ENHANCING URBAN COMMUNITIES THROUGH HORTICULTURE AND DESIGN

February 2, 2018
382 Lory Student Center
Objectives for the Workshop

- To better understand who is doing what within this arena in Northern Colorado
- To build partnerships to increase our impact on urban community well-being in Northern Colorado
- To identify opportunities to create synergy through collaboration
  - To specifically explore the potential for student opportunities in service learning and undergraduate research
Agenda:
Introductions

Organization or Agency

& University
Departments/Degree Programs
Nature for Human Health: Partnership Opportunities!

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Enhancing Health: Horticulture & Design Workshop
February 2018
Outline

1. Health & Nature: the evidence
2. Emerging Programs
3. Collaboration Opportunities
WHO Health Definition

A state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity (1946)
Lifecycle :: disease & illness

Cumulative U.S. DALYs for the Leading Disease/Disorder Categories by Age (2010)

- Mental and Behavioral Disorders
- Cardiovascular and Circulatory Diseases
- Neoplasms
- Musculoskeletal Disorders
- Diabetes, Urogenital, Blood, and Endocrine Disorders
- Chronic Respiratory Diseases
- Other Non-communicable Diseases
- Neurological Disorders

Disability Adjusted Life Year

Data courtesy of WHO
Social Determinants

Determinants of Health

Social and community networks

Individual lifestyle factors

Living and working conditions

Unemployment

Water sanitation

Health care services

Housing

Agriculture and food production

Education

Work environment

General socio-economic, cultural and environmental conditions
Green Cities: Good Health
www.greenhealth.washington.edu

Sponsors:
USDA Forest Service,
(U&CF Program + Pacific NW Research)
University of Washington
NGO partners

Thanks!
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. 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.
Outside Our Doors

The benefits of cities where people and nature thrive.

design: milepost

co-author: US Forest Service

co-author & printing: The Nature Conservancy
Science Review

nearby nature & health evidence
> 40 years
> 5,000 publications

what are the ‘stories’?
Story: Human Health Benefits Across the Life Cycle
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
Hygiene Hypothesis

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

Lowry et al. 2007. Neuroscience
Eat Dirt!
Elders: horticulture for mobility & social connections
Nearby nature experiences are important across the entire life cycle, from cradle to grave.

Research about nature benefits and economic value is fairly new. Some of the quantified health benefits of nature in cities are easier to convert to economic value than others. Here are some preliminary valuations - estimated for the entire US on an annual basis.

INFANTS

BIRTH WEIGHT

ECONOMIC IMPACT: $5,691 SAVINGS ON ANNUAL HEALTH CARE COSTS.

Birth weight influences long-term childhood health and development, and has been linked to some adult diseases. Low birth weight is associated with both short- and long-term health care costs, such as longer hospital stays and increased illness. Prenatal care that provides more face-to-face contact with parents generally results in healthier birth weights.

IMMUNE FUNCTION

ECONOMIC IMPACT: STRENGTHENED IMMUNE SYSTEM LEADS TO REDUCED ILLNESS AND CHRONIC DISEASE ACROSS A LIFETIME.

We are most vulnerable in the early months of our lives, when the body and mind are growing and developing at an astounding rate. The "nurturer-hypothalamic" suggests that early contact with outdoor environments stimulates the development of a healthy immune response.

FAMILY DYNAMICS

ECONOMIC IMPACT: IMPROVED FAMILY DYNAMICS. PERHAPS REDUCING MENTAL HEALTH TREATMENT AND COUNSELING SERVICES.

An infant's parents and siblings adjust their lives after a baby arrives, and the changes can bring on stress and anxiety. Nature visits and walks help reduce these conditions and improve interactions between people within the household.

CHILDREN & TEENS

OVERALL HEALTH AND WELL-BEING

ECONOMIC IMPACT: INCREASED PHYSICAL ACTIVITY, REDUCED ASTHMA OR LEADING CAUSE OF EMERGENCY department VISITS, HOSPITALIZATIONS, AND MISSED SCHOOL DAYS, AND REDUCED RISK OF ADULT SKIN CONDITIONS.

Repetitive patterns in a child's environment can cause health issues and negative health impact. Nature is a positive influence, playing in nature helps children develop physical, social, and intellectual skills that improve health and life achievement. Green spaces like parks, gardens, and parks provide space for children to explore and play, which can be particularly important for improving mental health.

ADHD

ECONOMIC IMPACT: $1,920 SAVINGS ON MEDICATION SAVINGS PER YEAR.

Millions of children ages 3-17 are treated for Attention Deficit Hyperactivity Disorder (ADHD) in the U.S. Nature exposure in potential alternative treatment, studies show that activity within nature or green space, such as a park, can have lasting, positive effects on mental health.

FUTURE FINANCIAL SUCCESS

ECONOMIC IMPACT: $1,415 INCREASE IN HIGH SCHOOL GRADUATES' LIFETIME INCOME.

School performance affects future earnings and long-term success. Having green views from classrooms and common spaces in schools can improve students' capacity to direct attention and feel less stressed. Green high schools tend to have higher test scores.

ADULTS

DEPRESSION AND STRESS

ECONOMIC IMPACT: REDUCED FRUSTRATION, MENTAL ILLNESS, AND DEPRESSION DISORDERS, AND IMPROVES BODY IMAGE, SELF-ESTEEM, AND LIFE SATISFACTION.

Recent research shows that highly stressed people tend to have higher levels of depression and anxiety. Nature experiences reduce stress. Nearly 1 in 10 adults report experiencing major depression each year, while many more experience minor forms of depression.

IMMOBILITY & QUALITY OF LIFE

ECONOMIC IMPACT: $1,770 SAVINGS IN HEALTH CARE COSTS FROM FALLS PER YEAR.

