Forests & Human Health

OLD-GROWTH FOREST NETWORK

Our mission is to create a network of forests across the U.S., with one in each county where forests can grow, open for visitors and never logged, and a network of people inspired to protect them.

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Vitamin F: Forests are critical for human and planetary health

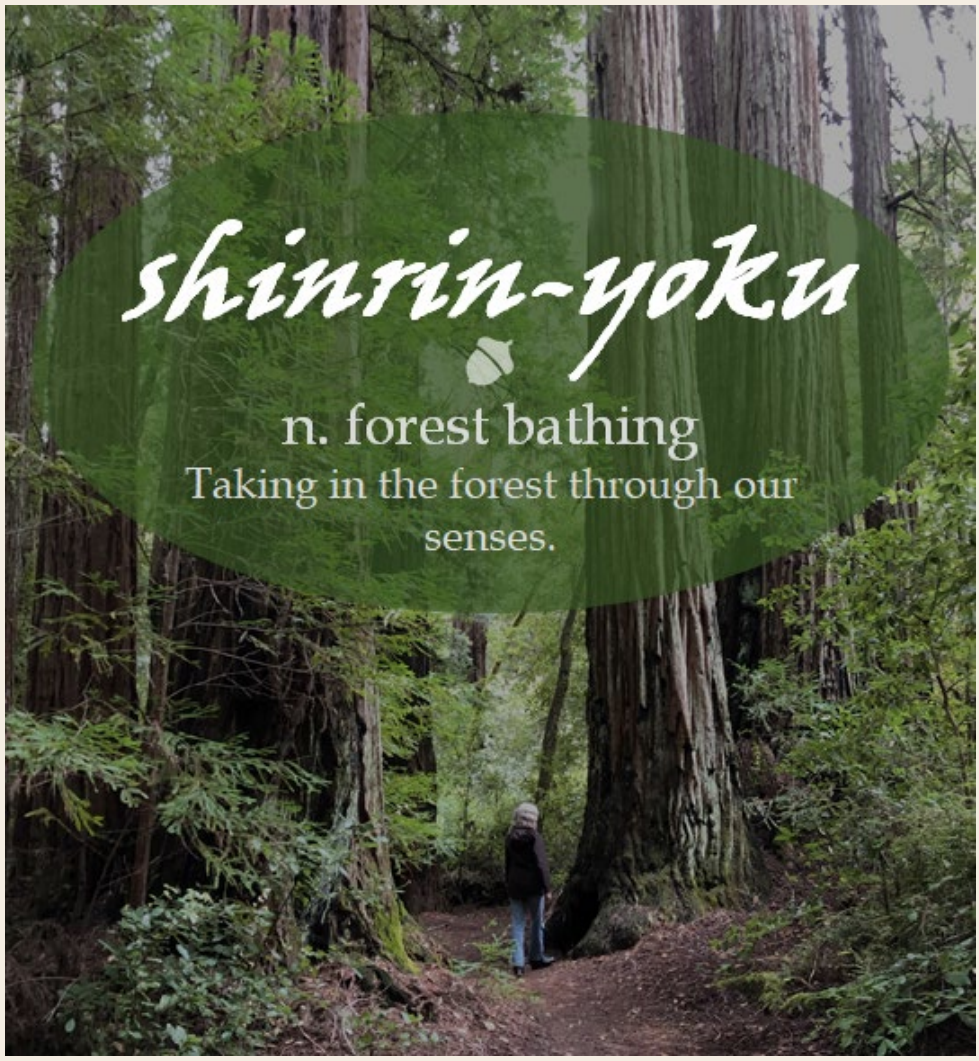
We are living in an increasingly urbanized world: more than four out of five Americans live in cities (World Bank Data). As more and more people gravitate to city life, they lose their connections to nature (Bratman 2019). Meanwhile, obesity, diabetes, cardiovascular disease, and mental health issues have become more prevalent (Cafasso 2019, Jordan 2015).

A promising line of research begun in the 1980s demonstrates that time spent in nature--especially immersion in forests--can improve our physical and mental health in many ways (Stier-Jarmer et al. 2021, Oh et al. 2017, Ideno et al. 2017, Hansen et al. 2017). Making equitable access to forests a top priority may be one of the most important and effective ways to enhance health and quality of life - while also benefiting the planet. The following four concepts explain why.

1. Immersion in forests benefits human health and well-being.

Research begun in the 1980s in Japan demonstrates that when we visit a forest, several wonderful things happen: our pulse rate lowers; our blood pressure decreases; anxiety and stress lessen; our immune system gets a boost; and we experience greater feelings of awe and empathy (Williams, Hansen, Oh, Ideno refs). Time spent in nature has been linked to lower rates of depression (Bratman 2015) and increased cognitive function and creativity (Williams, Bratman 2019).

