Hixon Center for Urban Sustainability

FACT SHEET:
Mapping Trees to Reduce Vulnerability

Green City | **Healthy City**

Climate Issue: Tree Distribution

Urban trees are invaluable resources. They provide a range of benefits and ecosystem services by:

- Cooling streets
- Filtering air pollution
- Managing stormwater
- Reducing flooding
- Protecting biodiversity
- Providing areas for shade
- Increasing social cohesion.

So, what's the problem?

Science shows that urban trees are unequally distributed in cities based on population demographics like income, wealth and race. In the US:

- Higher income areas have more trees than lower income areas
- Predominantly white neighborhoods have more trees than predominantly black neighborhoods
- Unequal tree distribution today may reflect historical planning decisions of the past, such as redlining.

When certain population groups within the population miss out on environmental benefits, it becomes an **environmental injustice**.

The First Step: Mapping Trees

City officials can address this injustice by better understanding where urban trees **are** and **are not**. The first step in achieving this is to map trees.

- Modern tree mapping methods summarize urban tree cover data within a parcel
- Parcels are used as the unit of decision making for land management because they are legally binding
- Parcels inform future tree planting by identifying ownership type (public versus private), which helps inform management approaches.

High-resolution maps of New Haven show where urban street trees are planted, including each parcel.

Tree canopy maps allow practitioners to **prioritize equitable tree planting measures**.
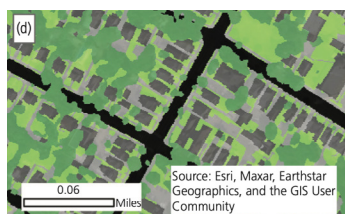
IN A NUTSHELL

- People benefit when trees are present, and are disadvantaged when they are not
- Trees are unevenly distributed in cities, which can be an environmental injustice
- Cities can map where urban trees are to identify groups who are missing out.

WHAT CAN YOUR CITY DO?

ACTION: Partner with universities and other research institutions to create high-resolution tree maps

EXAMPLE: The University of Vermont in Burlington, VT, manages the city's Spatial Analysis Lab and has completed 87 land cover maps across 53 million acres.

ACTION: Partner with local organizations to remove cost barriers for tree planting

EXAMPLE: Urban Resources Initiative in New Haven, CT, leads a free tree planting program to remove cost barriers in low-income areas.

ACTION: Use map results to set urban tree goals, and incorporate into city plans

EXAMPLE: The Baltimore Ecosystem Study provided high-resolution imagery to Maryland for urban tree planting funds and to set accurate tree canopy goals.

Yale SCHOOL OF THE ENVIRONMENT