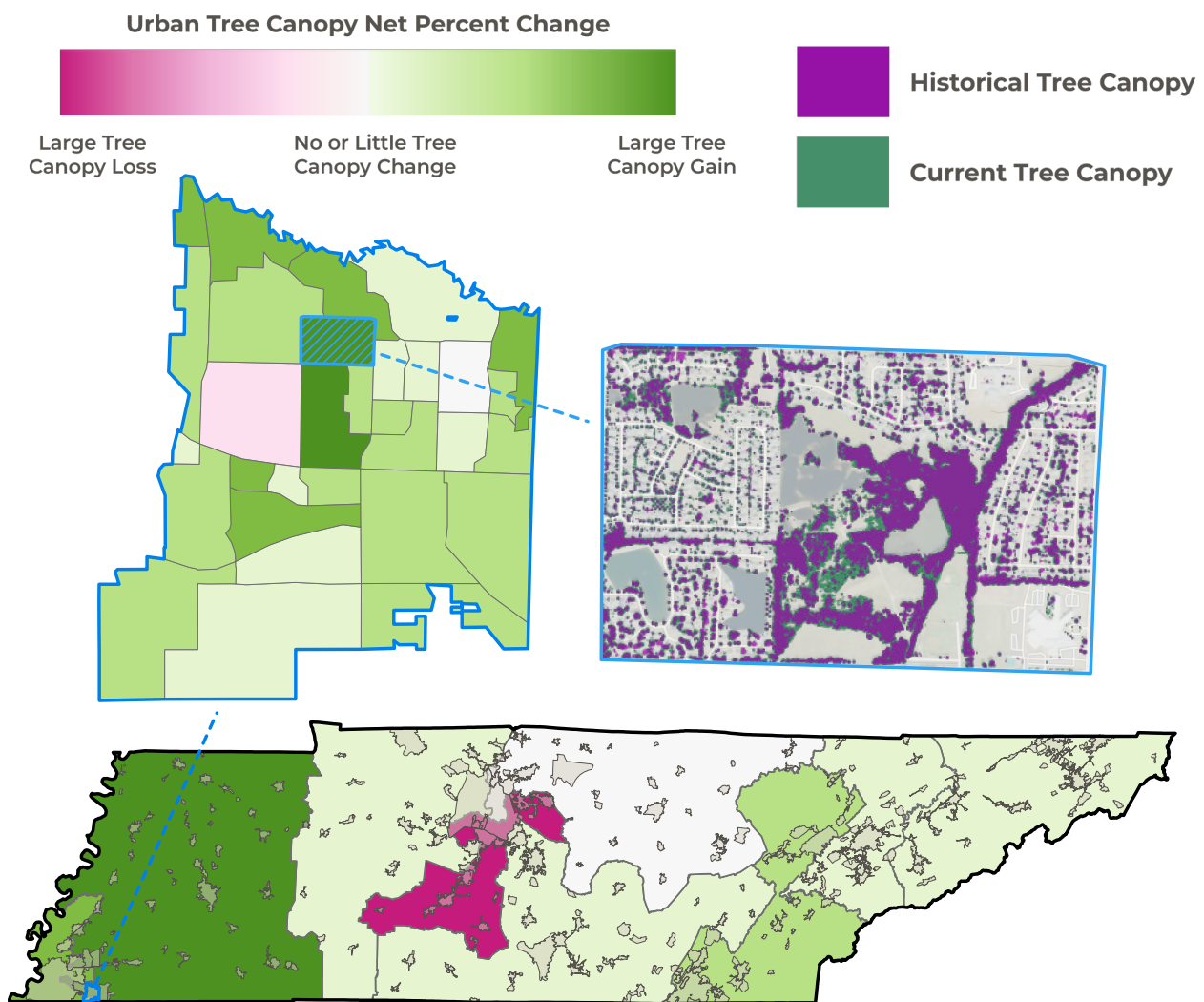


Figure 19. This figure illustrates tree canopy change across Tennessee at the Congressional District level (bottom), across census block groups within a single urban area (top left), and within a single census block group (top right). The urban area depicted is Collierville, Tennessee.

The Town of Collierville, located in the southwestern corner of Tennessee, is a vibrant residential community that prides itself on its historic town square and extensive greenbelt trails (Figure 19). The town's robust park system accommodates recreational activities, many of which take place under the shade of the tree canopy. To maintain this environment, tree management is a core town priority.

The Grounds and Parks Maintenance Division manages trees in public spaces to beautify the community and protect its natural capital. The Division also enforces a strict preservation policy: no public tree is removed unless it is deemed hazardous.

Collierville's commitment to tree canopy is expressed through innovative funding and strict ordinances. For new developments, the Town requires a set number of trees per acre. Developers can opt to pay into a Town Tree Bank for up to 50% of these trees. This bank, also funded by civil penalties and voluntary contributions, provides a dedicated revenue stream for tree installation and maintenance throughout the community.

### UTILIZING TREE CANOPY DATA IN COLLIERVILLE

Collierville's canopy grew by 3.6% from 2018 to 2023, showing that the Town's preservation and expansion goals are gaining significant momentum and policies are proving themselves effective. Town staff can use TreeCanopy.US data and tools to move beyond the numbers and understand the specific drivers behind this growth.

