Human Dimensions of Urban Forestry and Urban Greening

featuring research on peoples' perceptions and behaviors regarding nature in cities

What's New?

Nature and Consumer Environments
Research about how the urban forest influences business district visitors.

Trees and Transportation
Studies on the value of having quality landscapes in urban roadsides.

Civic Ecology
Studies of human behaviors and benefits when people are active in the environment.

Policy and Planning
Integrating urban greening science with community change.

Urban Forestry and Human Benefits
More resources, studies and links...

Green Cities: Good Health
human health & well-being research

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www.naturewithin.info
The Evolution of Infrastructure :: From Sanitary to Sustainable

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Oslo Norway
5 Februar 2019
Frumkin et al. 2017. Nature Contact and Human Health: A Research Agenda. Environmental Health Perspectives
Outline

sanitary to sustainable city
green infrastructure solutions
stormwater management
examples – co-design for co-benefits
trees/nature in cities & human health
(mental health & wellness)
sanitary city

efficient and hygienic
supply & removal
of materials and services
natural systems disconnect
Industrial Age – city squalor

Filthy Cities!
Baltimore: Public Works Museum
Images taken in the Community of Claverito, Iquitos, Peru

credit: Leann Andrews, University of Washington
sustainable city

ecological function, green infrastructure, & ‘revealed’ processes

Pincetl, S. 2010. From the sanitary city to the sustainable city. Local Environment
SYSTEMS THINKING

- AIR QUALITY
- STORMWATER
- ENERGY
- COMMUNITY IDENTITY
- SOCIAL CAPITAL
- ACTIVE MOBILITY
- EXERCISE & FITNESS
- BIOTA
- CARBON
- BMP'S
- PUBLIC ART
- CULTURAL HERITAGE
- CONNECTIVITY
- WASTE WATER
- SOLID WASTE
- HEAT ISLAND
- ALLERGENS

credit: American Planning Association
Green Infrastructure

systems solutions
ecology that works
co-design for co-benefits
The diagram illustrates the water cycle in a tree. It shows the process of water uptake by roots and loss by transpiration via leaf stomata, as well as soil evaporation and rainwater passing down through the soil. The diagram also highlights interception loss from the surface of the wetted canopy.
Grey Infrastructure

- Drain, direct, dispatch

Green Infrastructure

- Slow, spread, soak

Source: Low Impact Development: A Design Manual for Urban Areas, 2010
stormwater retention
green infrastructure tools & strategies

= mini parks?

credit: Seattle Public Utilities
Green Stormwater Infrastructure :: Hermosillo, Mexico (6 inch rainfall)
Outline

sanitary to sustainable city
green infrastructure solutions
**examples – co-design for co-benefits**
trees/nature in cities & human health
  *(mental health & wellness)*
stormwater management
Stormwater Management

Thornton Creek Water Quality Channel (Seattle, SvR Design)
1 hectare, treats runoff from 275 hectares (1 hectare = 2.47 acres)
linked to active living network
neighborhood
social cohesion

environmental
education &
social learning
University of Texas Medical School, Austin
SITES Landscape Architect, Heather Venhaus
stormwater management
human health & well being
patient & medical staff interactions
patient & medical staff interactions
PROPOSED SOLUTIONS IN THE LICK RUN WATERSHED

Cincinnati USA
St Francis Early Success Project - 2010
St. Francis Court Apartments Bioretention Features
Before & After

2009: Two levels of unused parking lots

2012: Two bioinfiltration basins with walking path
Summer 2011, One year after installation
Clear Creek Basin, 2 acre stormwater detention lake, 17 acres of greenspace & parks amenities
nature in cities for human health

quality of life
livable places
disease prevention
health promotion
WHO Health Definition

A state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity (1946)
Determinants of Health
Metro Nature & Human Health

Nearby nature includes a variety of spaces and places:

- Urban forest canopy
- Biophilic design
- Parks and gardens
- Green stormwater infrastructure

Image by MIG / SVR
Green Cities: Good Health
www.greenhealth.washington.edu

Sponsors:
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to U of WA students:
Katrina Flora
Mary Ann Rozance
Sarah Krueger

Research Reviews & Summaries
Local Economics

Trees in cities are not grown and managed for products that can be bought and sold on markets, but they do provide many intangible services and functions! This article serves two purposes. First, it introduces valuation methods that are used to convert intangible benefits to dollar sums.\textsuperscript{1,2} Then, it shows how nonmarket valuations can support local decision-making.

Fast Facts

- The presence of larger trees in yards and as street trees can add from 3\% to 15\% to home values throughout neighborhoods.

- Averaging the market effect of street trees on all house values across Portland, Oregon yields a total value of $1.35 billion, potentially increasing annual property tax revenues $15.3 million.\textsuperscript{9}

- A study found 7\% higher rental rates for commercial offices having high quality landscapes.\textsuperscript{24}

- Shoppers claim that they will spend 9\% to 12\% more for goods and services in central business districts having high quality tree canopy.\textsuperscript{34}

- Shoppers indicate that they will travel greater distance and a longer time to visit a district having high quality trees, and spend more time there once they arrive.\textsuperscript{34}
Green Cities: Good Health
database of >4,200 peer reviewed publications
Design Ideas

enhance aesthetics & appeal
create great places
encourage health behaviors & outcomes
Winslow, Bainbridge Island, Washington
retail district green stormwater infrastructure
management for co-benefits - retail
place making:
vertical + horizontal surfaces

design concept
design concept

bring people in!
design concept

orient seating
to nature!
design concept

enable biodiversity & soft fascination
Summary

sanitary to sustainable cities
green infrastructure solutions
nature in cities & human health
co-design for co-benefits
improved human habitat
trees are essential!