

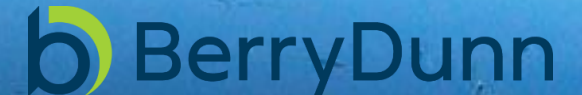
Integrating Access to Nature for Mental Health in our Communities



Teresa L. Penbrooke, PhD, CPRE



School of Public Affairs
UNIVERSITY OF COLORADO DENVER

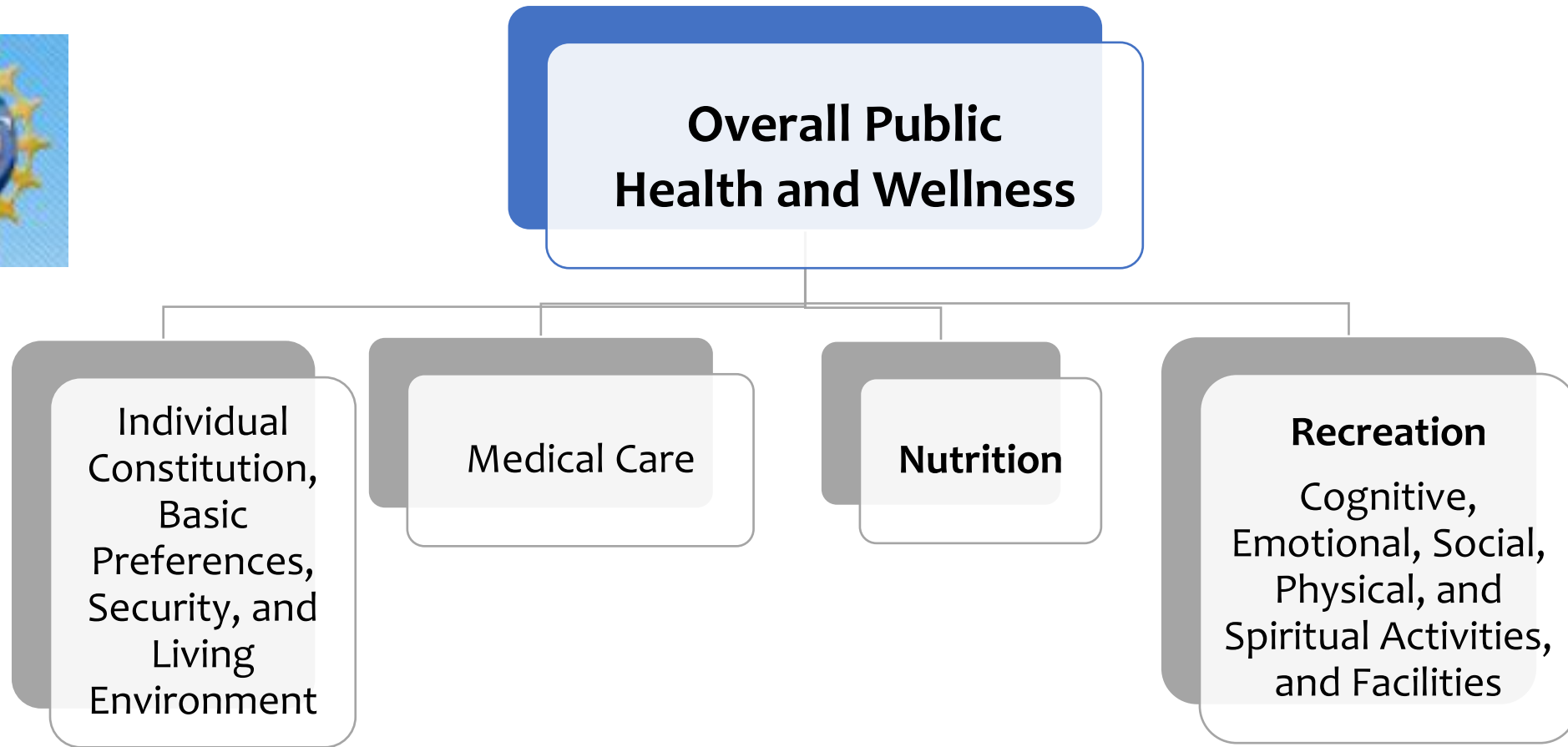


Topics Today

- Identify research findings on how and why getting us into nature is beneficial for improved mental health.
- Review some innovative tools and methods to measure, convey, and integrate access to nature into community preventive health.
- Discuss how to convey both individual and community benefits for better integration and adherence.