- ▶ **Tracking Development:** Data showed that only two out of 22 census blocks lost canopy, both due to new residential clearing. Staff can now target these specific areas for restoration, thereby engaging new residents in tree planting and maintenance.
- ▶ **Policy Grading:** By reviewing canopy in neighborhoods built five, ten, or 15 years ago, staff can determine if planting codes are working or if requirements need adjustment.
- ▶ **Public Engagement:** The Town's GIS staff used locally sourced canopy data to create an interactive map for residents, sharing the results on social media to build community support.
- ▶ **Future Goals:** These data provide the baseline needed to establish a formal town-wide canopy goal—such as reaching 45% coverage by 2050—to motivate leadership and stakeholders alike.

By utilizing dedicated preservation funds and interactive public dashboards, Collierville is transforming its canopy growth into a highly visible, shared community mission.

## Metropolitan Communities (+250,000 people)

In major metropolitan areas of over 250,000 people, life is defined by skyscrapers and constant activity. The economic growth that urban centers attract often comes at a cost: extreme temperatures, congestion, and pollution. These pressures have changed the role of trees entirely. They are no longer just attractive landscaping; they are a widely recognized necessity for a healthy population. Community forests cool overheated streets, clean the air, and provide essential relief in crowded neighborhoods.

Urban forestry at this scale is a complex and highly organized endeavor. Large cities utilize dedicated staff and major investments to integrate nature into the broader portfolio of infrastructure development and maintenance. These programs focus on restoring lost canopy, protecting existing green spaces, and ensuring that every resident has access to the cooling and health benefits of trees.

- ▶ **Mean Canopy Cover: 22.90%**
- ▶ **Mean Net Canopy Change: +1.97%**

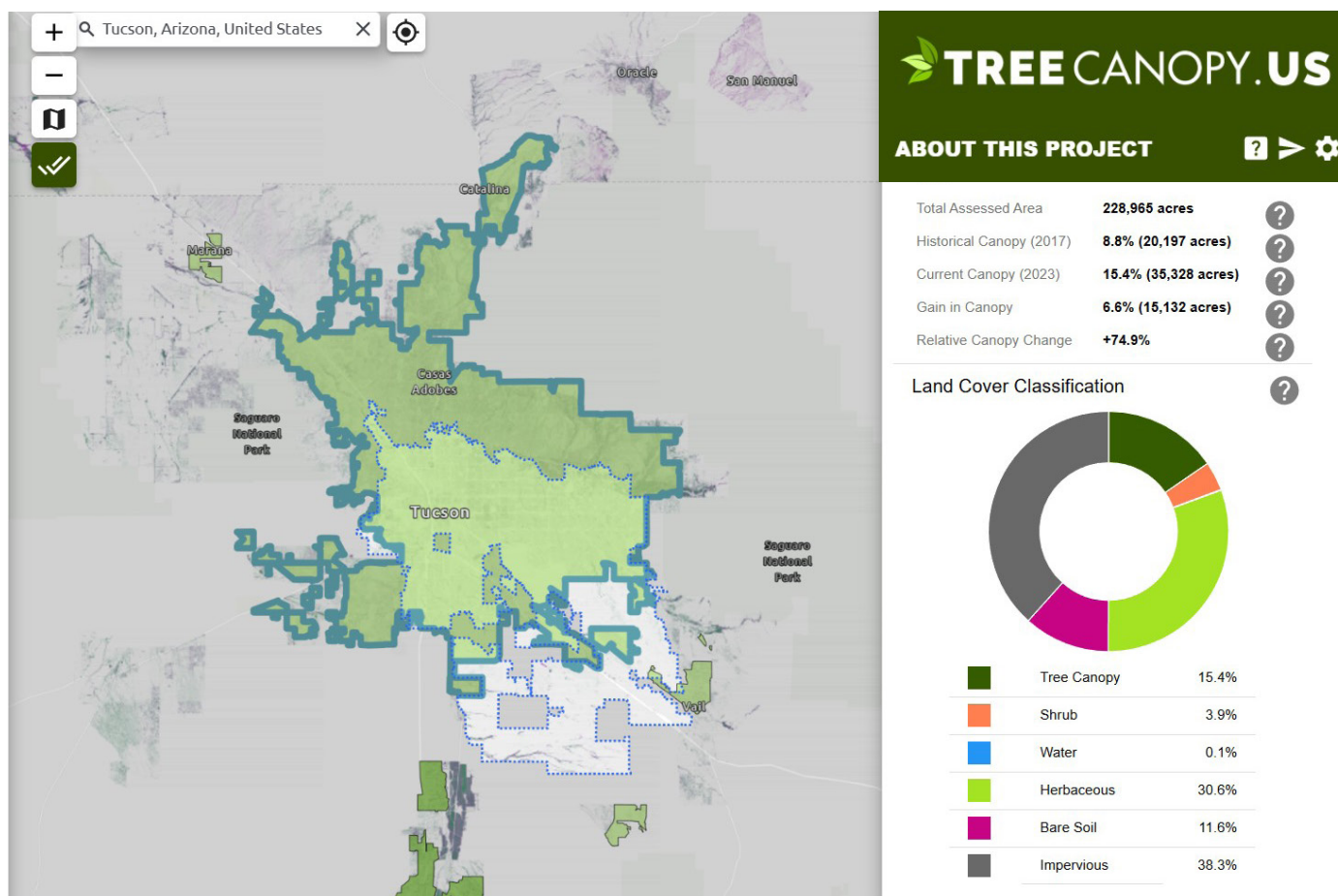


Figure 20. Urban tree canopy, land cover composition, and recent canopy change for the Tucson metropolitan urban area. The land cover data refers to the census-designated urban area of Tucson outlined in blue above, not the city limits.

