Session 2.4

Elysium: Creating the policy and legal framework to support the role of urban forests as public health infrastructure

Chair: Matt Spitsen
Presented by
Michael P Kelley, MNR
Pittsburgh, Pennsylvania
America’s Most Livable City
Planting for the future

Coverage for All
Contributing Factors to Canopy Inequity

- Redlining
- Disinvestment in Poor and Minority Communities
- Economic Collapses
- Lack of Intentional Reinvestment
Program History

- 2012: ReLeaf Program Launches in Manchester
- 2019: City Convenes Tree Equity Subcommittee
- 2020: Tree Equity Subcommittee Develops Equity Matrix; Releases Street Tree Equity Plan
- 2021: First Round of Tree Plantings in Equity Neighborhoods
- 2022: DCNR Grant Focusing on Replanting in Equity Neighborhoods Awarded
- 2022: Trust Trees campaign launches; ReLeaf Beltzhoover
- 2023: City and Partners Awarded $9M in IRA grant funds for Justice40 Neighborhoods across Allegheny County
Partner Organization

City of Pittsburgh Forestry Division
Show Up and Own Up

- Refocus energy on clearing backlog of work in Equity Communities
- Work with partner organizations and community groups to identify areas of greatest need
- Community Forestry Specialist
- 3TB Community Forest Initiative
- Supporting planting initiatives of partner organizations
Partner Organization

Tree Pittsburgh
ReLeaf Plans

Greener neighborhoods one block at a time!

Tree Pittsburgh's ReLeaf program is a stakeholder-driven process that brings urban forest planning to the neighborhood level. We work with communities that want to chart a path toward a greener neighborhood. Together, we’ll create a plan to grow the urban forest through site planning, young tree care, and education to help ensure long-term success.

This is your four-step road map to ReLeaf planning!

1. What Do We Have?
   Our teams will assess existing trees, green spaces, and existing resources within the community.

2. How Do We Get There?
   With your community priorities in mind, we’ll pull together to create a project plan to bring more trees to your neighborhood.

3. What Do We Want?
   Next, we listen to community members to define their wants and needs for protecting and growing their neighborhood trees.

4. How Are We Doing?
   Tree Pittsburgh staff will work to track, record, and analyze efforts to deliver a progress report on your ReLeaf efforts.

ReLeaf with Tree Pittsburgh

320 E 2nd Street | Pittsburgh, PA 15221 | 412.781.TREE (8733) | treepittsburgh.org
Partner Organization
Western Pennsylvania Conservancy
TreeVitalize

- WPC has planted 40,000 trees since 2008
- TreeVitalize Pittsburgh partnership, which includes many organizations and municipal stakeholders across the City and County
- Proper site preparation, tree selection, community engagement, and maintenance.
Partner Organization
Landforce
Investing in People
Restoring the Land

- Employment social enterprise nonprofit
- Trains and hires people typically excluded from family sustaining green jobs Works on environmental stewardship projects including tree planting, care, GSI, and habitat restoration
- Supports trainees/hirees to transition to long-term employment
- Launching Urban Wood Reuse program to provide services for full lifecycle of trees
Partner Organization

Resilient Cities Catalyst
Help cities and communities create catalytic change

• Making the case for sustained data-informed community-centered investments in GI & urban tree canopy
• Utilizing data to tell a story of the opportunity of trees
• Visualizing innovative ways of thinking about what a tree-equitable neighborhood and city look like
• Supporting planting initiatives in neighborhoods facing high levels of climate risk
Partner Organization

UrbanKind Institute
Trust Trees
Thank you

Michael Kelley, MNRI | City of Pittsburgh

✉️ Michael.Kelley@pittsburghpa.gov
2nd World Forum on Urban Forests
2023
Centering Community in Community Forests
Partnering with environmental justice communities to ensure equitable distribution of urban canopy in the United States

Presented by
Colleen Berg, Molly Codding, Kalaia Tripeaux
Preston Brooks, Ericka Popovich
Environmental Injustice
Acknowledgement

Canopy inequity in the United States is the result of decades of systemic racism in housing and lending, and land use disenfranchisement for people of Color and low-income communities.
The opportunity: IRA shifts EJ

In 2022, the United States Congress passed landmark legislation which will provide $1.5 B in funding for urban forest management in environmentally disadvantaged communities.