Any amount of exposure to nature or even viewing images of nature have positive impacts (Wolf et al 2017, Delagran). However, fully experiencing a forest with all five senses may have the greatest benefit. This is called shinrin-yoku in Japanese, or forest bathing. Researchers now believe that inhaling organic compounds (phytoncides) produced by trees provide anti-inflammatory and anti-cancer benefits (Cho et al. 2017). Additional studies have linked exposure to the diverse microorganisms living in forest soils to improved immune function and overall health (Nabhan et al. 2020).



Richard Louv calls the health-giving properties of nature “Vitamin N” (Louv, 2011), but perhaps we should be even more specific in recognizing the value of Vitamin F: forests offer premium benefits.

2. The mental and physical health benefits provided by forests should be considered part of their ecosystem service value.

There is growing recognition among urban planners that natural areas provide a host of ecosystem services which can be quantified. Traditionally, ecosystem services included such things as flood control, air and water quality improvement, biodiversity, and carbon storage associated.

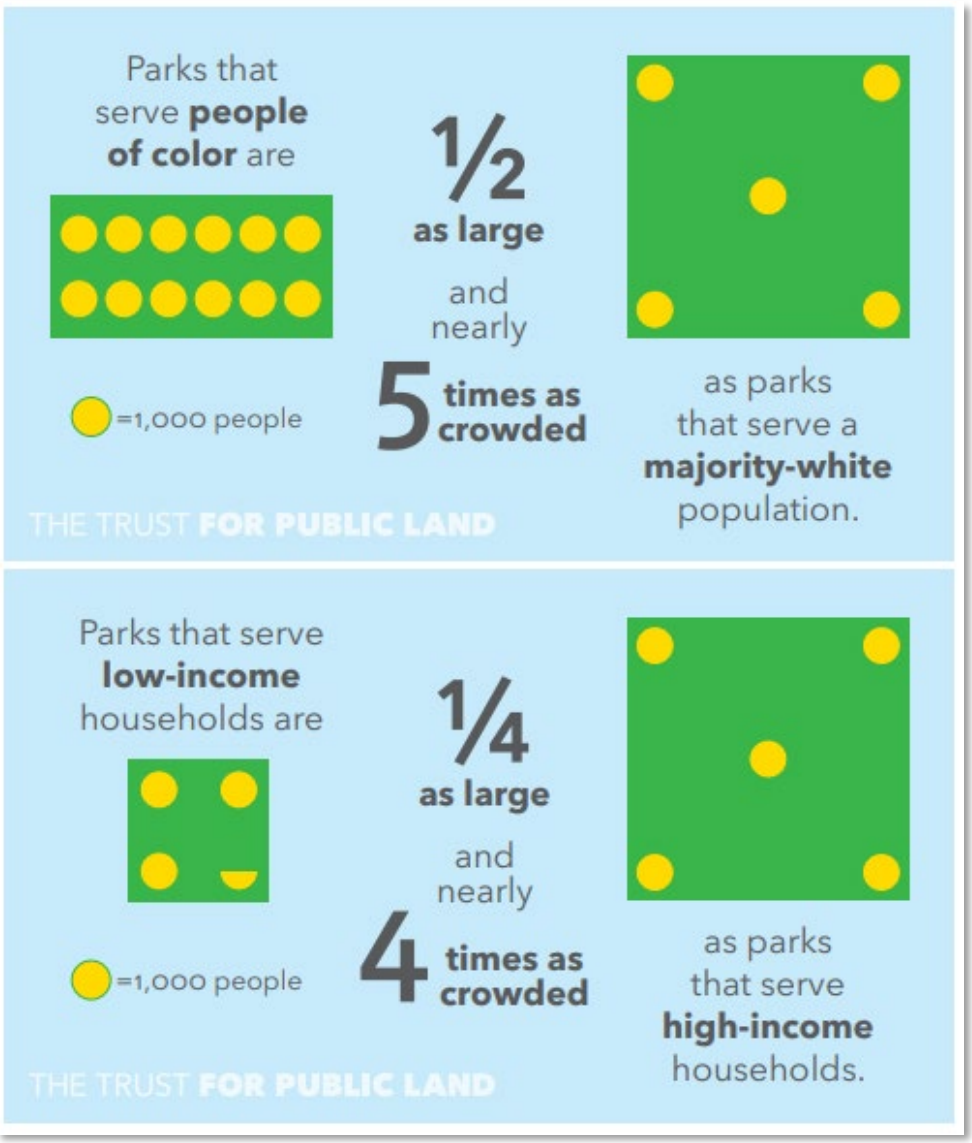
However, recent studies show that the presence of forests and other green spaces also have measurable impacts on people's mental health (Buckley et al. 2019). In a single year trees filter 17.4 million tons of air pollution in the U.S., preventing 850 deaths and 670,000 cases of acute respiratory symptoms (USFS 2018).