## *Metropolitan Communities Case Study: Tucson, Arizona*

### **TUCSON METROPOLITAN AREA AT A GLANCE**

- ▶ Population: 542,629
- ▶ Current Canopy Cover: 15.4%
- ▶ Net Canopy Change (2017-2023): +6.6%

Tucson is a large desert city managing tree canopy at a scale and complexity that smaller municipalities rarely encounter. With over half a million residents spread across a vast Sonoran Desert footprint, the city faces the compound challenge of building canopy where almost none historically existed, while simultaneously addressing documented disparities in shade coverage that correlate with income and demographic characteristics. That pattern shapes how Tucson and similar sized cities can plan and prioritize canopy work across departments and funding streams.

### **UTILIZING TREE CANOPY DATA IN TUCSON**

Tucson's canopy increased from 2017, indicating that preservation and planting efforts are beginning to shift. Staff can use canopy data to understand where this growth is occurring and what is driving it.

- ▶ **Tracking Canopy Change:** Canopy data identify which neighborhoods gained shade along streets, at schools, and in drainageways, and which areas lost trees due to infill, roadway projects, or drought stress. At metropolitan scale, this block-group level analysis allows staff to direct replanting efforts in neighborhoods where losses occurred and where residents face the greatest heat exposure.
- ▶ **Evaluate Development Standards:** By comparing canopy outcomes in developments built under different landscape codes over time, staff can assess whether current shading and planting requirements are producing meaningful gains and adjust standards where the data show gaps between intended and actual outcomes.

Through layered funding, cross-department coordination, and accessible canopy data, Tucson demonstrates how a large city can build the institutional systems needed to make canopy growth possible at metropolitan scale.

# Conclusions and --- Opportunities

In the balance between rapid growth and environmental stability, urban forests tell a national story of regrowth and opportunity. Across the country, community forests grow slowly through natural succession and intentional planning, planting, and care. Tree canopy shrinks due to new development, pests, disease, and natural disasters. Gains reflect steady effort, while losses can happen quickly when tree preservation and forest resilience are not prioritized.

Uneven progress and ongoing losses demand sustained, data-driven attention at multiple scales. As populations grow, land use shifts, and the risk of destructive natural disasters intensifies, tree canopy cover must keep pace with losses to maximize and sustain access for all to the benefits of trees and forests.

With access to comprehensive national canopy data, leaders are empowered to manage trees and forests more strategically. Setting and achieving tree canopy goals require a unified framework that aligns data with local expertise. When strong information and clear direction guide action, urban and community forests thrive. The following recommendations are grounded in the three pillars of urban forest sustainability: the trees, the programs that manage them, and the people who shape and benefit from them.

## Trees: Living Infrastructure

A community's trees are among its oldest and most vital forms of infrastructure. To sustain essential functions like disaster resilience, public health, and long-term sustainability, trees require ongoing, active management and public engagement.

- ▶ **Set Community-Specific Canopy Goals:** City officials can establish measurable canopy objectives informed by [TREES AT WORK](#) data and tools to focus on protecting existing canopy and growing future canopy through strategic investments.
- ▶ **Prioritize Smart Planting and Maintenance:** Communities can use [TREECANOPY.US](#) data and tools, along with other GIS layers and city plans, to identify high-priority sites for intervention, such as tree planting, preserving remnant woodlands, restoring native vegetation, and promoting age and species diversity.
- ▶ **Invest for the Future:** Ongoing investment in data-driven programs ensures the health of urban forests for today's residents and generations to come.

## People: Educate and Empower the Community

Tree canopy thrives when communities are engaged at every stage of the process, from planning, to planting, and through long-term maintenance of the urban forest. Meaningful partnerships and transparent information exchange make everyone part of the solution, ensuring that canopy goals translate into real, community-wide results.

- ▶ **Broaden Education and Awareness:** Community engagement through educational workshops, hands on demonstrations, and clear communication tailored to diverse audiences fosters ongoing dialogue. Language access features, such as Spanish functionality on [TREECANOPY.US](https://treecanopy.us), help reach more residents. Local newsletters and online forums enable stakeholders to participate and stay informed.
- ▶ **Disseminate Data and Tools Broadly:** Encourage agencies, community groups, nonprofit organizations, businesses, and residents to engage with the national canopy assessment findings, data, and online tools. The primary user (such as the City Forester) should familiarize staff, share results in relevant meetings, and coordinate outreach with communications personnel for seasonal campaigns or targeted messaging in specific neighborhoods.
- ▶ **Support Research and Evaluation:** Universities, state agencies, non-profit organizations, and other research institutions can leverage this baseline data set and analysis to track trends, assess threats, and identify priorities for future studies and funding.