Our Fit in Overall Community Preventive Health Systems



Parks and Recreation play a strong community role and can work with others

My viewpoint:

Parks and
Recreation
are a key
solution

Systems Planning

- Provide access to land and facilities for over 80% of Americans
- Provide crucial health and wellness opportunities for all populations in communities across the country
- Affordable programming and managed access to outdoor spaces can introduce and lead to a more active and healthier communities
- Education and Advocacy – front line

Modifiable Factors

Spaces, Programs, and Policies

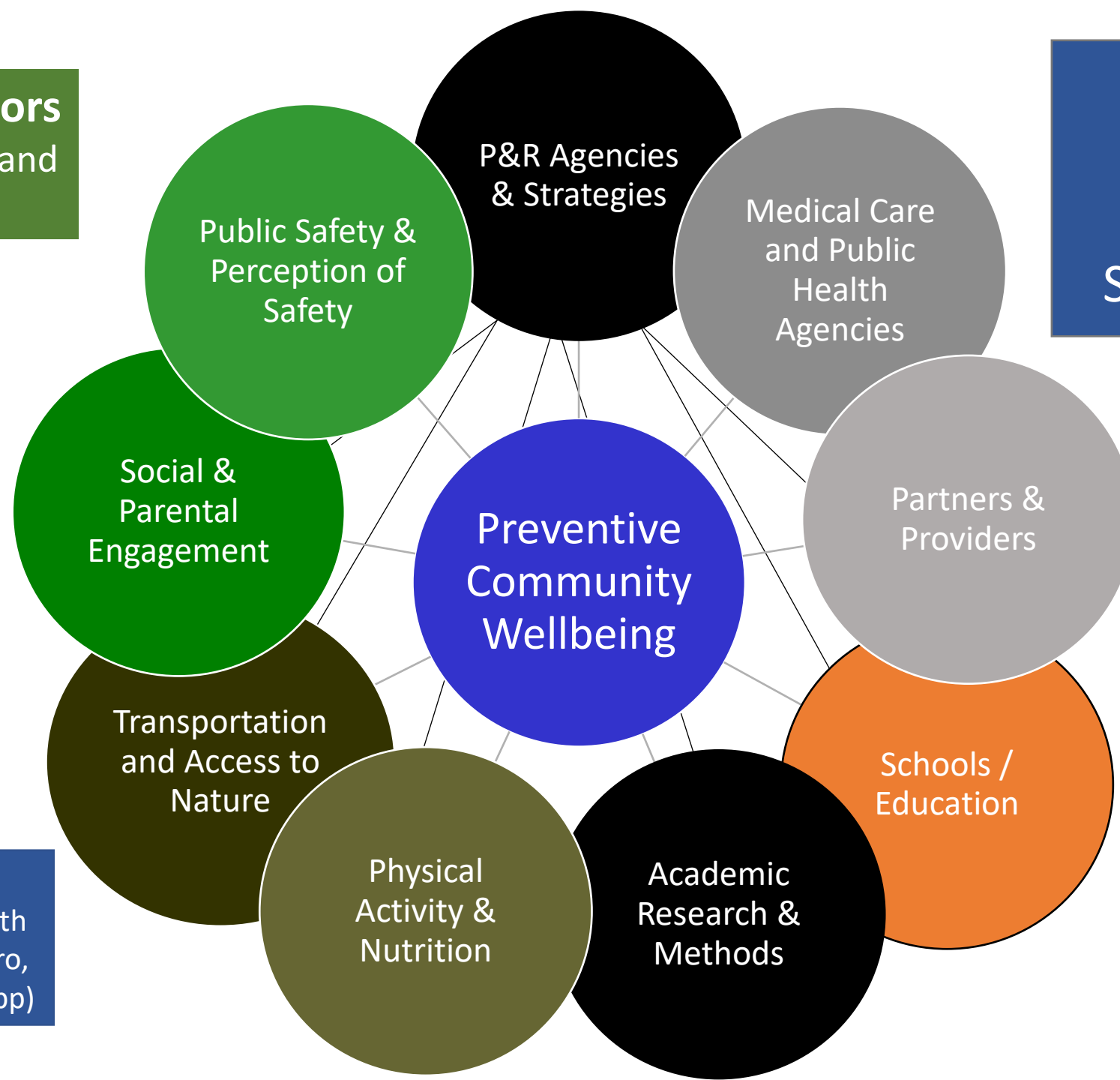
Modifying
Preventive PH
through P&R
Systems Thinking