States will have historic levels of funding dedicated to meeting the needs of EJ communities.
The challenge: States must engage community for long-term change

1. Understand community readiness and motivation to accept trees
2. Make sure planting projects are not drop it and forget it
3. Help communities maintain and care for trees through education
4. Address financial burdens of tree care
5. Provide meaningful employment for community members
6. Work across divides to address intersectional EJ priorities
How to build bridges through community engagement

1. Start with awareness
2. Slow your roll
3. Get flexible
4. Be Responsive
5. Support Sustainability
Feedback: What’s working

• Building relationships before IRA awards
• Removing barriers to resources
Feedback: What’s Not

• Lack of awareness of eligibility
• Bureaucracy
• Limitations of our programming
• Timelines to action
• Too much talking, not enough action
Diverse Partnerships: Together we can advance justice

MN:
Working with urban farm and garden groups to co-create mini forests.

Supporting EJ organizers on residential relief efforts.

PA:
Partnership Planting with TreePhilly

Photo credit: North News, 2022
Diverse Partnerships: Together we can advance justice

LA: Food justice Citrus Program

OH: Education and action in community
Organizational assessment questions:

- Are divisions, agencies ready for change?
- How much support will existing staff need to support TES? Are you hiring additional staff?
- Will TES concentrate on focused efforts or be pulled in too many directions?
- How will TES guidance be handled?
- How will you involve and consult community with your programming?
Thank you

Please find us afterwards to connect

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Preston Brooks: preston@batonrougegreen.com
Ericka Popovich: epopovich@bluewaterbaltimore.org
Kalaia Tripeaux: c- ktripeau@pa.gov
Molly Coddington: molly.coddington@state.mn.us
2nd World Forum on Urban Forests
2023
Biocultural Restoration for Canopy, Ecology and Community Equity

USDA Forest Service Great Lakes Restoration Initiative

Kat Korba, Kanopy Works LLC
Anne C Bellows, Professor Food Studies, Syracuse University
World Forum on Urban Forests
Washington D.C., 16-20 October 2023
Syracuse Urban Food Forest Project (SUUFFP)

Area Map
Overview

• US Forest Service, GLRI (2021-2024)
• Plant 920 trees and 500 shrubs on 4.0 acres along 9.0 mile corridor in Syracuse, NY
• Community engagement and education with community planting events and community food walks
• Increase intercept by 3.5 M gallons; lower stormwater impact by 0.8M gallons over 20 years
Ecological zones

- Corridor
- Impervious Cover
- Canopy
- Built Environment
- Lawn
- Forest Edge
- Oak Woodland
- Riparian Wetland
- Riparian Woodland
- Maple Forest
- Lawn and Riparian Woodland
Syracuse Urban Food Forest Project

- Research collaboration between faculty, students, community organizations in Syracuse
- Combination of naturally growing and intentionally planted food forest
- Promotes community stewardship, restores wild food literacy, and encourages human-environment interaction

Community Researcher: Antonisha Owens  
Research Assistants: Jess Cherofsky, Elena Juodisius, Marie Claire Bryant, Lisa Bush, Angelia Rossi, Ethan Tyo, Briana Okebalama, Grace Taylor, Theresa Ferrigno, Anna Gugerty, Gabrielle Reagan
• Syracuse City Depts Parks & Rec (Urban Forestry), Neighborhood & Business Dev (NBD)
• SUNY College of Environmental Science and Forestry (ESF)
• Syracuse University (SU)
• Onondaga Earth Corps (OEC)
• SW Learning Farm
• Onondaga Community College
Scope of Work