## Programs: Strategic and Adaptive Management

Strategic, data-driven programs enable long-term success and offer significant returns on investments.

- ▶ **Integrate Urban Forestry into Broader Planning:** Community leaders can use canopy change metrics to inform updates to existing programs and the creation of new strategies and programs that align urban forestry with other departments such as stormwater, planning and development, and risk management.
- ▶ **Use Data to Prioritize and Measure Progress:** These data and tools can support city and state officials with annual planning, budget proposals, and grant applications to justify directing resources to the areas of greatest need. Conduct follow-up assessments using this baseline assessment to monitor progress, adapt strategies, and ensure resilience in the face of new threats, such as pests, storms, and development pressures.

- ▶ **Promote Policy and Practice Improvements:** Update maintenance policies to emphasize long-term tree health and conduct follow-up assessments using nationally standardized methods to monitor progress and adapt strategies.

This national assessment presents actionable paths forward as well as the data and tools to achieve success. By pairing local insights with the best available data and widespread engagement, every community can secure the future of its urban forest. No matter who is using them, whether community level advocates and practitioners, state and regional planners, or federal grant administrators, these data and recommendations can support urban and community forestry programs at every scale and help foster effective stewardship and resilience.



*Defensores de la Cuenca members pose following a native tree planting event in Cheverly, Maryland. The group planted 16 fruit/nut trees and 50 small-statured trees during this project.*

# REPORT

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# APPENDICES

## Appendix A: Methodology

### Source Imagery

This assessment utilized high-resolution (60-centimeter) multispectral imagery from the U.S. Department of Agriculture's National Agriculture Imagery Program (NAIP), collected in 2021, 2022, and 2023 during leaf-on conditions. Supplementary imagery was used when NAIP was unavailable.

- ▶ Alaska: Imagery provided directly by the state
- ▶ Guam, American Samoa, Commonwealth of the Northern Mariana Islands, and Palau: NRCS Orthographic imagery (VIVID) - Maxar Intelligence, 30cm resolution from 2022
- ▶ Federated States of Micronesia and the Republic of the Marshall Islands: NRCS Orthographic imagery (VIVID) - Maxar Intelligence, 30cm resolution from 2023

NAIP imagery from 2015 to 2018 was used to classify historical tree canopies. Some regions only have canopy data available for a single year, and as a result, do not contain canopy change data. The areas limited to one year of canopy data include Alaska, Hawaii, American Samoa, Guam, the Commonwealth of the Northern Mariana Islands, Puerto Rico, the U.S. Virgin Islands, Palau, the Federated States of Micronesia, and the Republic of the Marshall Islands.

Source imagery for this assessment ranged in resolution from 30 centimeters to 1 meter. To ensure methodological consistency and support accurate change analysis across all communities, all datasets were resampled and analyzed at a standardized resolution of 60 centimeters.

### Land Cover Classification

The imagery was classified into six distinct land cover classes. To classify the land into different categories, the study applied advanced machine learning techniques. The machine learning model was trained by analyzing pixels in aerial imagery to produce consistent land cover classifications. GIS analysts reviewed urban canyons (narrow streets lined with tall buildings) in more than 210 cities to ensure that trees obscured by building shadows were included in the assessment. Figure 21 describes the six land cover classes identified by this process.



**Tree Canopy**  
Woody vegetation  
taller than 10ft



**Shrub**  
Woody vegetation  
less than 10ft tall



**Herbaceous Vegetation**  
Fields, meadows, grass, turf,  
and open space



**Impervious**  
Buildings, sidewalks, roads,  
swimming pools, and water  
features with impervious  
bases



**Soil**  
Bare land, sand,  
and exposed earth



**Water**  
Lakes, rivers, streams,  
and ponds

*Figure 21. Six land cover classes identified by analyzing the pixels of aerial imagery.*

## Assessment Boundaries

To ensure consistent reporting, land cover metrics were summarized by U.S. Census Bureau urban areas, places, congressional districts, tracts, block groups, and blocks. These units served as the foundation for deriving the state-level averages presented in this report. The primary areas of interest were defined using 2,867 Census Urban Areas and 17,965 Census Places:

- ▶ **Urban Areas:** Densely developed lands containing at least 2,000 housing units or 5,000 people (based on 2020 criteria)
- ▶ **Places:** Incorporated municipalities (cities, towns, villages, borough, etc.) and unincorporated Census Designated Places (CDPs)
- ▶ **U.S. Territories & Affiliated Islands:** Boundaries were defined using U.S. Census classifications, where available, or 2020 WorldPop 100-meter UN-adjusted data to identify heavily populated areas

## Calculating Canopy Change

Canopy and land cover data from the most recent assessment (2021-2023) were compared with baseline datasets (2015-2018) to measure changes in acreage and percentages. Percentage changes were measured as both net change and relative change.

Net canopy change (percentage point change) represents the increase or decrease in tree canopy area relative to total land area. Relative canopy change indicates the extent to which the canopy has changed in proportion to its previous size.

For example, a town with 100 acres of land saw its tree canopy grow from 30 acres in 2018 to 40 acres in 2023, an increase of 10 acres.

