Linkages Between Urban Forestry and Human Health Response

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New Partners for Smart Growth Conference
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Urban Greening, City Trees = Green Infrastructure

health and well-being
multi-tasking
co-benefits
Stormwater Management

Pierce County WA, Chambers Creek Properties
Pierce County WA, Chambers Creek Properties - 4 year growth
high land values
reduced public funds
community needs
new parks??

SO . . . . . .
multi-tasking nature
creating co-benefits
Tanner Springs Park
Portland OR
linked to active living network
neighborhood
social cohesion

environmental
education &
social learning
Urban Greening, Trees & Nearby Nature

scientific evidence
health & well being benefits
life course concept
‘cradle to grave’
Urban Forests and Newborns
the natural environment may affect pregnancy outcomes . . .

10% increase in tree-canopy cover within 50m of a house
= lower number of low weight births (1.42 per 1000 births)

Donovan et al., Health & Place, 2011
School & Learning
Green High School Campuses

- cafeteria & classroom window views with greater quantities of trees and shrubs
- positively associated with:
  - standardized test scores,
  - graduation rates
  - %s of students planning to attend a four-year college
  - fewer occurrences of criminal behavior

Matsuoka. 2010. Landscape & Urban Planning
EAB Tree Loss & Public Health

1990 to 2007, 1,296 counties in 15 states infected areas vs. no bugs
15,000 more deaths from cardiovascular disease
6,000 more deaths from lower respiratory disease
controlled for demographic, human mortality, and forest health data at the county level

Toledo, Ohio in 2006, pre EAB

2009, EAB in neighborhood

photos: Dan Herms, Ohio State University
Shinrin-yoku  Forest Bathing

- extended forest walks
- reduced ‘fight or flight’ nervous system activity
- lower cortisol – a stress indicator
- increased immune function
- lower pulse rate & blood pressure
Urban Nearby Nature
Aging & Health
make room for pedestrians
Physical Activity & Depression Reduction

- Review of 13 high quality studies
  - exercise recommended for mild to moderate depression
  - people who are willing & motivated
  - associated meditation and mindfulness are important

Physical Exercise Intervention in Depressive Disorders.
Scandinavian Journal of Medicine & Science in Sports
Effects of nature window view on recovery from surgery (Roger Ulrich, 1984)

- Shorter stays
- Less pain
- Fewer minor complications
- Better emotional well-being
What is the Evidence?

urban greening & city trees
environment
public health
economics
Research Reviews

Green Cities: Good Health

on-line resource

summaries complete: soon!

economic valuation

www.greenhealth.washington.edu
Research Review and Summaries

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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. 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.
- A study found 7% higher rental rates for commercial offices having high quality landscapes.
- Shoppers claim that they will spend 9% to 12% more for goods and services in central business districts having high quality tree canopy.
- 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.
Urban Green :: Human Health & Well Being

> 3,000 articles

% distribution
Eco-Health Relational Browser
Environmental Protection Agency

www.epa.gov/research/healthscience/browser/
Click a topic bubble or choose a topic from the dropdown list above. Hover over linkages [*] to view relationship between elements.

Urban Ecosystems

Air Filtration

Engagement with Nature

Water Regulation

Description
An urban ecosystem is a dynamic system that contains both built and natural elements on a regional scale. In an urban ecosystem, human, plant, and animal communities are situated within an urban environment. Urban ecosystems can mimic the function of natural ecosystems and thus provide their own important ecosystem services that contribute to human well-being in those urban areas. Various green environments such as shade trees, urban green spaces and urban forests can exist within a single urban region. The services provided by urban ecosystems include filtering water runoff, providing areas for physical activity and recreation such as hunting and bird watching, and mitigating the Urban Heat Island effect by evapotranspiration.
Urban Ecosystems

- Air Filtration
- Water Regulation
- Water Filtration
- Promotion of Physical Activity
- Engagement with Nature
- Heat Mitigation

Details

Health Outcome

- ADHD
- Aggression
- Anxiety
- Arthritis
- Asthma

Birth Outcomes

Forests
Urban Ecosystems
Wetlands

Guidotti, 2010; Hancock, 2002


Urban Greening & Health Evidence Framework
Restorative Nature Beyond the City?
evidence about the importance of ‘nearby nature’
Human Dimensions of Urban Forestry and Urban Greening

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

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www.naturewithin.info