Actors

Facilitating
Partnerships and
outcomes

Actions on all levels

(T.L. Penbrooke, 2017, with
M.B. Edwards, J.N. Bocarro,
K.A. Henderson, & J.A. Hipp)



GPARED

NC STATE UNIVERSITY

Access to Parks and the Outdoors is Crucial for Mental Health in Our Communities



NATIONAL RECREATION
AND PARK ASSOCIATION

By Teresa L. Penbrooke, PhD, CPRE | Posted on March 20, 2020



Tags: Urban Parks and Recreation, Trends and News, Health and Wellness

As park and recreation professionals, we know in our hearts that good mental health is often related to having access to the outdoors and greenspace. Research over the years has shown that when people are more stressed, anxious and socially isolated, as we are right now due to the global COVID-19 pandemic, having access to parks, trails and natural areas becomes even more important.

Prioritizing Mental Health During the COVID-19 Outbreak

What can nature-based contact do?

Importance of Parks and Greenspaces



Access to Nature associated with

- Improved mood / lower stress / anxiety
- Lower sadness & depression / less ADHD
- Increased physical activity / CV health

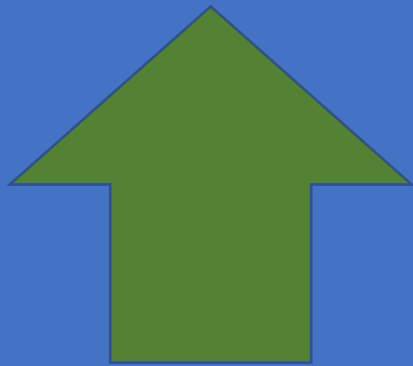
High quality parks (attributes such as water, green, birdlife, trails) lower psychological distress of neighborhood residents, whether or not they used the park.

Christiana, R., Besenyi, G., Gustat, J., Horton, T., Penbrooke, T., and Schultz, C. (2021). A Scoping Review of the Health Benefits of Nature-Based Physical Activity. *Journal of Healthy Eating Active Living*. 3(1).

<https://profpubs.com/index.php/jheal/article/view/25/51>

Faber Taylor & Kuo 2008; Francis et al. 2012; Frumpkin et al. 2017; Hansmann et al., 2007; Larson, Jennings, & Cloutier, 2016; Lawlor & Hopker 2001; Orsega-Smith et al. 2004; Sallis et al. 2000; Sturm & Cohen 2014; Thal & Wilhelm Stanis 2014

Biophilic effects



Tree Crowns are “transmitting stations” for terpenes. Roses, soil, & stone emit ionic and biochemical agents that lower stress.

A single day in wooded areas can increase killer T cells (increase immune function) by 40% / 50% after 2 days. This response can last up to 30 days.