- ▶ Net Change =  $(40 \text{ canopy acres} - 30 \text{ canopy acres}) / 100 \text{ land acres} = +10\%$
- ▶ **10% net increase in canopy cover relative to the total land area**
- ▶ Relative Change =  $(40 \text{ canopy acres} - 30 \text{ canopy acres}) / 30 \text{ baseline canopy acres} = +33\%$
- ▶ **33% relative increase in the existing canopy**

## Accuracy Assessment

Accuracy assessments are a standard method for evaluating how well remotely sensed land cover classifications match actual ground conditions. A set of random sample points was generated across the entire study area. Each sample point was then manually assigned a land cover category and compared with the machine-learning classification assigned to that location. The classifications and reference data were compared point by point, and results are summarized in Table 1.

From this assessment, several key statistics were calculated:

- ▶ **Overall Accuracy:** The percentage of total pixels correctly classified
- ▶ **User's Accuracy:** The probability that a pixel classified during analysis as a given class (such as tree canopy) is truly that class based on reference data and human review
- ▶ **Producer's Accuracy:** The probability that a pixel of a given class (such as tree canopy) was correctly detected by the classification algorithm
- ▶ **95% Confidence Intervals (CI)** were also calculated to show how reliable these accuracy metrics are, expressed as lower and upper bounds.

This assessment measures how well tree canopy was mapped from the study imagery. A total of 2,414 pixels were matched to reference data, yielding an overall accuracy of 99.3%, with a 95% confidence interval of 98.96% to 99.63%, indicating that the mapping process is both consistent and precise.

*Table 1. Accuracy metrics for the near-current land cover data used in this assessment (based on 2021-2023 imagery). The table shows overall, user's, and producer's accuracy for tree and non-treed pixels, including 95% confidence intervals and sample sizes.*

Metric	Category	Value (%)	95% Confidence Interval (Lower)	95% Confidence Interval (Upper)	Sample Size
<b>Overall Accuracy</b>	All	99.3	98.96	99.63	2,414
<b>User's Accuracy</b>	Trees	99.08	98.39	99.76	757
<b>User's Accuracy</b>	Other	99.4	99.02	99.77	1,657
<b>Producer's Accuracy</b>	Trees	98.68	97.87	99.49	760
<b>Producer's Accuracy</b>	Other	99.58	99.26	99.89	1,654

User's accuracy reflects how often each mapped category matches conditions on the ground. Of the 757 pixels mapped as trees, 99.08% were confirmed as trees by a reviewer in the reference data (95% CI: 98.39%-99.76%). Of the 1,657 pixels mapped as "other", 99.4% matched the reference (95% CI: 99.02%-99.77%).

Producer's accuracy reflects how well actual on-the-ground features were detected by the land cover classification. For the 760 reference "treed" pixels, 98.68% were correctly identified (95% CI: 97.87%-99.49%). For the 1,654 reference "other" pixels, 99.58% were correctly captured (95% CI: 99.26%-99.89%). Both current and historical results demonstrate a strong correlation between mapped tree cover and the actual land cover observed on the ground.

Historic data used in the assessment of canopy change shows similar results (Table 2). In the historic imagery, 2,459 pixels were matched to reference data, yielding an overall accuracy of 99.72%, with a 95% confidence interval of 99.5% to 99.93%. User's accuracy for the historic imagery was 99.74% for the 782 mapped "treed" pixels (95% CI: 99.39%-100%) and 99.7% for the 1,677 mapped "other" pixels (95% CI: 99.44%-99.96%). Producer's accuracy reached 99.36% for the 785 reference "treed" pixels (95% CI: 98.81%-99.92%) and 99.88% for the 1,674 reference "other" pixels (95% CI: 99.72%-100%).

Both current and historical results demonstrate a strong correlation between mapped tree cover and actual land cover observed on the ground. However, it is essential to review current conditions on the ground before implementing community forestry programs. Ground truthing (on-the-ground verification) is crucial for assessing the existing tree canopy and identifying potential areas for planting.

*Table 2. Accuracy metrics for the historic land cover data used in this assessment (based on 2015-2018 imagery). The table shows overall, user's, and producer's accuracy for tree and non-treed pixels, including 95% confidence intervals and sample sizes.*

Metric	Category	Value (%)	95% Confidence Interval (Lower)	95% Confidence Interval (Upper)	Sample Size
<b>Overall Accuracy</b>	All	99.72	99.5	99.93	2,459
<b>User's Accuracy</b>	Trees	99.74	99.39	100	782
<b>User's Accuracy</b>	Other	99.7	99.44	99.96	1,677
<b>Producer's Accuracy</b>	Trees	99.36	98.81	99.92	785
<b>Producer's Accuracy</b>	Other	99.88	99.72	100	1,674

## Comparison with Other Assessments

This assessment is intended to serve as a nationally consistent baseline and should not be interpreted as a replacement for local or state-level canopy studies. Where independent assessments exist, values may differ from those reported here. Variation in acquisition dates, image resolution, data inputs, and analytical methodologies across studies is expected and does not reflect an error in any particular assessment. This national baseline is best suited for broad regional comparisons and trend analysis at scale. For site-specific planning and local decision-making, users are encouraged to consult state and municipal assessments where available.

