



Health & Technology
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Accessibility & Inclusion: Embracing Complexity

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COVID-19
helped the US
rediscover the
outdoors





Nature provides
people with multiple
health & well-being
benefits

Physiological Benefits

Diseases & Illnesses

- Reduces hypertension
- Improves diabetes symptoms and reduces blood glucose
- Increases number & activity of human natural killer cells
- Improves immune function
- Improves post-operative recovery
- Reduces risk of cardiovascular disease

General Physical Health

- Reduces systolic & diastolic blood pressure
- Improves pulse rate
- Improves sleep
- Promotes healthier birth weights
- Reduces nearsightedness
- Increases vitamin D levels
- Reduces headaches

Physical Activity

- Greater feelings of revitalization
- Increased energy
- Greater satisfaction
- Lowers risk of obesity/BMI



Psychological Benefits

Cognitive Function

- Reduces mental fatigue
- Improves academic performance
- Improves productivity
- Promotes attentional restoration
- Improves ability to perform tasks

Psychological Wellness

- Increases self-esteem
- Improves mood
- Reduces stress
- Reduces anger/frustration
- Reduces anxiety
- Improves behavior

Mental Illness

- Contact with nature improves
 - depression
 - anxiety
 - mood disorders
 - PTSD
 - addiction recovery



Social Health Benefits

Social Connectedness

- Increases sense of belonging
- Decreases social isolation
- Promotes social ties
- Improves relationship skills in children
- Increases interaction with community

Social Coherence

- Increases longevity in older people
- Reduces crime rates
- Reduces violence
- Enables interracial interaction

Resilience

- Urban forests and parks build physical resistance in a community and can help mitigate natural disasters
- Natural resource stewardship correlates to increased civic engagement



Spiritual Health Benefits

Connection to Sacred

- Increases feeling of divine presence
- Generates spiritual feelings
- Improves mindfulness to engage in exploring outer and inner aspects of self and nature
- Supports contemplative reflection

Sense of Awe

- Supports feeling of being connected to something larger than self
- Increases reverence for nature
- Acts as a source of inspiration
- Encourages transcendent experiences
- Encourages sense of timelessness

Responsibility for Nature

- Positively influences how people value natural environments
- Reinforces concept of nature as sacred





Nature and health have always been entwined and culturally recognized

In the Canon of Medicine, completed in 1025 CE, the Persian and Muslim Physician—scholar Avicenna extols the virtues of fresh air found in dense urban forests and near trees for human health.