Several organizations in the U.S. have begun to analyze the distribution, accessibility, and community health value of natural areas. Examples include Trust for Public Land's ParkScore; NatureQuant's NatureScore; and Natural Capital's InVEST software (Morris 2021). Such tools help decision makers assess the impacts--and economic value--of planned green infrastructure projects. Japan's Forest Therapy Society, a government-sponsored initiative, has so far designated 65 forest therapy sites around the country with *shinrin-yoku* services provided for visitors. In the U.S., many cities have begun to recognize the immense benefits of urban forests and plan for them. One such project is the U.S. Forest Service's Urban and Community Forestry Program which links forest planning with public health, safety, sustainability, and economic growth.

3. We need equitable access to high quality forests.

Given the importance of forests and other green spaces to our health, it is imperative that all citizens have access to them. Today, access is unevenly distributed: a recent study by the Trust for Public Land found that nonwhite and lower income neighborhoods had fewer and smaller parks compared to majority white and higher income communities.

Low-income communities lacking access to green space also face higher rates of obesity, report less regular physical activity, and are at higher risk of exposure to pollution (USDA Forest Service 2018). Some cities such as Portland, Oregon, have begun to address this inequity by targeting green infrastructure improvements in diverse lower-income neighborhoods with the fewest natural amenities. City Parks Alliance is a national initiative working to promote and share examples of park development in low-income communities - with case studies in San Francisco, Detroit, Atlanta, Pittsburgh, New York, and others. And the National Park Service's Healthy Parks Healthy People program actively promotes parks as a health resource for all.



4. Publicly accessible old-growth forests are urgently needed.

The link between forests and human health is well established but we have a lot to learn about how we can maximize these benefits. (USDA Forest Service 2018, Wood et al. 2018, Oh et al. 2017, Hansen et al. 2017) Additionally, only a few studies have examined how different forest management regimes affect health responses. One study in Finland compared reactions to four different forests and found that older, more pristine forests had the greatest perceived restorative benefits, and that beauty was the most important quality preferred by participants (Simkin et al. 2021). Moreover, the psychological benefits of parks is higher in parks with greater biodiversity (Fig. 1) (Fuller et al. 2007, Wood et al. 2018).

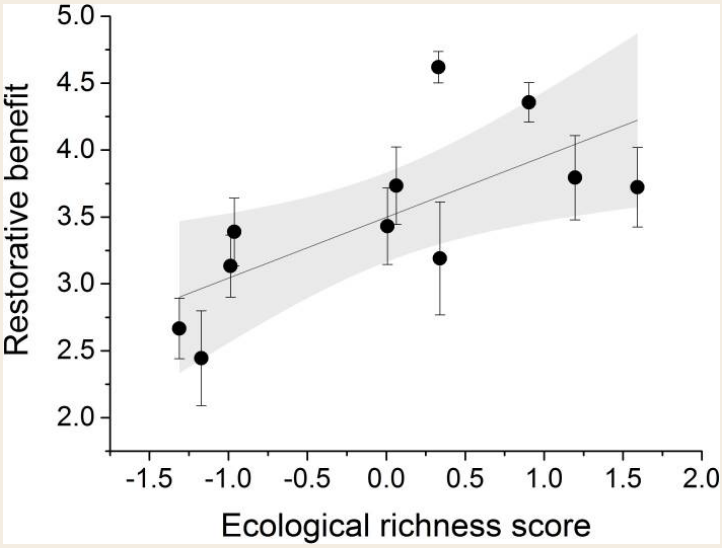


Fig 1. This chart shows how areas with higher biodiversity engendered greater psychological benefits for visitors. Source: Wood, E. et al. 2018.

> Older, more pristine forests have the greatest perceived benefits, and beauty is the most important quality preferred by visitors.

Such reports suggest that old-growth forests, which are biodiversity hotspots of incredible beauty--as well as providing top-level ecosystem services--must be considered priorities when making conservation, planning, and environmental restoration decisions. We need widespread access to old-growth forests for the benefits we already know and the ones we need to learn more about.

Conclusion

We know that spending time in forests is good for our individual and community health, and protecting forests (especially in urban areas where people are concentrated) contributes to human and planetary health in numerous ways. Old-growth forests are the gold standard: they are the most biodiverse, most stable/resilient, most beautiful/restorative, and best at producing oxygen and storing carbon compared to other forest types. It is urgent that we prioritize protecting and providing equitable access to these precious forests, and recognize the nature service values that they generate.

The Old-Growth Forest Network is the only national network in the U.S. of protected, old-growth, native forests where people of all generations can experience biodiversity and the beauty of nature. Our goal is to locate and designate at least one protected forest in every county in the United States that can sustain a native forest. We estimate that to be approximately 2,370 out of 3,140 total counties. To achieve this aim we work to identify forests for the Network, ensure their protection, and inform people of the forest locations. We are building not only a network of forests, but also an alliance of people who care about forests. To find the locations of any of the forests in this Network visit our website at www.oldgrowthforest.net.

Citation

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