## Appendix B: Statewide Findings

Table 3. Results showing state, territory, or affiliated island name; percentage of total area analyzed; total land acres; historical tree canopy acres; historical canopy percentage; current canopy acres; current canopy percentage; net change percentage; and relative percent change.

State/Territory / Affiliated Islands	% of State Covered by Analysis	Total Land Acres	Historical UTC (acres)	Historical UTC (%)	Current UTC (acres)	Current UTC (%)	Net Change %	Relative Change %
<b>Alabama</b>	10.8	3,486,837	1,832,351	52.6	1,865,284	53.5	0.9	1.8
<b>Alaska</b>	0.6	2,050,417	-	-	1,009,318	49.2	-	-
<b>American Samoa</b>	48.8	23,894	-	-	18,844	78.9	-	-
<b>Arizona</b>	6.5	4,685,009	390,874	8.3	471,584	10.1	1.7	20.6
<b>Arkansas</b>	4.4	1,457,275	576,280	39.5	598,713	41.1	1.5	3.9
<b>California</b>	8.8	8,737,809	1,477,991	16.9	1,591,235	18.2	1.3	7.7
<b>Colorado</b>	2.7	1,767,866	260,692	14.7	259,636	14.7	-0.1	-0.4
<b>Commonwealth of the Northern Mariana Islands</b>	24.9	28,694	-	-	16,062	56.0	-	-
<b>Connecticut</b>	39.3	1,210,697	673,379	55.6	654,081	54.0	-1.6	-2.9
<b>Delaware</b>	24.2	304,698	96,585	31.7	99,202	32.6	0.9	2.7
<b>District of Columbia</b>	100.0	39,448	13,475	34.2	15,212	38.6	4.4	12.9
<b>Florida</b>	21.0	7,027,677	2,857,104	40.7	2,854,371	40.6	0.0	-0.1
<b>Georgia</b>	13.0	4,799,668	2,770,098	57.7	2,684,353	55.9	-1.8	-3.1

State/Territory / Affiliated Islands	% of State Covered by Analysis	Total Land Acres	Historical UTC (acres)	Historical UTC (%)	Current UTC (acres)	Current UTC (%)	Net Change %	Relative Change %
<b>Guam</b>	46.2	62,125	-	-	32,386	52.1	-	-
<b>Hawaii</b>	17.0	692,567	-	-	266,836	38.5	-	-
<b>Idaho</b>	0.9	485,498	55,787	11.5	64,784	13.3	1.9	16.1
<b>Illinois</b>	8.8	3,072,943	804,958	26.2	813,655	26.5	0.3	1.1
<b>Indiana</b>	9.0	2,025,746	541,366	26.7	522,112	25.8	-1.0	-3.6
<b>Iowa</b>	3.3	1,156,982	237,148	20.5	224,676	19.4	-1.1	-5.3
<b>Kansas</b>	1.8	947,354	216,520	22.9	236,493	25.0	2.1	9.2
<b>Kentucky</b>	5.7	1,452,078	453,071	31.2	490,367	33.8	2.6	8.2
<b>Louisiana</b>	6.9	1,868,432	707,827	37.9	673,768	36.1	-1.8	-4.8
<b>Maine</b>	4.2	823,915	487,418	59.2	516,139	62.6	3.5	5.9
<b>Republic of the Marshall Islands</b>	46.6	4,603	-	-	1,797	39.1	-	-
<b>Maryland</b>	23.8	1,510,304	705,162	46.7	731,773	48.5	1.8	3.8
<b>Massachusetts</b>	42.2	2,105,632	1,183,313	56.2	1,143,611	54.3	-1.9	-3.4
<b>Michigan</b>	7.5	2,662,216	953,089	35.8	986,745	37.1	1.3	3.5
<b>Federated States of Micronesia</b>	2.4	20,015	-	-	16,910	84.5	-	-
<b>Minnesota</b>	4.9	2,478,021	884,051	35.7	895,902	36.2	0.5	1.3
<b>Mississippi</b>	4.9	1,451,054	718,420	49.5	714,597	49.2	-0.3	-0.5
<b>Missouri</b>	4.5	1,966,966	667,229	33.9	693,418	35.3	1.3	3.9
<b>Montana</b>	0.8	770,764	156,125	20.3	168,497	21.9	1.6	7.9
<b>Nebraska</b>	0.9	452,425	75,076	16.6	70,161	15.5	-1.1	-6.5
<b>Nevada</b>	2.5	1,747,926	64,058	3.7	72,479	4.1	0.5	13.1
<b>New Hampshire</b>	11.3	642,972	419,367	65.2	404,408	62.9	-2.3	-3.6
<b>New Jersey</b>	44.8	2,136,215	978,773	45.8	990,159	46.4	0.5	1.2