Use in three older adults falls each year, giving rise to fatal and disabling injuries. Falls within older care facilities are particularly expensive medical situations. Being out in nature sustains personal mobility, leading to reduced falls and reduced need for medications. Further, those who are socially isolated are more likely to be sedentary, gardening, and nature-based activities that promote social interactions support positive lifestyles and quality of life.

CARDIOVASCULAR DISEASE

ECONOMIC IMPACT: $1,830 SAVINGS ON TREATMENT COSTS ANNUALLY.

Hypertension, or high blood pressure, is one of the five most expensive conditions for older adults. Life in nature, particularly walking and "forest bathing" (walking in natural forests) can decrease blood pressure.

COGNITIVE DISORDERS

ECONOMIC IMPACT: $1,820 SAVINGS ON MEDICAL SERVICES, NOT COUNTING THE VALUE OF HOME CAREGIVER SERVICES.

About one in five older adults experience mentally and cognitive disorders, with age being the greatest risk factor. In 2016, about 15% of people aged 85 or older were affected. As with depression, nature interventions can help improve cognitive function.

contributing analysts:
Dr. Stephen Grado & Marcus Measells, MSU; Dr. Alicia Robbins, Weyerhaueser
Outline

1. Health & Nature: the evidence
2. Emerging Programs
3. Collaboration Opportunities
Fiddleheads Forest School
Washington Park Arboretum (Seattle)
cognitive
social &
physical
learning
CDC moderate activity recommendations

parks, active living, active transit
Walking Programs

children

elders

families
Shinrin yoku (forest bathing)

- extensive research
- restorative experiences
- workers retirees
- networked system, 52 bases in Japan
Parks Prescription

Date: _______________________
Dr: _______________________
Name: _______________________

I recommend:
☐ Walking
☐ Other: _______________________

___________________________ minutes a day

___________________________ days per week

* Health Canada suggests moderate activity of 30 minutes per day | 5 days a week

Benefits of daily activity
• Improve overall physical and mental health
• Maintain a healthy weight
• Reduce the risk of diabetes and other chronic conditions
• Lower cholesterol levels
• Manage stress and anxiety

Signature: _______________________

Doctors of BC
Parks Prescription

1. Visit www.REACHforbetterhealth.com
2. Enter your zip code
3. Click
4. Exercise in the park and share outcomes with your healthcare provider.

Get a prescription for ParksRx from your healthcare provider.

PARKS Rx
Your Prescription For Better Health

This information is provided for educational purposes and is not to be considered medical advice.

www.REACHforbetterhealth.com/ParksRx
Made possible with funding from the Centers for Disease Control and Prevention.
Green Streets for Walkability

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

Improving Depression

20 adults with major depression walk in a park setting and a built setting

- 50-minute walks one week apart
- before-after testing:
  - Mood: Positive and Negative Affect (PANAS)
  - Cognition: Backward Digit Span (BDS)

Berman et al. 2012. *Journal of Affective Disorders*

cognitive and affective improvements after walking in a nature setting
Experience the restorative powers of nature and join us for Strolls for Well-Being, a free 10-week program offered at Bloedel Reserve. If not already a member, participants are given a temporary membership to

**DAY-USE STROLLS:**
Since introducing the Strolls for Well-Being program in 2014, hundreds of people have benefited from the healing effects of nature.
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, Denmark
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
Walking Meetings

creativity, energy, communication, health
Effects of nature window view on recovery from surgery (Roger Ulrich, 1984)

- Shorter stays
- Less pain
- Fewer minor complications
- Better emotional well-being
Legacy Good Samaritan Medical Center
Stenzel Healing Garden 1997
Rehabilitation Institute of Oregon
Oregon Burn Center Garden
Outline

1. Health & Nature: the evidence
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Nature & Health seminar

University of Washington
after hours
faculty, private sector, NGO
informal(!) networking
emergent research/policy
Nature Contact and Human Health: A Research Agenda

Howard Frumkin,1 Gregory N. Bratman,2,3,4 Sara Jo Breslow,3 Bobby Cochran,5 Peter H. Kahn Jr.,5,6 Joshua J. Lawler,3,4 Phillip S. Levin,4,7 Pooja S. Tandon,1,8,9 Usha Varanasi,10,11 Kathleen L. Wolf,4,12 and Spencer A. Wood3,4,13

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PDF Version (974 KB)

BACKGROUND: At a time of increasing disconnectedness from nature, scientific interest in the potential health benefits of nature contact has grown. Research in recent decades has yielded substantial evidence, but large gaps remain in our understanding.
Green Heart study

- The Nature Conservancy & U of Louisville (KY) School of Medicine
- 5 year study
- experimental tree plantings
- study stress levels, diabetes, heart disease, strength of social ties
Livable City Year

- one community – Tacoma in 2018
- local needs & collaborators
- nature, social services, public health
- capstone courses, research, student thesis work, design
- focused on place
Livable City Year: One year. One city. Dozens of UW faculty and hundreds of students. Working together to catalyze livability.
Community Design Charrette

- health focus
- applications/proposals
- selection criteria
- underserved communities
- focused visioning
- short term, intensive effort
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.

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

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

Projects Director
Kathleen L. Wolf, Ph.D.

Sponsors
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Breakout #1: Organizational Needs & Priorities (discussion within groups)

- What are community needs that might align with university programs?
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- How could building collaborations meet those needs and help all partners achieve their priorities?
- What are the resources available/needed to make partnerships successful?
Breakout #2: Identification of Opportunities to Create Synergy through Collaboration (across groups)

- Get creative – what are potential partnerships and outcomes?
- How would these collaborations work?
- What would it take to make them flourish and achieve real impact?