Connecting with Nature: Rural Implications for Health and Land Use

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Aims of this talk

- Different perspectives on benefits that humans derive from nature
- Evidence of benefits for health and wellbeing when people have safe experiences of nature
- Implications for communicating the value of access to nature
- Applications of research evidence to town planning and programs
Claude Lorraine (1600-1682)
Landscape with a Goatherd & Goats

George Innes (1825-1894)
Under the Greenwood Tree
benefits from nature for people and societies

ecological goods ("provisioning services")

- minerals
- lumber
- raw materials
- water
- livestock
- crops
- hunted game
- fish
- foraging
benefits from nature for people and societies

ecological services
(or “regulating & maintenance services”)

- soil creation
- erosion & flood control
- air purification
- biodiversity
- climate moderation
- water purification
- carbon storage
- oxygen production
- pollination

ecological goods
(“provisioning services”)
benefits from nature for people and societies

- cultural services
- aesthetic values
- spiritual values
- cultural identity
- outdoor recreation

provisioning services
regulating & maintenance services
benefits of nature for people and societies

provisioning services

regulating & maintenance services

cultural services

health services – physical health

increased physical activity

self-perceived better health

lower rates of disease

lower mortality rates

reduced crime rates

reduced stress

well functioning immune system

sense of vitality

lower mortality rates

self-perceived better health

reduced crime rates

reduced stress

well functioning immune system

sense of vitality
benefits from nature for people and societies

provisioning services
regulating & maintenance services
cultural services

physical health

imagination & creativity
better academic functioning

cultural services
psychological health

reduced stress
increased positive feelings
decreased negative moods & feelings
happiness & sense of wellbeing
greater social cohesion & positive social interactions
better cognitive functioning
better impulse inhibition
improved management of life tasks
individuals

human societies

benefits from nature for people and societies
benefits of nature for people and societies

provisioning services
regulating & maintenance services
cultural services
physical health
psychological health

relational values
“preferences, principles, and virtues associated with relationships”*

love and care for nature
connection with nature

social bonds in nature
place attachment

sense of accountability to nature
environmental identity

kinship with all living things

A sense of connection with nature is associated with benefits for the health and happiness of both children and adults.

**children**
- intrinsically positive experiences
- creative thinking
- pro-social & positive development
- self-reported good health & wellbeing
- fewer psychological complaints

**adults**
- intrinsically positive experiences
- personal growth
- autonomy
- vitality
- reduced stress
- self-reported wellbeing
- living meaningfully

Individuals, human societies, and nature, people, and societies have relationships of mutual value between them.
“One Health is an approach that recognizes that the health of people is closely connected to the health of animals and our shared environment.”

Centers for Disease Control
www.cdc.gov/onehealth

protecting ourselves by protecting the planet
correlating vegetation cover with health records
surveys about people’s time and experiences in greenspace
experimental designs

a walk in the park

Rittenhouse Square, Philadelphia
naturalistic experiments

Robert Taylor Homes, Chicago
photos by William Sullivan
physiological effects of nature exposure

- lower blood pressure
- healthier heart rate
- healthy diurnal patterns of cortisol
- measures of skin conductance & muscle tone consistent with reduced stress
- large amplitude alpha waves
- better development and functioning in some areas of the brain
- increased Natural Killer cells (immune function)


Oxford Textbook of
Nature and Public Health
The role of nature in improving the health of a population

Edited by
Matilda van den Bosch
William Bird

2018
American Public Health Association
Policy Statement Database

Improving Health and Wellness through Access to Nature

Policy Date: 11/5/2013
Policy Number: 20137
Most of this research assumes a “medication model”: people have a physical or psychological problem, and a “dose” of nature helps them improve.

What dose is needed?

What is the economic value of the health services it provides?
recent evidence for the “dose” of nature to prescribe

A survey of 19,806 residents of the United Kingdom compared people who reported spending no time in nature during the last week with others. The likelihood of reporting good health or high wellbeing became significantly greater at \( \geq 2 \) hours, with no further gain.

When people spent 2-3 hours a week in nature v. 0 minutes, their likelihood of reporting good health was similar to:

- living in an area of low v. high economic deprivation
- being in a high v. low SES occupation
- meeting v. not meeting physical activity guidelines
All green is not the same.
human responses to real or perceived biodiversity

- preference for species richness
- greater identification with species rich places
- greater sense of connection with nature
- more stewardship volunteer hours in biodiverse places
- greater neighborhood / place satisfaction


human responses to real or perceived biodiversity

- greater aesthetic appreciation
- greater subjective wellbeing & happiness
- greater prevalence of good health
- greater perceived sense of restoration


People are not always good judges of species richness—but there is a correspondence between ordinary people’s perceptions and expert assessments.