South, Kondo, & Razani, 2020

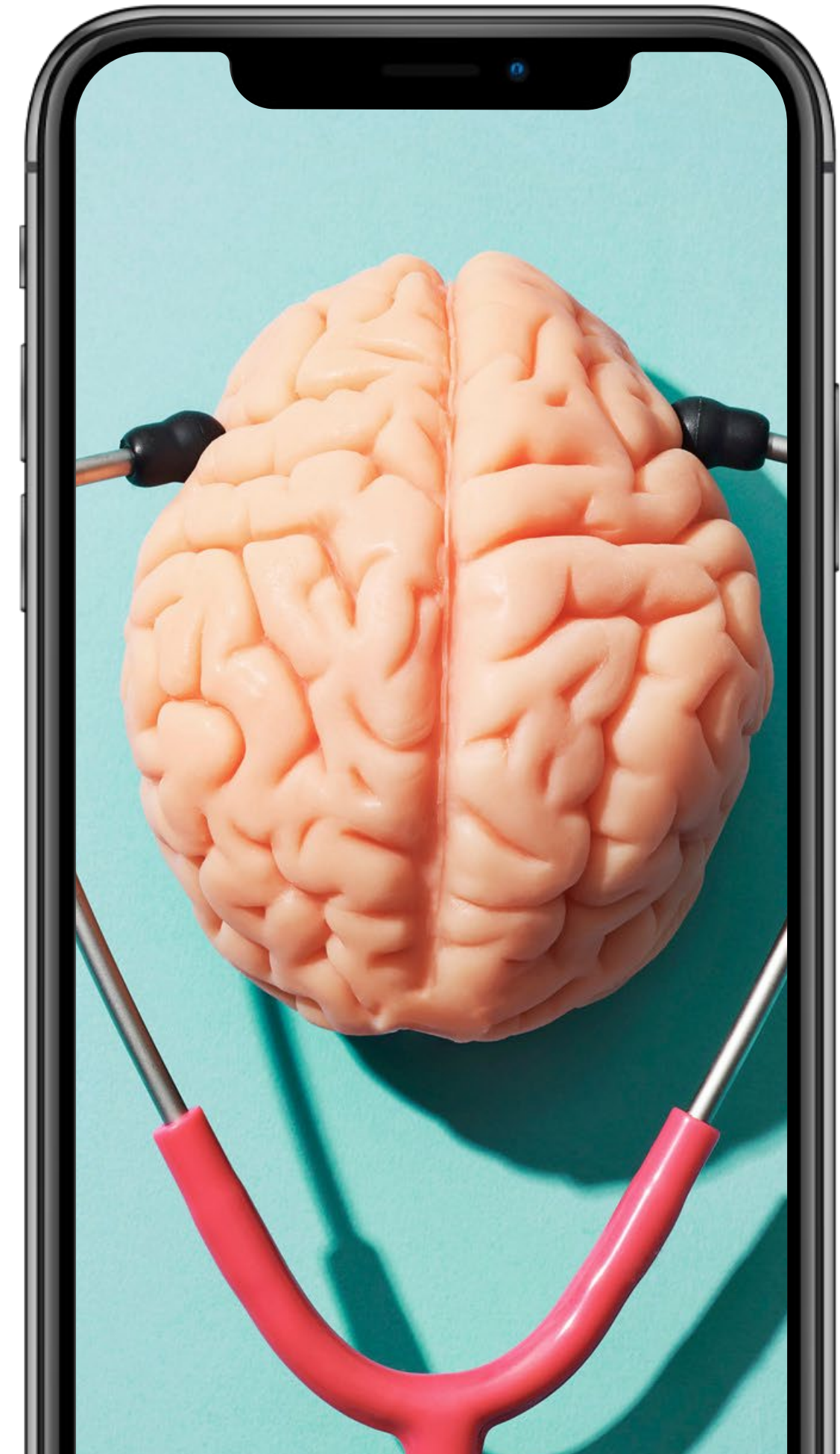


What is health?

Health is a "state of complete physical, mental, and social wellbeing and not merely the absence of disease or infirmity."

WHO, 2000

Health depends on our ability to understand and manage the interaction between human activities and the physical and biological environment. WHO, 1992