**DESIGN**
- DESIGN a model food forest corridor that integrates ongoing green infrastructure plantings, and ecosystem types
  - IA. Develop designs for 3 ecosystem types
  - IB. Site-specific designs for 9 planting areas

**ENGAGE**
- ENGAGE neighborhood and business community linked to efforts to improve environmental quality and financial opportunities for local residents
  - IIA. Gather community input for design of plantings
  - IIB. Share and communicate cross-generational foraging knowledge and practices

**PLANT**
- PLANT food forest for green infrastructure systems in nine locations across a diverse economic and ecological cross-section of the city
  - IIIA. Volunteer coordination and training for a total of 4 large community planting events
  - IIB. Maintenance. OEC will water all trees and shrubs planted for the first year after planting

**MEASURE**
- MEASURE performance of food forest green infrastructure systems using quantitative modeling and qualitative assessment through evaluation
  - IVA. Water infiltration
  - IVB. Food availability
  - IVC. Community engagement
Foraging, Public Access and the Honorable Harvest

The SUFFP increases access to public land for foraging
... For public access to urban forests for foraging
Sec. 17-8. Interference with trees, shrubs, grass and soil.

No person shall:

(a) Climb, peel, cut, deface, remove, injure or destroy any tree in any park or playground;

(b) Pluck, break, trample upon or interfere with any flower or shrub in any park or playground;

(c) Stand, walk, ride or lie upon any part of a park or playground laid out and appropriated for grass or shrubbery when there shall have been placed thereon a sign forbidding the same;

(d) Take, dig, remove or carry away any sward, gravel, sand, turf or earth in any park or playground;

(e) Injure, deface, disturb or befoul any part of a city park or any buildings, signs, equipment, ornament, statue, fence, bridge, structure or other property within any part or park approach or within any other area under the control of the commissioner of parks, recreation and youth programs.

(Ord. of 6-10-68; L.L. No. 10-1994)
Draft Municipal Code Proposal for Syracuse City Council

**Plant foraging** (the practice of identifying, collecting, and consuming wild edibles, also referred to as “gathering” or “harvesting”) is permitted on public land in the City of Syracuse. "Wild edibles" are defined as both naturally occurring, i.e., without any human support, and as introduced and sometimes managed, as in the case of planted juneberry trees or fiddlehead fern. **Permission to forage is contingent** on its practice as respectful and responsible. Respectful and responsible foraging considers plants’ sustainable reproduction needs, other human and non-human foraging interests, and never allows the taking of more than half of the existing edibles in any given space, as articulated in Traditional Ecological Knowledge systems such as “the Honorable Harvest.” Foragers assume responsibility for their practice. The **City of Syracuse may not be held liable** for misidentification of plants, allergic reactions to plant consumption, or consequences of foraging practices (e.g. from poison ivy or deer tick presence).
Re-thinking Dietary Diversity (good nutrition) in an **Expanded Food System** that Includes Foraging Wild Edibles

We reviewed antioxidant phytochemicals that fight chronic disease

- Vitamin A
- Vitamin C
- Vitamin E
- Selenium
- Riboflavin
- Cancer
- Coronary Heart Disease
- Diabetes
- High blood pressure
- Kidney disease
- Obesity
Valuable forageable foods can be found in your own neighborhood. They are rich in antioxidant phytochemicals and are at least as nutritionally valuable as commercial varieties.

There is missing data on nutritional content of most wild forageable foods (largely free, “whole”, often in public commons) but lots of data on processed foods.

Social Components of Community Food Forests

The manner in which a food forest is integrated into the fabric of a community is as at least important as the trees that are planted and the food that is produced.