People perceive variety in birds, insects, trees, flowers, and other plants as indicators of biodiversity.

Wellbeing is not consistently related to species richness—but a majority of studies show positive human benefits with real or perceived biodiversity.
What are the implications of this research for how we communicate the importance of providing *everyone* with access to nature and biodiverse landscapes?
From January 2018-May 2019, Blue Sky Funders Forum embarked on research to identify a new narrative that would ignite foundations with diverse missions to support natural areas and connecting people with nature:

- the environment
- education
- children and youth
- health
- community development and social justice

blueskyfundersonsforum.org
70 stakeholder interviews

301 responses to survey of stakeholders & allies

1 5-day workshop

13 listening sessions with 188 partners

reviews of research

53 external interviews
Current narrative: “nature is nice to have”

It is nice for people to have time and experiences outdoors, and it may provide some benefits for individuals who spend time in nature, but lack of time in nature is not a national priority or issue.

There are plenty of open spaces and parks where people can go if they choose.
What were people’s priorities?

- strengthening communities
- an equitable and diverse society
- personal and public health and wellbeing
- promoting education
- investing in the development of children and youth
- healthy and sustainable environment
Nature is nice to have.

Everyone deserves the benefits.

Living in a healthy community is a basic human right.

“There are so many public goods that we need and it’s nice to have nature be one of them, but living in a healthy community is a right.”
New narrative: “time outdoors in nature is a basic human right”

When people have meaningful experiences outdoors their quality of life, health, and social wellbeing improve, and in turn their communities become stronger and more sustainable. Everyone deserves the opportunity to enjoy time outdoors, because when people connect with nature we all benefit.
What are the implications of this research for rural planning, policy and programs?
nearby nature
benefits associated with street trees, greenways & green neighborhoods

- decreased stress (measured & self-perceived)
- lower rates of cardiovascular disease
- lower rates of diabetes
- decreased risk of preterm birth
- lower all-cause mortality rates

nearby nature
benefits associated with street trees, greenways & green neighborhoods

- better performance at tasks that require close attention
- better impulse control
- reduced symptoms of ADD & ADHD in children
- decreased negative moods

nearby nature
benefits associated with street trees, greenways & green neighborhoods

- greater sense of vitality
- greater self-perceived health
- greater social cohesion
- more positive social interactions
- greater residential satisfaction

Main Street in The Catskills, NY (stock image)

street trees & neighborhood parks

street gardens

Langley, Whidbey Island WA

photo by Seattle Times
ARTway section of Rio Grande Trail
Carbondale, CO

town trails and greenways

planting Latino Folk Art Garden along ARTway

© Carbondale Arts
nature-based learning
benefits associated with green school grounds and school surroundings

- better concentration
- lower levels of stress (measured & self-perceived)
- greater self-discipline
- greater student motivation, enjoyment & engagement
- greater physical activity outdoors
- higher scores on standardized tests
- better grades
- higher graduation rates


Greening

Grand Mesa High School
Parachute, CO

tree planting by high school students
Roaring Fork High School
Carbondale, CO

permaculture garden and orchard -
family work day
Earth Day 2010

© Illène Pevec
Carbondale Community School
a public K-8 charter school

planting and tasting in the Garden of Yum

© Diana Alcantara
Carbondale Community School

Summer Boot Camp preparing for the farm stand
benefits associated with community gardens

- increased social capital
- greater sense of collective efficacy
- larger social networks
- stronger neighborhood attachment
- stronger sense of community
benefits associated with community gardens

- view of neighborhood as more beautiful
- increased consumption of fruits and vegetables
- healthy youth development


community gardens

summer community gardening
Roaring Fork Valley H.S., Carbondale, CO

© Illène Pevec

© Genevieve Villamizar
Benefits associated with outdoor adventure

- self-esteem & more positive self-concept
- sense of self-efficacy
- improved mood
- improved interpersonal relationships
- higher levels of physical activity

access to the great outdoors for everyone

family camping gear lending outdoor career internships
weekend trips

school year school gardens school trails outdoor classrooms in-class nature study field trips outdoor careers internships outdoor leadership course

summer
summer sessions
outdoor day camps
paid summer youth crews

photo © GOCO
Nature Prescriptions—
Some healthcare systems and medical professionals are prescribing nature.