State/Territory / Affiliated Islands	% of State Covered by Analysis	Total Land Acres	Historical UTC (acres)	Historical UTC (%)	Current UTC (acres)	Current UTC (%)	Net Change %	Relative Change %
<b>New Mexico</b>	1.9	1,460,403	108,202	7.4	142,821	9.8	2.4	32.0
<b>New York</b>	10.5	3,096,930	1,438,175	46.4	1,369,402	44.2	-2.2	-4.8
<b>North Carolina</b>	12.3	3,796,024	1,835,451	48.4	1,915,853	50.5	2.1	4.4
<b>North Dakota</b>	0.6	242,464	22,172	9.1	22,927	9.5	0.3	3.4
<b>Ohio</b>	13.0	3,376,017	1,110,420	32.9	1,143,404	33.9	1.0	3.0
<b>Oklahoma</b>	5.4	2,343,641	574,899	24.5	644,981	27.5	3.0	12.2
<b>Oregon</b>	1.7	1,047,601	272,395	26.0	289,694	27.7	1.7	6.4
<b>Palau</b>	3.7	3,434	-	-	1,963	57.2	-	-
<b>Pennsylvania</b>	11.6	3,314,174	1,288,978	38.9	1,433,879	43.3	4.4	11.2
<b>Puerto Rico</b>	44.0	956,685	-	-	440,783	46.1	-	-
<b>Rhode Island</b>	40.1	267,386	130,466	48.8	125,451	46.9	-1.9	-3.8
<b>South Carolina</b>	11.2	2,132,755	1,099,936	51.6	1,096,169	51.4	-0.2	-0.3
<b>South Dakota</b>	0.6	307,791	43,305	14.1	40,837	13.3	-0.8	-5.7
<b>Tennessee</b>	11.8	3,118,672	1,391,511	44.6	1,414,590	45.4	0.7	1.7
<b>Texas</b>	5.5	9,003,043	2,185,674	24.3	2,270,264	25.2	0.9	3.9
<b>United States Virgin Islands</b>	45.5	38,673	-	-	18,981	49.1	-	-
<b>Utah</b>	2.4	1,264,986	101,229	8.0	120,711	9.5	1.5	19.2
<b>Vermont</b>	2.8	157,458	75,662	48.1	75,943	48.2	0.2	0.4
<b>Virginia</b>	11.0	2,718,682	1,311,513	48.2	1,305,523	48.0	-0.2	-0.5
<b>Washington</b>	5.1	2,118,097	749,212	35.4	788,983	37.2	1.9	5.3
<b>West Virginia</b>	3.6	540,036	283,671	52.5	295,339	54.7	2.2	4.1
<b>Wisconsin</b>	6.2	2,202,897	634,076	30.2	634,134	30.2	0.0	0.0
<b>Wyoming</b>	0.6	356,752	30,547	8.6	31,232	8.8	0.2	2.2

# Appendix C: Downloading Source Data

Choose the data format below that best fits your specific analysis needs.

**To download vector summaries (census places, urban areas, census blocks, census block groups, census tracts, congressional districts, states & territories):**

**To request access to hosted historical tree canopy, current tree canopy, and land cover web mapping services:**

**ASSESSMENT SUMMARY DATASETS**  
Explore urban tree canopy and land cover data summarized at several administrative levels.  
[VIEW DATA](#)

**TREE CANOPY AND LAND COVER SERVICES**  
Access the raw raster datasets for visualization, delivered via web mapping services.  
[REQUEST ACCESS](#)

Select "view data" and find the dataset you're interested in downloading.

Select "request access", fill out the form below, and the link(s) will be sent to you via email.

**Dataset**  
Census Urban Areas Land Cover and Tree Canopy Analysis  
dfrese\_tawagol  
Historic and current land cover and tree canopy summary statistics at the Census Urban Areas geography to inform and maintain planning activities.  
Type: Feature Service Date updated: 7/29/2025  
Tags: boundaries, environment, census urban areas, L... Date created: 11/15/2024

Request Access to Tree Canopy and Land Cover Web Mapping Services  
Please use the form below to request access to these web mapping services. You will receive an email with links to the services and licensing terms.

Name\*

Email Address\*

Organization\*

State Requested\*  
Please note that the WMS URLs are broken out by state/territory.  
-Please select-

Description of Intended Use\*

Use one or more filters or toggle on "filter as map moves" to narrow down the dataset to your preferred location/scale.

Toggle on "toggle filters" to engage your filters from the last step, if applicable. Select your preferred download option from the list.

**Filters**  
Census Tract Land Cover and Tree Canopy Analysis  
Filters Styling  
Filter as map moves

STUSPS  
 CA 11.40%  
 TX 8.31%  
 NY 6.43%  
 FL 6.28%  
 IL 3.96%  
Search 51 more values

Select attribute filters (44)  
 GEOID 2,000 values  
 STUSPS 44 values  
 Percent of Feature within Urban Area 0 to 100  
 Full Feature Area (acres) 3.99 to 11677.09853  
 Urban Area (acres) 0 to 18,801.3  
 SHAPE\_Leng 108.36 to 327,103.36

**Download Options**  
Hosted Downloads  
Census Tract Land Cover and Tree Canopy Analysis  
Records: 78,977  
Toggle Filters:

CSV  
 Shapefile  
 GeoJSON  
 KML  
 File Geodatabase  
 Feature Collection

Figure 22. User guide for downloading source data from <https://hub.treesatwork.org/>.

## Appendix D: Glossary and Abbreviations

### **Census Block Group:**

A statistical division of a census tract, generally containing between 600 and 3,000 people. It is the smallest geographic unit for which the U.S. Census Bureau publishes sample data (such as income or housing information). Each block group consists of clusters of census blocks.