Bukowski & Munsell, The Community Food Forest Handbook

From Bukowski and Munsell. The Community Food Forest Handbook
Community food walks

FORAGE YOUR LUNCH
@ Elmwood and Kirk Park*
WEDNESDAY, JULY 22ND
12:00-12:45 PM

Join us to learn and share:
- What plants you can eat and find in Syracuse parks and public places
- How to prepare and cook foraged plants

*Access the virtual tour by emailing
yunu@cornell.edu for the Zoom link

[Images of people foraging and preparing food]
Public Health, Community Engagement, and Environmental Justice
Planting w/ Youth from OASIS SCHOOL
Chinkapin Oak, Quercus muehlenbergii
Chinkapin Oak, Quercus muehlenbergii
Bird community in food forest

- Quantification of bird community associated with food forest species
- Evaluation of mulberry and serviceberry
- 12 individuals of each tree
- During fruiting (June and July 2020) and during fall
Bird community

- Over 20 bird species found associated with mulberry and serviceberry
- Paired sampling revealed that serviceberry and mulberry support more species than without fruiting serviceberry and mulberry
- Serviceberry appears to have a greater influence on bird community than mulberry
Green Infrastructure

In addition to creating edible ecologies, the SUFFP provides important ecological services.
Riparian Pawpaw, Asimina triloba
Upland Forest

Shagbark Hickory, Carya ovata
Forest Crop Trifecta

Sugar Maple

Hickory

Ramps
Shagbark Hickory (Carya ovata)
Kingnut Hickory/ Shellbark Hickory (Carya laciniosa)
Bitternut Hickory (*Carya cordiformis*)
Shagbark Hickory Nuts

Bitternut Hickory Nuts

Nut Weasel
Bitternut Hickory Oil

Hickory Nut Oil is an ancient American tradition. Expeller pressed, unrefined, all natural, cold-pressed from hand-harvested wild nuts. This oil has a mild flavor great for salads, dipping, and all cooking applications.

Growing Forests
Growing Food
wildwoodsorchard.com

Ecological zones

Lawn and riparian woodland
Oxford St. Vacant Lot
Kat Korba, Kanopy Works LLC
Kat.Kanopy@gmail.com

Anni Bellows, SU Food Studies Department
acbellow@syr.edu
2nd World Forum on Urban Forests
2023
Holistic stewardship - engaging the public in all aspects of trees from seed to slab

Presented by
Jessica Sanders PhD, PMP
Executive Director
Sacramento Tree Foundation
Messaging - from Seed to Slab
Engaging the next generation of environmental stewards.
Restoring natural spaces with kids of all ages
Partnering with undercanopied communities to create lasting change.
Honoring our region’s trees when they are removed
Placemaking for communities with trees
Our Healthy Forest is a Diverse One
Our mission is to grow thriving communities through stewardship of our urban forest. We seek to honor the diversity and roots of this region by prioritizing equity internally and externally. We bring our whole selves and celebrate one another. From seed to slab, we work with communities to create live-able and loveable communities for everyone. And by everyone, we mean everyone.
Thank you

Jessica Sanders PhD, PMP | Sacramento Tree Foundation
Executive Director

Jessica@sactree.org
2nd World Forum on Urban Forests
2023
An ongoing study:

Priorities for afforestation areas on a national scale

Presented by

Chiara Gibertini
Giorgio Vacchiano, Fabio Salbitano, Maria Chiara Pastore
Livia Shamir, Luis Pimentel and Simone Marchetti
Tree restoration

**Territorial governance**
- 3 bilions trees by 2030
- 6.6 million trees in metropolitan cities by 2030

**and**

**CO₂ compensation**

**What already exists?**
- Map of natural tree restoration potential

**What is missing?**
- 3 bilions trees by 2030
- 6.6 million trees in metropolitan cities by 2030
- CO₂ compensation

**Where?**
- Mapping of priority areas for afforestation to maximize benefits
Objective

Mapping of priority areas for afforestation on a national scale

- Main goals of afforestation projects
- Environmental and social variables
- Suitable areas
**Suitable areas**