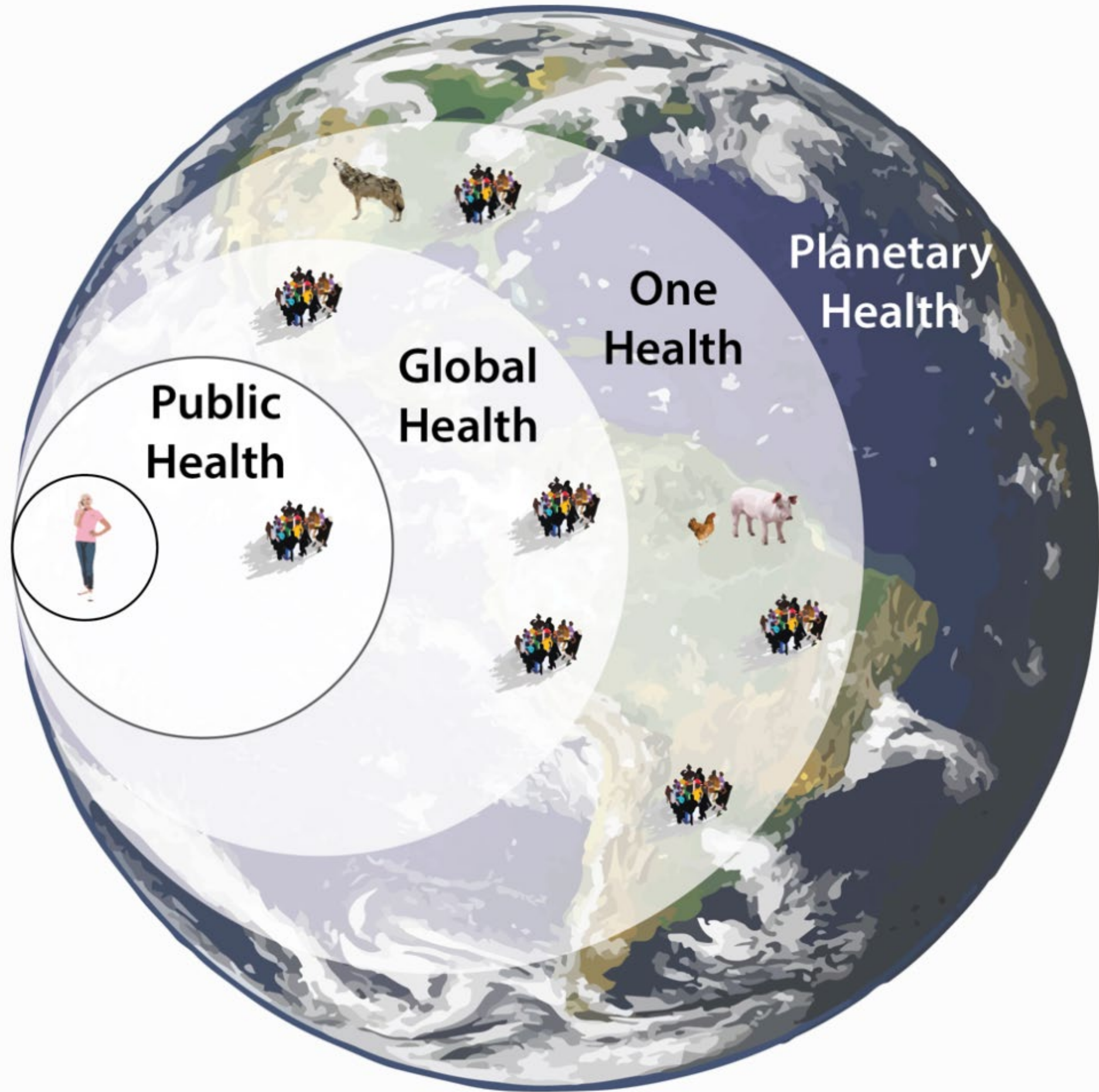


The human population is healthier than ever before

But it came at the cost of unprecedented
exploitation of our natural resources and
planet



The Lancet Commission on Planetary Health, 2015



Moving our
perspective;
further
delocalized and
more holistic



Human health and the health of our planet are inextricably linked... our civilization depends on human health, flourishing natural systems, and the wise stewardship of natural resources.

Human and planetary health are joined through reciprocity.

Increasing contact with, and connection to nature, helps
improve human and planetary health. Martin et al., 2020

Foster
Place
Attachment

Sense of
Place &
Belonging

Pro-
Environmental
Behaviors

Redefine
Conservationist

Not all environments
and experiences are
the same.



Who benefits from nature?

