



Urban Resilience: Evidence-based Urban Greening as a Climate Adaptive Tool



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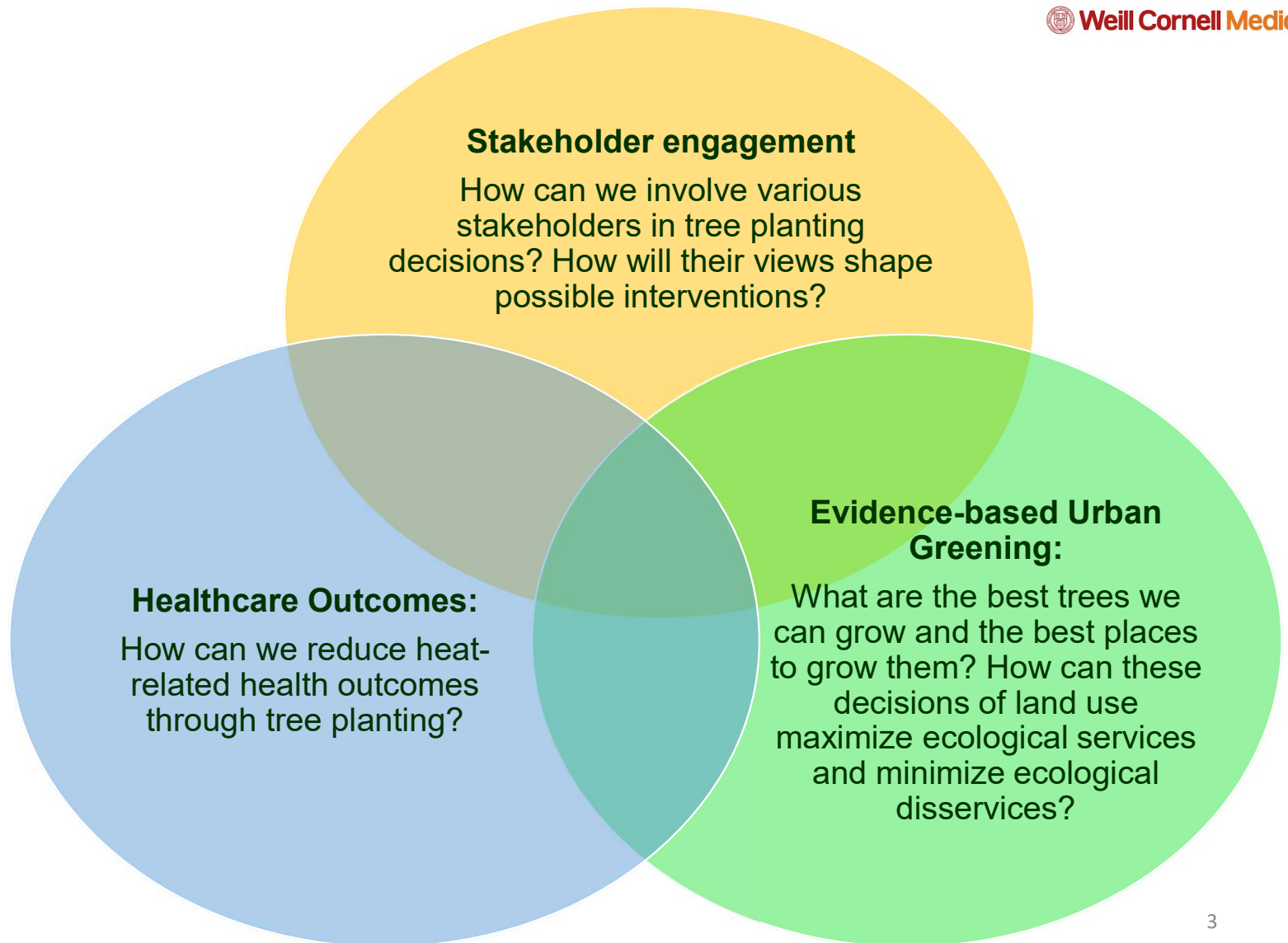
Project Goals

Overarching Goal: Inform the *building of evidence-based urban greening programs* to reduce adverse extreme heat event (EHE)-related impacts

Scientific Objective: Characterize the *ideal planting scenarios* within NYC to minimize EHE exposure and its adverse health issues

Hypothesis: Planting specific tree species in defined areas will reduce the heat index at neighborhood scales, lowering the risk of EHE-related ED visits, hospitalizations, and deaths.