**Excluding:**
- Existing forests - Source: Corine Land Cover 2018
- Impervious surfaces - Source: Corine Land Cover 2018
- Protected areas - Source: World Database on Protected Areas (WDPA); Ramsar Sites Information Services
- Wetlands - Source: Corine Land Cover 2018
- Elevations above 1600 m

- Agricultural areas → agroforestry and/or planting along field edges
- Urban areas
Main goals of afforestation projects

• Ecological connectivity and biodiversity conservation
• Restoration of degraded areas and ecosystems
• Protection from hydrogeological instability
• Carbon sequestration
• Urban afforestation and provision of ecosystem services
• Wood production
• Combating desertification/drought

Ecosystem Services & Biodiversity
(Source: FAO)

- Habitat for species; Pollination
- Habitat for species
- Moderation of extreme events
- Carbon sequestration and storage
- Local Climate Air Quality; Recreation and mental and physical health; Aesthetic appreciation and inspiration for culture, art and design
- Raw materials
- Regulation of Water Flow
Environmental and social needs

Variables

• Spatially explicit
• Mapping available on a national scale

• Distribution of protected and/or natural areas (e.g. distance to the nearest protected area - Source: WDPA; Ramsar Sites Information Services)

• Climatic and environmental conditions (e.g. future temperature trend - Source: ClimateEU)

• Land use (e.g. habitat fragmentation - Source: G.Vacchiano & S.Galimberti)

• Anthropic presence (e.g. population density per municipality - Source: ISTAT 2022)

• Prevention (e.g. hydrogeological risk from superficial landslides and floods - Source: ISPRA)
Main goals of afforestation projects

Variables

Survey among experts in:
- Forestry
- Agronomy
- Ecology
from all regions of Italy

Structured interview

Semi-quantitative data
(high, medium, low weight of variables)

Distributed online
A raster file made with GIS with a resolution of 1 km

For each main goal ($y_j$), each point is assigned a score $S_j$ between 0 and 100

$$S_j = \sum_i x_i \cdot w_{ij}$$
For each main goal \((y_j)\), each point is assigned a score \(S_j\) between 0 and 100

\[
S_j = \sum_i x_i w_{ij}
\]

Each variable \(x_i\) can take values between 0 and 1

The weight \(w_{ij}\) of variable \(x_i\) for the main goal \(y_j\). \(0 \leq w_{ij} \leq 100\)

From the survey responses:
- high = 3, medium = 2, low = 1
- weight of variables
- Square of mean value
- Percentage value on the total sum

A raster file made with a resolution of 1 km
Ecological connectivity and biodiversity conservation

Urban afforestation and provision of ecosystem services

<table>
<thead>
<tr>
<th>Minimum summer temperature</th>
<th>Ecological connectivity</th>
<th>Urban afforestation</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>20.1°C - 24.7°C</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>18.7°C - 20.1°C</td>
<td>0.2</td>
</tr>
<tr>
<td>15</td>
<td>-0.5°C - 18.1°C</td>
<td>0</td>
</tr>
</tbody>
</table>

Proximity to waterways

<table>
<thead>
<tr>
<th>Proximity to waterways</th>
<th>Ecological connectivity</th>
<th>Urban afforestation</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1 km</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>&gt; 1 km</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Buffer waterways

\(W_{ij}\)