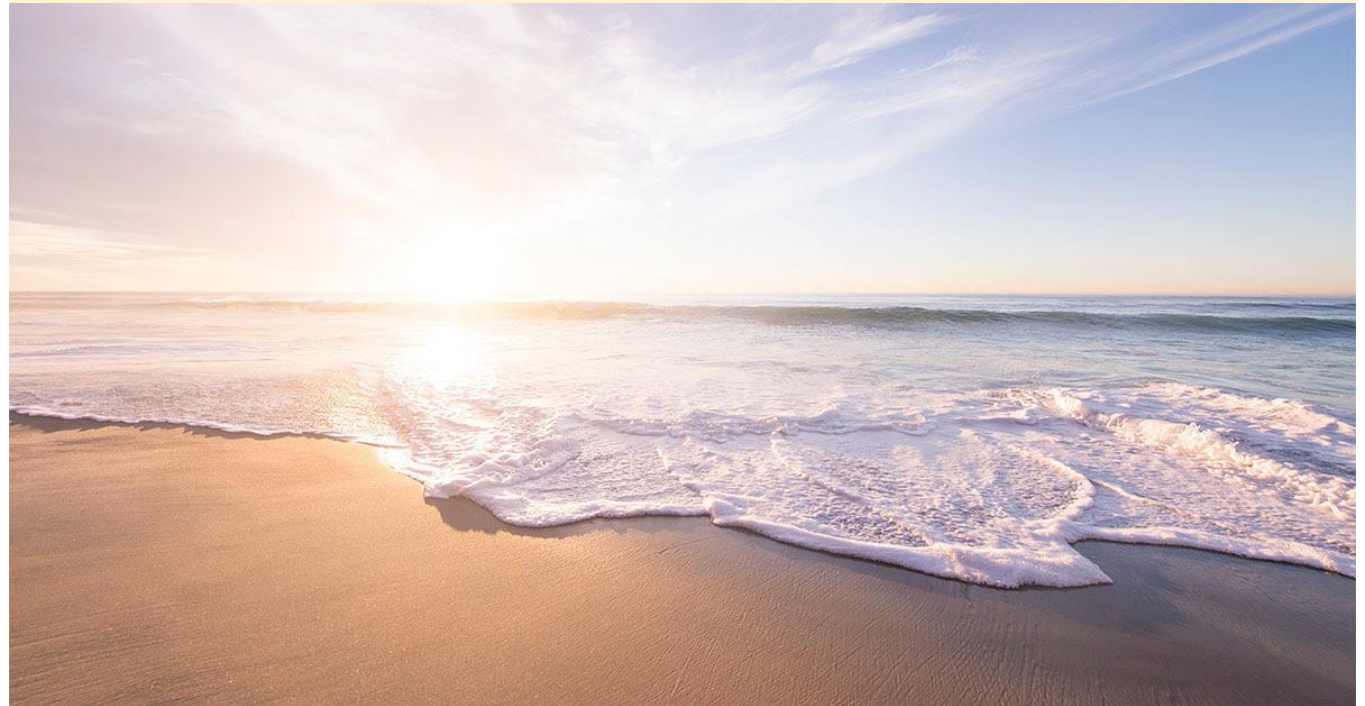
Ionic responses from water and “grounding” – remove negative ions (natural anti-oxidants)

Natural affinity and location selection.

Blue Mind

“A mildly meditative state characterized by calm, peacefulness, unity, and a sense of general happiness and satisfaction with life in the moment.

Evidence shows that for a large segment of the population, being near, in, or on water can make you happier, healthier, more connected, and better at what you do.



Wallace J. Nichols, PhD, (2015). *Blue Mind*, Little Brown & Company, NY.