### **Census Blocks:**

The smallest geographic unit used by the U.S. Census Bureau, typically bounded by visible features such as streets, streams, or railroad tracks. Census blocks are nested within block groups and census tracts, and they are the building blocks of census geography.

### **Census Place (as designated by the U.S. Census Bureau):**

A concentration of population defined by the U.S. Census Bureau, consisting of either an incorporated municipality (such as a city, town, or village) or a Census Designated Place (CDP), a named, unincorporated community identified for statistical purposes. Census places are recognized by their legal boundaries (for incorporated areas) or community-defined boundaries (for CDPs), irrespective of population density.

### **Congressional District:**

An electoral district for the U.S. House of Representatives, apportioned among the states based on population counts from the decennial census. Each congressional district elects one Representative, and boundaries are typically redrawn every 10 years during redistricting.

### **LiDAR:**

A remote sensing method that uses light in the form of a pulsed laser to examine the Earth's surface (National Ocean and Atmospheric Administration).

### **Land Acres:**

The total land area in acres of the assessment boundary (excludes water).

### **Non-Canopy Vegetation:**

Areas of grass and open space where tree canopy does not exist.

### **Raster Data:**

Spatial information represented as a grid or matrix of pixels (or cells), where each cell contains a value representing a specific attribute of that location, such as a specific land cover type.

**Shrub:**

Areas of shrub or other leafy and woody vegetation (smaller than 6-10 feet tall) that are not classified as tree canopy.

**Soil/Dry Vegetation:**

Areas of bare soil and/or dried, dead vegetation.

**Total Acres:**

Total area, in acres, of the assessment boundary (includes water).

**Urban Areas (as designated by the U.S. Census):**

A contiguous, densely developed territory comprising residential, commercial, and other nonresidential urban land uses. To qualify as an urban area in the 2020 Census, the territory must contain at least 2,000 housing units or have a minimum population of 5,000. Urban areas are delineated based on population and housing unit density, not legal boundaries, and may span multiple municipalities.

**Urban Tree Canopy (UTC) or Community Forests:**

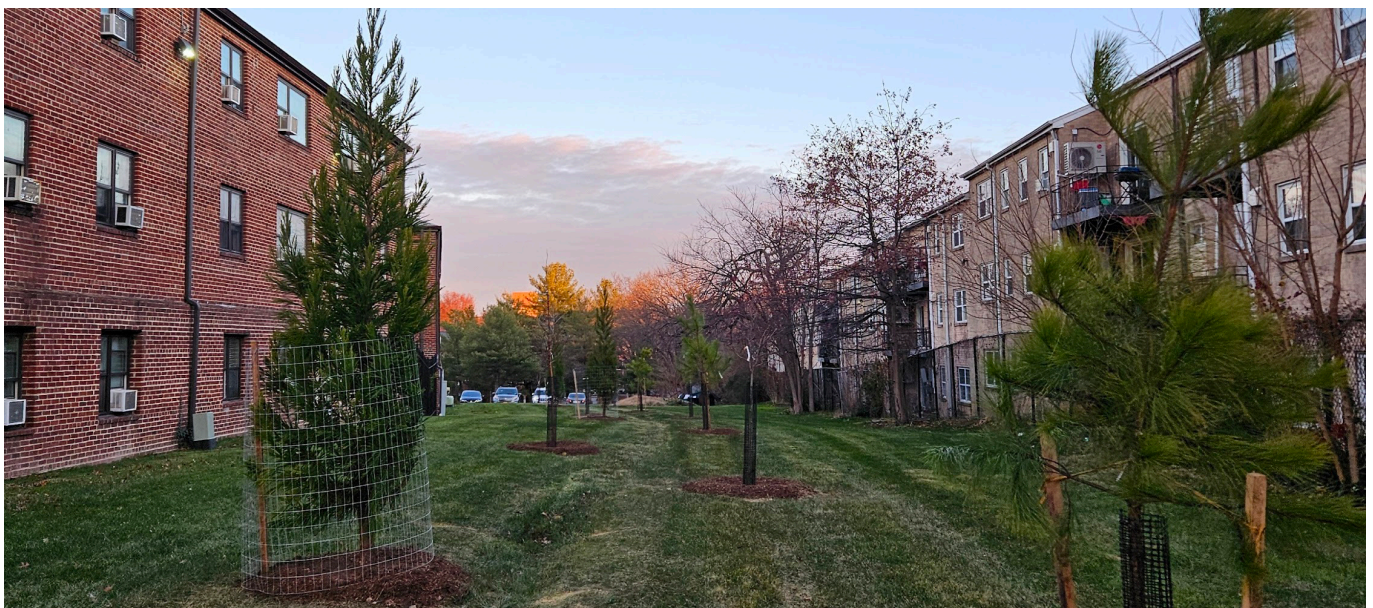
The “layer of leaves, branches and stems that cover the ground” (Raciti et al., 2006) when viewed from above. The tree canopy was generally taller than 10 feet.

**Vector Data:**

Spatial data in the form of points, lines, and polygons.

**Water:**

Areas of open, surface water not including swimming pools.



*Casey Trees organized a volunteer event to plant 55 shade trees in Langley Park, Maryland. Photo by Andrew Schichtel.*

MARCH | 2026

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