Encouraging Human Health and Well-Being
planning and design for co-benefits

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Outline

metro nature for health and well-being
LID and green infrastructure functions
multi-tasking & co-benefits
research opportunity
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; Hystad et al., Env Health Perspectives 2014
Nature & Psych Development
children’s play & imagination

Richard Louv - Last Child in the Woods
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
College students with more natural views from their dorm windows
- scored higher on tests of capacity to direct attention
- rated themselves as able to function more effectively

Journal of Environmental Psychology
Trees & Crime Reduction

- trees in the public right of way are associated with lower crime rates
  - smaller, view-obstructing trees are associated with increased crime
  - larger trees are associated with reduced crime

Donovan & Prestemon. 2012. *Environment and Behavior*
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
CDC moderate activity recommendations

parks, active living, active transit
Green Streets for Walkability

evidence of lower frustration and higher meditation when moving into the greener streets

Aspinall et al. 2013. The Urban Brain: Analysing Outdoor Physical Activity with Mobile EEG. British Journal of Sports Medicine
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

Elders: mobility & social connections
What is the Evidence?

urban greening & nearby nature
environment
public health
economics
cradle to grave  
nature for health
Research Review and Summaries
www.greenhealth.washington.edu

Sponsors:
USDA Forest Service, U&CF Program
University of Washington
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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.\(^1,2\) 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\ million, potentially increasing annual property tax revenues \$15.3\ million.\(^9\)
- A study found 7% higher rental rates for commercial offices having high quality landscapes.\(^3,4\)
- Shoppers claim that they will spend 9% to 12% more for goods and services in central business districts having high quality tree canopy.\(^3,4\)
- 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.\(^3,4\)
Eco-Health Relational Browser
Environmental Protection Agency

www.epa.gov/research/healthscience/browser/
Eco-Health Relationship Browser

You are here: EPA Home > Research > Health Research > Eco-Health Relationship Browser

- Open the Relation Browser in a new window
- Copy of all the Relation Browser data (XML)
- Copy of all the Relation Browser data (PDF) (10 pp, 4.7MB, About PDF)

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
Click a topic bubble or choose a topic from the dropdown list above. Hover over linkages (+) to view relationship between elements.

- Urban Ecosystems
- Wetlands
- Forests
- Engagement with Nature
- Water Filtration
- Air Filtration
- Water Regulation
- Heat Mitigation
- Promotion of Physical Activity

--- Health Outcome ---
- ADHD
- Aggression
- Anxiety
- Arthritis
- Asthma
- Birth Outcomes

Details
Description
An urban ecosystem is a natural area that combines human-made and natural elements to form an urban green space that can provide health benefits to those urban residents. Urban green spaces 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 replacing heat-absorbing impervious surfaces and increased shading from shade trees.

Citations of Key Studies
Guidotti, 2010; Hancock, 2002
in cities . . . . .

expensive land values
reduced public funds
increasing community needs
new parks??

SO . . . . . .
multi-tasking nature
creating co-benefits
Stormwater Management

Pierce County WA, Chambers Creek Properties
Pierce County WA, Chambers Creek Properties - 4 year growth
stormwater management

Parks & People Foundation, Baltimore
Restorative Nature
Beyond the City?
linked to active living network
neighborhood social cohesion

environmental education & social learning
Design Opportunities
co-benefit design opportunities
place making:
vertical + horizontal surfaces
design concept
design concept

bring people in!
design concept

biodiversity &
soft fascination
Research Opportunity
New Study

- King Co/Seattle green stormwater infrastructure installation - 2016
- consent decree co-benefits
- human health & wellness
- pre/post analysis
- measures? property value, physical activity, social capital, mental health, school performance . . . .
Human Dimensions of Urban Forestry and Urban Greening

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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