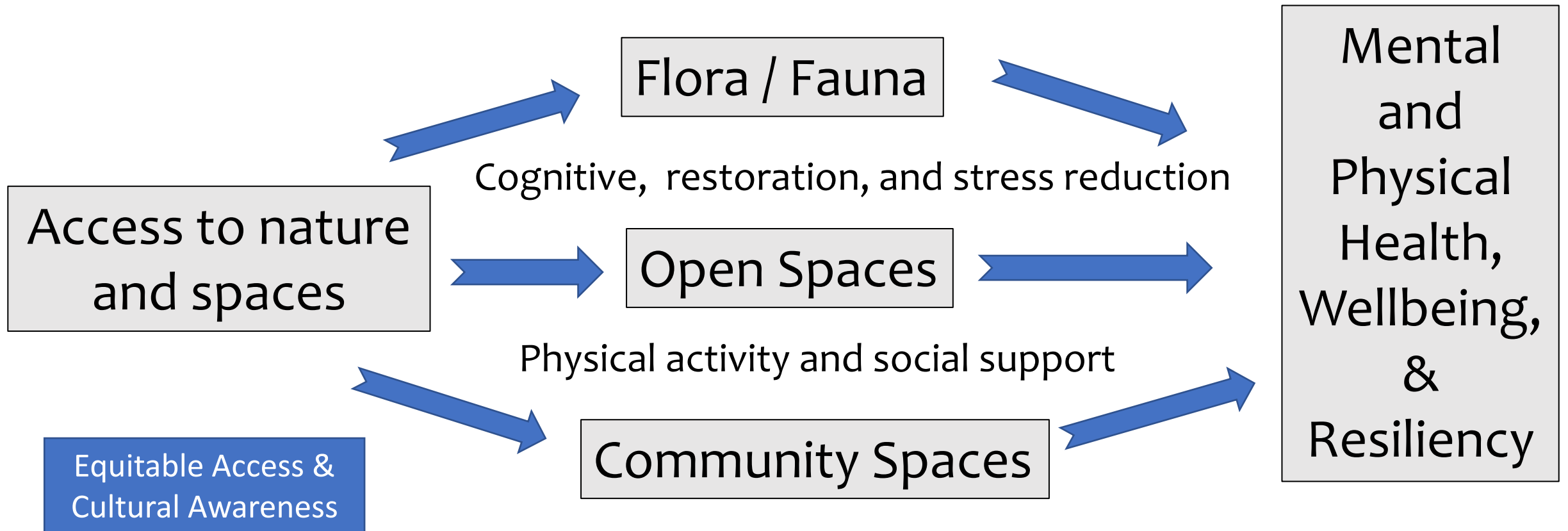








Systems approach to relationships between equitable access to nature and public spaces and health



Adapted from Christiana et al., 2021; EPA, 2014; Kuo, 2015; Saw, Lim, & Carrasco, 2015; Penbrooke, 2017