Conceptual Model of our Work

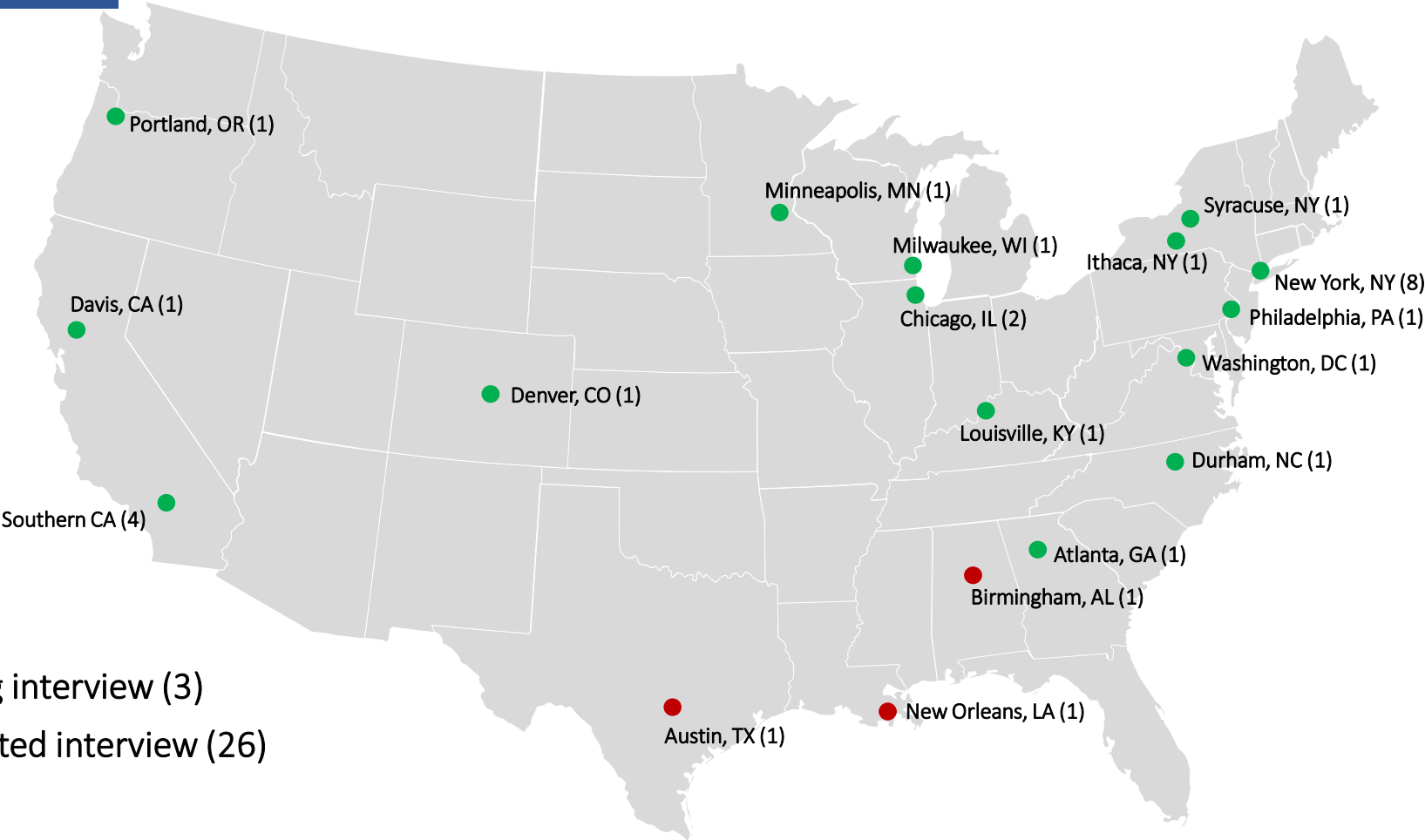


Workstreams

1	Tree identification	<ul style="list-style-type: none"> To identify public and private trees across NYC as inputs into the Urban Canopy Model
2	Application of climate modeling	<ul style="list-style-type: none"> To develop fine grained heat maps that incorporate tree effects across NYC
3	Epidemiological modeling	<ul style="list-style-type: none"> To examine the relationship between tree-enhanced heat maps and risk of heat-related health outcomes
4	Urban forestry perspectives	<ul style="list-style-type: none"> To understand the challenges and priorities of urban forestry professionals in trees as a heat tool
5	Community input & perspectives	<ul style="list-style-type: none"> To understand the challenges facing communities, and attitudes towards trees as an intervention against extreme heat
6	Advocacy, dissemination, grants	<ul style="list-style-type: none"> To share our findings, coordinate with policy makers, and ensure sustainability of this project