\(x_i\)
\[ S_j = \sum_i x_i \cdot w_{ij} \]
# Survey results

- **> 200 responses**
- **From all regions of Italy**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Ecological connectivity and biodiversity conservation</th>
<th>Urban afforestation and provision of ecosystem services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Habitat fragmentation</td>
<td>17</td>
<td>8</td>
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<tr>
<td>Proximity to roads and railways</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Presence of tourist/cycling itineraries</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>Minimum summer temperatures</td>
<td>8</td>
<td>13</td>
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<td>Future temperature trend</td>
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<td>13</td>
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<tr>
<td>Exceeding the daily PM10 limit value</td>
<td>7</td>
<td>14</td>
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<tr>
<td>Density population per municipality</td>
<td>3</td>
<td>11</td>
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<tr>
<td>Hydrogeological risk from superficial landslides and floods</td>
<td>10</td>
<td>5</td>
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<tr>
<td>Post-fire recovery potential</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Proximity to waterways</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td>Distance from protected natural areas</td>
<td>10</td>
<td>4</td>
</tr>
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</table>
Preliminary results of mapping

Urban afforestation and provision of ecosystem services on the 14 Italian metropolitan cities
Conclusions

• These maps can be used as first support to planning decisions at the regional or provincial scale.

• The same system of scores could be used on a much finer scale to optimize the actual location of each afforestation project → Urban forest

For the future:
• Expand the study to other main goals;

• Add more variables → Attention to multicollinearity problems
  Availability of adequate maps on a national scale
Thank you

Chiara Gibertini
University of Milan

Chiara Gibertini1, Giorgio Vacchiano1,2, Fabio Salbitano2,3, Maria Chiara Pastore4, Livia Shamir5, Luis Pimentel5 and Simone Marchetti5

1 Department of Agricultural and Environmental Sciences, Università degli Studi di Milano, Italy; 2 Fondazione Alberti Italia ETS, Santa Sofia, Italy; 3 Department of Agriculture, Università degli studi di Sassari, Sassari, Italy; 4 Politecnico di Milano, Milan, Italy; 5 Stefano Boeri Architetti, Milan, Italy
2nd World Forum on Urban Forests
2023
Overcoming Barriers to Community Tree Planting in Chicago, Illinois, USA

Presented by
Tom Ebeling
Community Arborist
Openlands
Openlands

Openlands protects the natural and open spaces of northeastern Illinois and the surrounding region to ensure cleaner air and water, protect natural habitats and wildlife, and help balance and enrich our lives.
Openlands Forestry: Overcoming Barriers through Partnerships

Over 9,000 trees to date

Over 1,900 TreeKeepers trained

Greater than 90% success rate for trees
Barriers to Tree Planting

- Access to land, tools, trees or time
- Expertise
- Maintenance
- City ordinances
- Language
Barriers: Access to land, tools, trees or expertise; prohibitive city ordinances

Addressing barriers: Openlands TreePlanters Grant
Barriers: Maintenance; expertise
Addressing barriers: Openlands TreeKeepers; Arborist Registered Apprentices
Barriers: Language, lack of free time, maintenance ability

Addressing barriers: Southwest Side priority area, Spanish TreeKeepers, stipends, building staff capacity
Plantación de árboles

¿DESEA PLANTAR GRATUITAMENTE UN ÁRBOL EN SU ARCÉN?

¡Deja que Openlands sepa que quieres árboles en tu barrio!

Utilice el siguiente código QR para solicitar un árbol (o árboles) para tu acera, y le pondremos en contacto con alguien que esté organizando una plantación de árboles en tu comunidad. Se le pedirá que cuide del árbol durante 3 años, principalmente regándolo una vez a la semana durante la temporada de crecimiento.

Inquilinos pueden someter aplicaciones si lo comunican con los dueños de la propiedad.

¿Preguntas?

Nuestros expertos están a su disposición.

Tom Fehling       Tfehling@openlands.org
Overcoming the Barriers: Partnerships, Training, Capacity Building

Navigating bureaucracy, lending legitimacy and expertise

Leveraging corporate and institutional partnerships for community vision

Training and empowering volunteers, developing the forestry workforce

Stipends, accessible materials and programming
Thank you

Tom Ebeling | Openlands
tebeling@openlands.org
CEUs

Session 2.4: The Divide: Promoting equal distribution of green spaces and environmental services

PP-23-3565