Information
Gathering
and
Engagement

Equity and
Representation

Attention to
demographics and
diverse stakeholders



Nature-Based Components Inventory & LOS Analysis

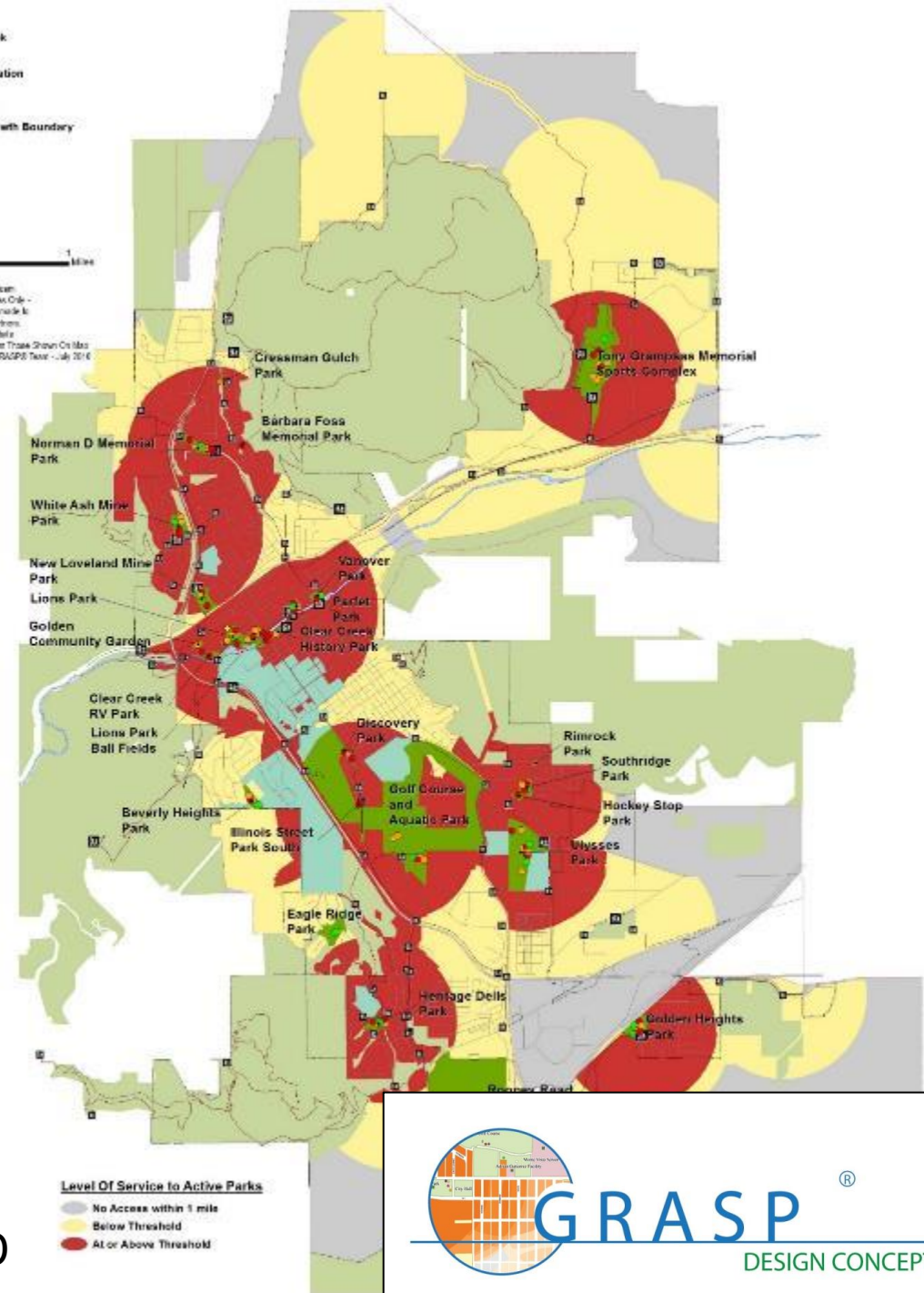
Often called parks, green spaces, natural areas, conservation areas, forests, water-access, greenways, and a variety of other terms. Typically, these spaces have been defined as areas with predominant vegetative and/or geological features that reflect natural processes (e.g., trees, prairies, grasses, water, stone). (Christiana et al., 2021)

Camping, Undefined	Event Space	Garden, Community	Garden, Display
Loop Walk	Natural Area	Open Turf	Passive Node
Trail, Primitive	Trailhead	Water Access, General	Water, Open

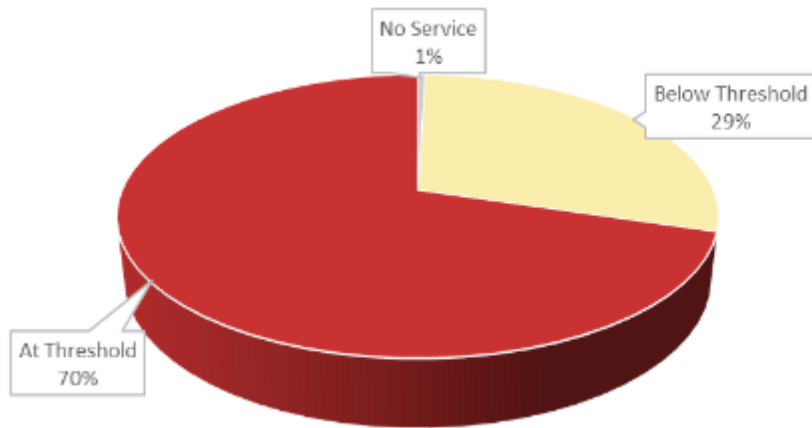
GRASP® uses 40+ identified nature-based components as a subset of close to 100 overall components for P&R



Identifying access, functionality, equity, and walkability Trails & Active Transportation



