What's a Forest For?

the function, design, and value of the urban forest

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stefano boeri's
vertical forest -
milan-

the functions of the urban forest

- most trees not chosen for function
- chosen to avoid negatives

GOOD
BYE

designing the urban forest

so, where to intervene with design?

- urban forest management plans

- inter-department cooperation

- training city employees and volunteers

- park renovation and design

- maintenance plans

- tree planting programs

- non-profit partnerships

- tree inventories

- green roofs

what natural functions do trees have?

- improve air quality

- sequester carbon

- produce oxygen

- reduce heat island effect

- provide habitat

- retain humidity

- increase infiltration

- prevent erosion

- build soil via leaf litter

what other functions do we want?

- shade

- reduce UV

- reduce irrigation

- energy conservation

- stormwater infiltration

- noise reduction

- view screening

- increase property value

- native and rare tree preservation

- ecological and cultural education

- stress reduction

- products: food and other renewables

the functional urban forest
- cities in the vanguard of urban forestry -

*"if a picture is worth 1000 words,
a model is worth 1000 pictures"*

Austin, Texas: energy and the urban forest

- 2001: Heat Island Containment Policy
- 2009: Green Roof Program
- 2010: Heritage Tree Ordinance – public and private
- 2014: Comprehensive Urban Forest Plan
- coordinates 14 city departments dealing with trees
- manages 300,000 trees on public lands

Austin's energy plan

- Treefolks – 3000 trees/yr to Austin Energy for streets
- 3000 trees for private yards per year
- Austin Community Trees program – 10 species for free
- Tree-trimming moratorium
- Forest stewards program

Sacramento, California
trees for kilowatts

- Urban Forestry Section in Dept. of Public Works
- 27 on staff
- 115,000 street, park, and city facility trees
- 85,000 trees on easements
- plants 2000 trees per year

- SMUD partners with Sacramento Tree Foundation
- Education program for volunteers
- Research on 72 shade scenarios
- 20 scenarios save $20-150 in electrcity per year
- 13,000 shade trees plus 5000 others per year
- goal is $700,000 per year in savings

Portland, Oregon: rain and trees

- PPR Urban Forestry Division since 1977, 29 staff
- 1.2 million park trees, 236,000 street trees
- 30% canopy
- removal of >12"DBH requires permit
- 2005 Watershed Management Plan

Portland's tree initiatives

- 2004 Urban Forest Management Plan
- 2008 BES Grey to Green Initiative
- "treebate" up to $50 credit for tree planting
- 4700 trees in 2012 with Friends of Trees
- planted 3600 trees in key watersheds

Planting the Rain

- spent $1.4 billion for "Big Pipe"

- will be inadequate by 2020

- legal graywater reuse

- curb cuts

- bioswales

- downspout disconnect rebate program

- not enough!

- 83,000 trees to be planted by BES

- savings of $63 million over pipes

- $50M gray tech vs 2 million trees for wastewater cooling

Los Angeles: trees and water

- California: first US state with Urban Forestry Act and Program
- City of LA UFD staff: 98 people
- 10 million trees
- Native oaks, walnuts, bays, and trees above 4.5″ DBH are protected

TreePeople L.A.

- Founder: Andy Lipkis
- 1980 – first 1 million tree initiative
- 1984 – millionth tree is planted
- 1990 – "Simple Act of Planting a Tree"
- Campus Forestry Program replaced 20 million square feet of schoolyard asphalt with trees
- Fruit tree giveaway: 9000 trees in 2013
- Over 10,000 members, 35,000 trees per year

Seattle:
public food forests

Beacon Food Forest Schematic Site Plan

Portland: city street food forests