4 Urban Forestry perspectives

Overview of interviews with urban forest professionals



Emerging themes from UF interviews

Scientific knowledge gap	Tree species have varying degrees of cooling potential due to physiological traits, but its uncertain which species best reduce heat-related health issues
Establishment success vs ecosystem services	Tree establishment is more of a priority in species selection decisions than ecosystem services/health benefits provided
Need for more data-driven decision making	Tree management decisions are often based on personal opinions rather than justifiable positions. While years of experience is valuable, science may help promote decision making
Not enough funding for quality management	Support/funding for more robust tree management programs is a primary concern for urban foresters
Climate changes everything	The trees we plant today may not survive in the climates of tomorrow. As temperatures rise and droughts increase, urban trees may also be less effective with cooling through evapotranspiration
Educating the public with public health benefits	Sharing the public health benefits of trees is one way to advocate for equitable expansion of the urban forest and garner governmental support for trees

Emerging themes from Community Interviews

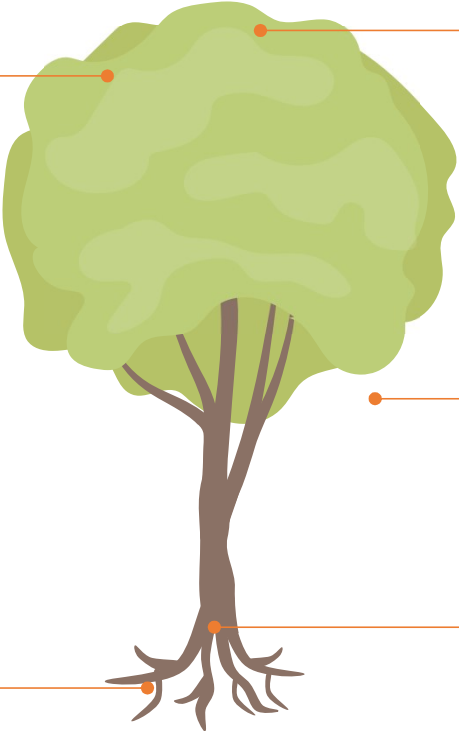
01 Human-Environment Relationships

03 Environmental Justice

04 Generational Environmental Knowledge

02 Community Building

05 Environment, Faith & Spirituality



Strengthening adaptation and resilience to future heat events – the role of the urban forest

FAS FEDERATION OF AMERICAN SCIENTISTS



ENVIRONMENT

DAY ONE PROJECT

A National Framework For Sustainable Urban Forestry To Combat Extreme Heat

04.04.24 | 7 MIN READ | TEXT BY [ARNAB GHOSH](#)

Over \$1B in Inflation Reduction Act funds have been disseminated to large tree-planting efforts around the country



Forest Service
U.S. DEPARTMENT OF AGRICULTURE

Since the passing of the IRA, **over \$1B** have been dedicated to the expansion of tree and green spaces across communities and neighborhoods nationwide¹



INFLATION REDUCTION ACT GUIDEBOOK

In addition, over **\$2B** in the IRA dedicated to wildfire risk reduction, **\$700M** to conserve recreational areas and **\$450M** is dedicated to voluntary incentives for private forestland owners



**National Urban and
Community Forestry
Advisory Council**

The 5-year Benchmark report of the Decadal Urban Forestry Plan (2016-2026) calls out need to “...***collaborate with public health networks to address extreme heat impacts through improved integration in state and regional planning and other measures***”²

¹ <https://www.fs.usda.gov/about-agency/newsroom/releases/usda-invests-1-billion-nearly-400-projects-expand-access-trees-and>

² <https://www.americanforests.org/article/unprecedented-urban-forest-funding-made-law-through-historic-climate-bill/>

³ <https://www.fs.usda.gov/sites/default/files/users/user3860/NUCFAC-Benchmark-Report-27Jul22.pdf>