Population with Walkable Access



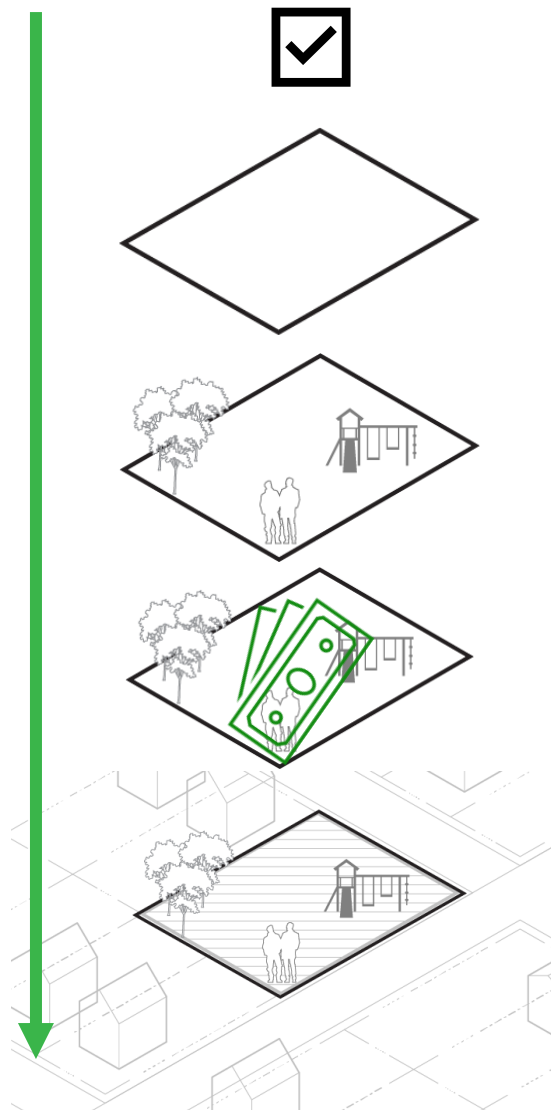
Golden, CO



GRASP

DESIGN CONCEPTS GREENPLAY

Measuring park equity: spatial distribution of park resources



Presence of a park

% pop within 10-minute walk of a park

Amount of nearby park space

Park acreage per capita

Capacity of park for activities

Amenities, events/classes/rentals

Condition of park and activities

Spending, staffing, asset management status

Community context

Presence of deterrents, friends groups,
other measures of belonging

ParkScore 2021:
Census tract-
based
methodology
includes equity
per capita



PLANIT GEO™
mapping a greener future

Husqvarna Urban Green Space Index
HUGSI.green (<https://hugsi.green/>)
a collaborative platform that monitors
greenness of cities annually to share
knowledge and engage.

What gets measured gets managed.

www.PlanitGeo.com

Husqvarna Urban Green Space Index

Quantifying the greenness of global cities

By applying computer vision and deep learning
techniques on satellite images, HUGSI measures and
analyzes urban green space in select cities across the
globe.

How green is your city?

To the ranking

How it works

177

cities

60

countries

7

regions

Determine the quality and quantity of natural elements for a location.



The NatureScore™ provides a numerical score and a quintile ranking in one-to-five color-coded “leaf category.” NatureScores™ range from 0 (largely built environment) to 100 (largely natural environment), with a national average of 50 and uniform distribution. www.naturequant.com