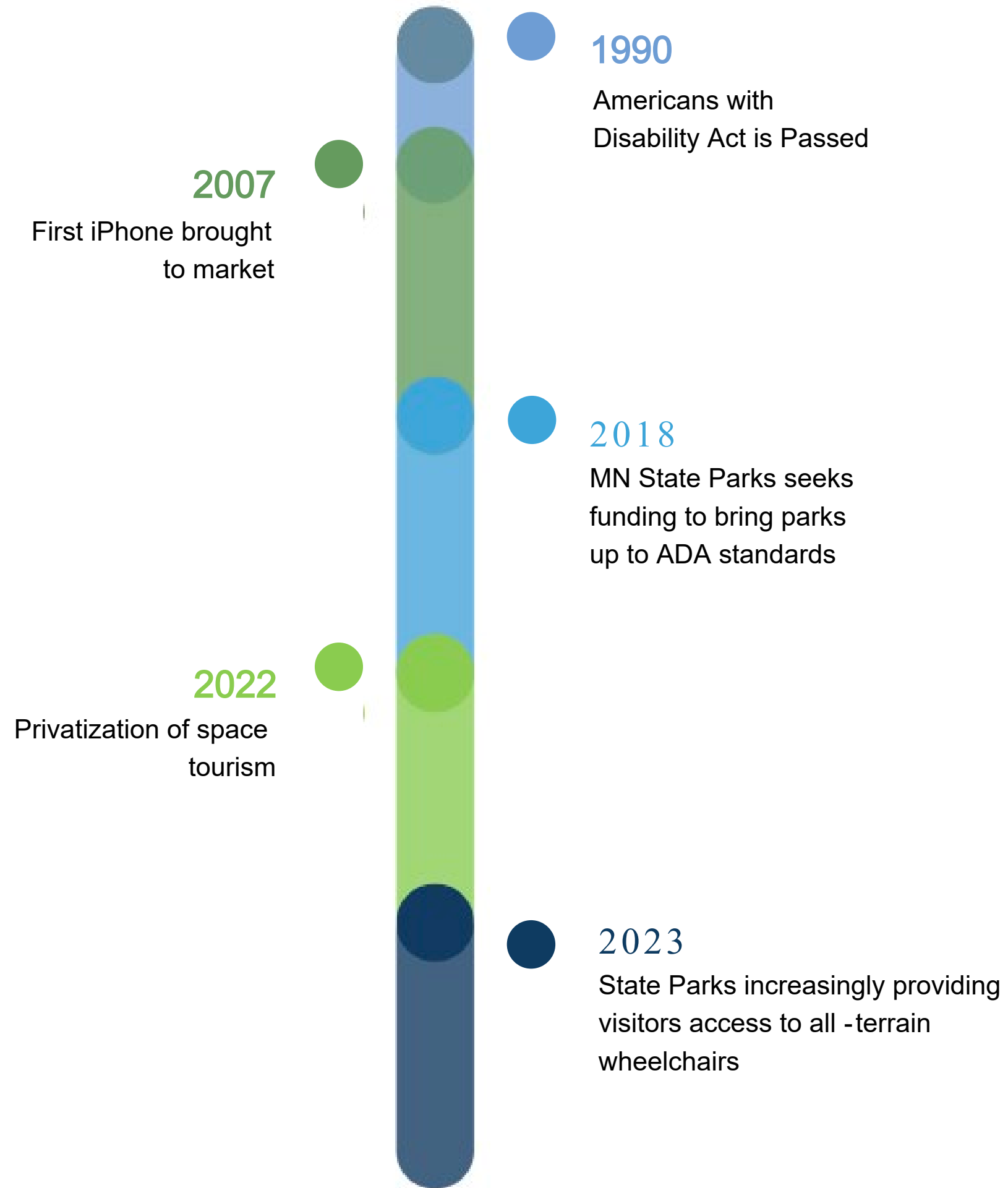
Inequalities exist in nature contact when viewed from both **supply-side perspectives** (i.e., quality and quantity of spatial distribution) and **demand-side perspectives** (i.e., use disparities in subgroups).

Colley, Irvine, & Currie, 2022



How are we
conceptualizing
accessibility?





Technology has rapidly changed how we engage in recreation. Yet, accessibility in state parks has not kept pace with these innovations over the years.



So how do we
make state parks
more accessible?



Universal Design

seeks to ensure that design decisions in spaces meets the needs of all people who wish to use it.

It does not require anyone to make ‘reasonable adjustments’ or declare their individual needs in order to make use of and enjoy the space.



If an environment is accessible, usable, convenient and a pleasure to use, everyone benefits.

By considering the diverse needs and abilities of all universal design creates products, services and environments that meet peoples' needs.



The example above is all too common - amenity symbols, without differentiation of shape or color to denote accessibility and without descriptions.

The example below uses color and shape to differentiate accessible features from those that are inaccessible and adds useful descriptions.



Scan here to download the
Access Recreation Guidelines for
Providing Trail Information to People
with Disabilities





An example of trail signag with QR code that can be read by a smartphone

How can you share up-to-date information so visitors can choose their own adventure?





We need to
revolutionize how we
think about access to
and within state parks.

Moving beyond singularity of identity
to embrace the multiplicity of
identities we hold as individuals





Questions?

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