Nature for Human Health & Wellness: the sustainable and sacred

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Sanitary City

- increased ecological function/green infrastructure
- urban forestry
- climate response
- urban agriculture
- green stormwater systems

Sustainable City

- increased human connection & engagement

Sacred City

- human wellness & public health
- equity
- civic stewardship
sanitary city

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

credit: BlendSpace
credit: blogs.isb.bj.edu.cn
Baltimore: Public Works Museum
sustainable city

ecological function, green infrastructure, & ‘revealed’ processes

Pincetl, S. 2010. From the sanitary city to the sustainable city. Local Environment
measure the canopy of a city
Eco (UFORE)
Streets (STRATUM)
Hydro
Vue

tools provided by USDA
Forest Service

photo credits: Seattle i-Tree Training by Al Zelaya
Reducing Stormwater Runoff

Image courtesy of the Center for Urban Forest Research
Stormwater Management

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

environmental education & social learning
Beacon Food Forest (Seattle)
mimic woodland ecosystem – edible gardening

- arboretum
- berry patch
- nut grove
- community garden
- gathering plaza
- children’s area
- living gateway

complexity - productivity
sacred city

civic sacred

health & wellness

reflection, contemplation, & mindfulness, spirituality

giving back, stewardship, gratitude
finding the sacred in gardens

place attachment

American Public Garden Association
Allerton Gardens - Kauai
Bloedel Reserve – Bainbridge Island
So the tree rustles in the evening . . .
Trees have long thoughts, long-breathing and restful, just as they have longer lives than ours.

Hermann Hesse, *Trees: Reflections and Poems*
England’s Ancient Oaks
'forest bathing’, Kyoto, Japan
Trees are the earth's endless effort to speak to the listening heaven.

Rabindranath Tagore, *Fireflies*, 1928
Ascending the Giants

Portland, Oregon
Sanitary, Sustainable, Sacred:
understanding
human health benefits
‘nearby nature’ experiences passive encounters for benefit
WHO health definition

*a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity* (1946)

science & evidence re: environment role of ‘metro nature’?
not a panacea, but important!
Determinants of Health
Green Cities: Good Health
www.greenhealth.washington.edu

Sponsors:
USDA Forest Service, U&CF Program
University of Washington
NGO partners

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

research review & 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. 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.
in the background support functions, needs, benefits, ecosystem services
Nature & Psych Development
children’s play & imagination

Richard Louv - Last Child in the Woods
Fiddleneck Forest School
Washington Park Arboretum (Seattle)

cognitive
social &
physical
learning
Hygiene Hypothesis

- presence of soil bacteria in body, *Mycobacterium vaccae* = increased serotonin
- may alleviate depression
- dirt or Prozac?

Lowry et al. 2007. Neuroscience
Eat Dirt!
Classroom Views & Stress
Classroom Views & Stress high school student response

**Fig. 2.** Attention scores at the end of class activity and break (Means and SE).

**Fig. 3.** Physiological stress at the end of class activity and break (Mean and SE).
Attention Restoration Theory
Rachel & Stephen Kaplan, U of MI
directed attention
fatigue . . . .
Workplace Nature Views

- **Well-being**
  - desk workers without view of nature reported 23% more ailments in prior 6 months

- **Job Satisfaction**
  - less frustrated and more patient
  - higher overall job satisfaction and enthusiasm

ART Design Elements

- being away
- ‘soft’ fascination
- extent
- compatibility
Mindfulness

Mind Full, or Mindful?
constant busyness

attempted multi-tasking

‘out of balance’

Anna and Elena Balbusso, NY Times
Mindfulness/Meditation Training

- meta analysis; clinical/non situations
- focus on moment-to-moment experience and mental awareness
- more veridical perception (reality check)
- reduce negative affect
- improve vitality and coping
- medical symptoms & sensory pain

Mindfulness/Meditation Training

- healthy workplace employees
- 8 week mindfulness training
- brain electrical activity – positive affect
- brain activation – reduce stress event response
- more antibodies after influenza vaccine = better immune function

Davidson et al. 2003. Alterations in Brain and Immune Function Produced by Mindfulness Meditation. Psychosomatic Medicine
Nature and Mindfulness

focus
soft fascination
undirected attention
Attention Restoration Theory

Rachel & Stephen Kaplan

credit: Michael Hellgren
TKF Foundation
Nature Sacred :: bench journals

> 10 years
> 100 gardens
> 10,000 journal entries
Design Elements

NatureSacred :: Open Spaces Sacred Places
mindfulness :: journal analysis

TKF Foundation
Nature Sacred Program

Nature and Creativity

http://www.jimkukral.com/
Give Your Ideas Some Legs

creative test – analogy generation

conditions: sit inside, treadmill walk, walk outside, wheelchair outside

walking outside produced most novel & highest quality analogies – walking opens up free flow of ideas

Oppezzo & Schwartz. 2014. Journal of Experimental Psychology
Nature & Creative Professionals

focused interviews in Denmark

nature:
makes us more curious
supports flexible thinking
recharges directed-attention

aids 2 phases of the creative process:
Preparation phase and Incubation phase

sensory dimensions: space & serene

Plambech & Konijnendijk van den Bosch. 2015. Urban Forestry & Urban Greening
role of nature in creativity development

http://daycare.sulekha.com
Summary

+ sanitary city (hygiene for health)
+ sustainable city (socio-ecological systems)
+ (civic) sacred city (engagement & experience)
  aka biophilic city

= human health & wellness
importance of nature & good design!
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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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www.naturewithin.info