eCPAT System

1



Mobile app for Park Auditors

2



Central Server, Database,
& Middleware Application

3



Public Web Interface
Search, Map, Compare, Rate Parks

4



Park Industry Client Web Interface
Add, Edit, Download, and Analyze Audit Data

5



Commercial Client Web Interface
Industry and User Specific Park Data and Reports

Technology Development

1. Mobile App

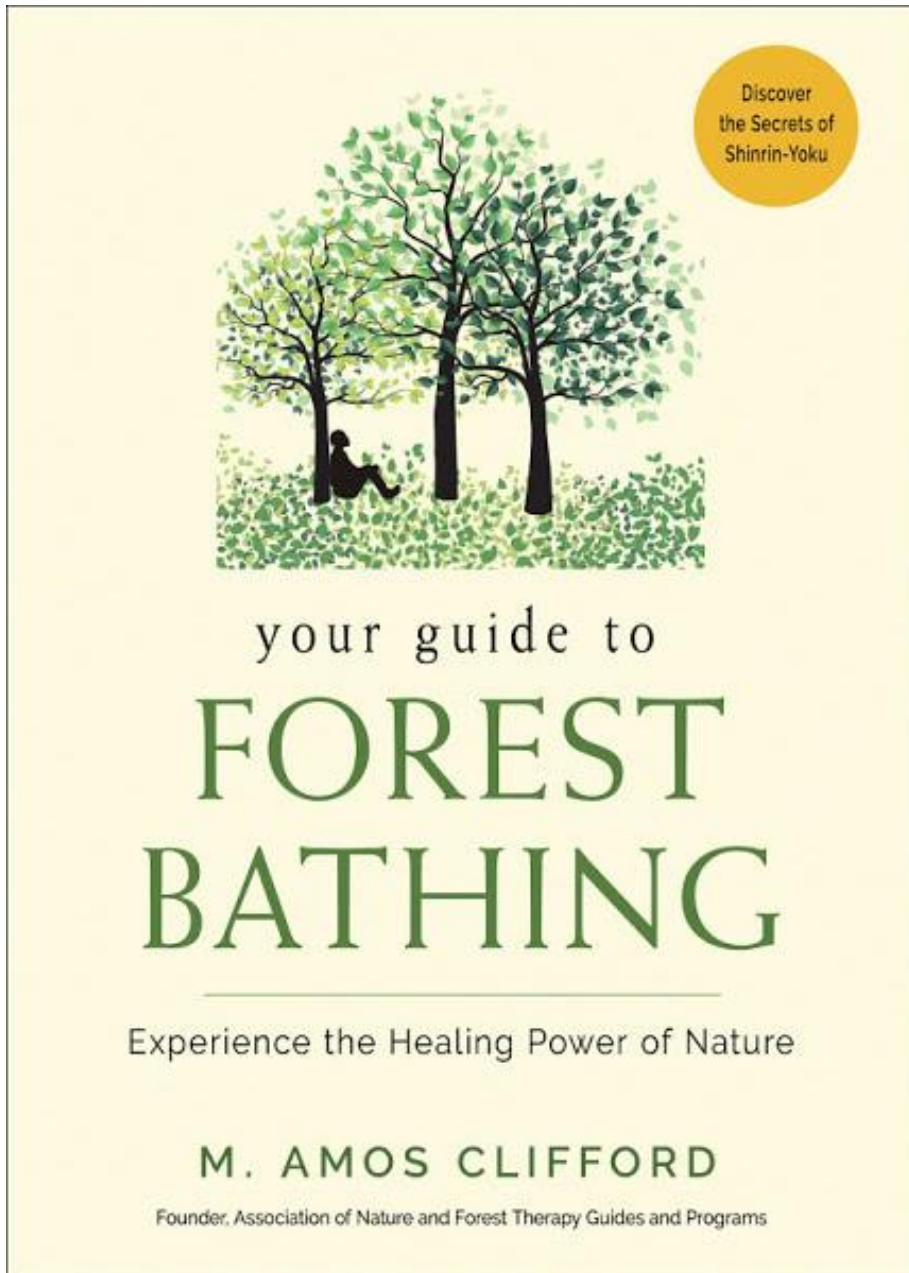
2. Database

3. Public

4. Park Industry

5. Commercial

Gina Besenyi, PhD
Kansas State University



ASSOCIATION OF Nature & Forest Therapy GUIDES & PROGRAMS



Shinrin
Yoku

Suzanne Bartlett Hackenmiller, M.D.

Experiential Education
Nature / Forest Therapy

#AccessNature – Telling the Story

Public Lands and Connections



SH/FT

SUPPORTED BY GPRED

www.gpred.org/shift

Oct 17 – 20th, 2022
Fort Collins, CO

Ground-
truthed
Nature-
Based
Components
Inventory &
LOS

Earth,
Water &
Stone
Conservation
Education
Programs

Preventive
Health
Medical
Care &
Insurance

Guiding
Conservation
Stewardship
Nature
Therapy

Outdoor
Retailers
and Local
Suppliers

Thank you for participating! Thoughts?

Teresa L. Penbrooke, PhD, MAOM, CPRE
TeresaP@GPRED.org

www.gpred.org

