

NATURE for HUMAN HEALTH and WELLNESS

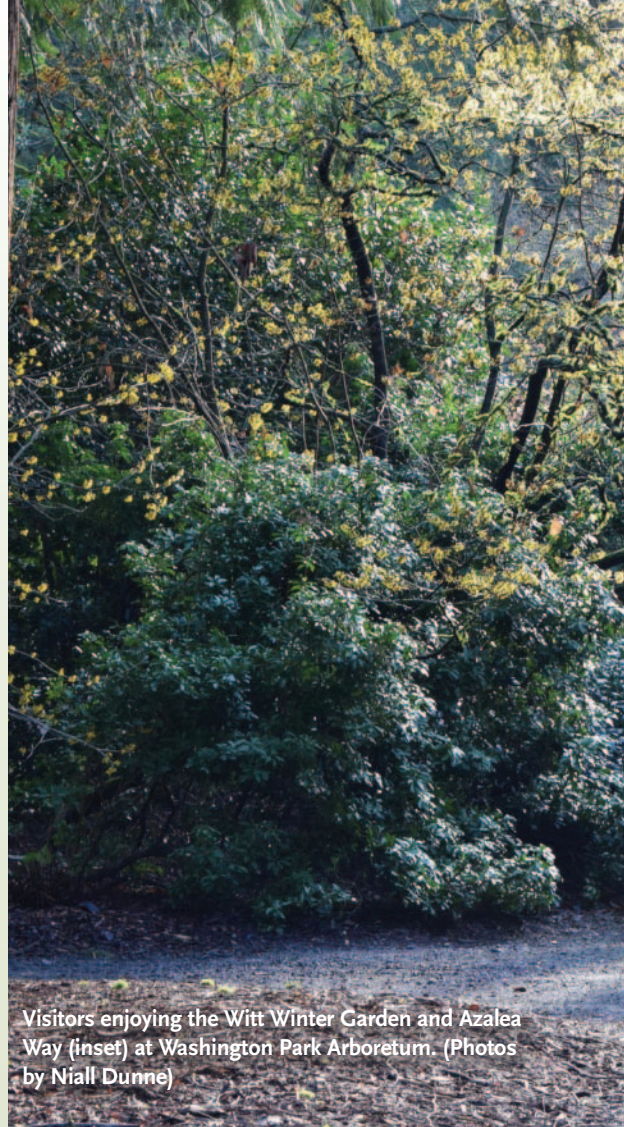
BY KATHLEEN L. WOLF

The Pacific Northwest region is one of the fastest growing urban areas in the nation. As the population grows it is ever more important to effectively enhance and steward our urban natural resources. Parks, natural areas, and the trees of the urban forest provide essential environmental services, such as improved air quality and storm water management. What's more, literally thousands of studies provide compelling evidence that nature experiences are the source of extensive human health, social and psychological benefits.

Direct experiences of nature are needed for quality human habitat, and are profoundly important for health of mind and body. We created the "Green Cities: Good Health" website (<http://www.greenhealth.washington.edu>) at the University of Washington (with funding from the USDA Forest Service) to share this knowledge. The site summarizes a collection of nearly 4000 peer-reviewed science articles that report nature and health connections.

We live in an age when human health challenges are on the increase. Traditional medical remedies involve huge public and personal costs. Public health agencies now seek preventative health solutions, and nearby nature and landscapes are increasingly recognized as opportunities for health promotion and disease prevention.

Below you will find a summary of the current research about the health benefits of nature experiences in urban areas. What does this mean for how we plan and use our urban green spaces? Later, I offer some interpretations,



Visitors enjoying the Witt Winter Garden and Azalea Way (inset) at Washington Park Arboretum. (Photos by Niall Dunne)

ideas that can make our natural areas more people-friendly and our people-oriented parks more nature-rich.

EVIDENCE OF NEARBY NATURE AND HEALTH

Active Living—Over the last 30 years, adult obesity has doubled in the U.S., and childhood obesity has more than tripled. The U.S. Centers for Disease Control (CDC) recommends weekly moderate-level physical activity to reduce health risks from obesity and chronic disease. Improving the walkability of neighborhoods and increasing recreation access promotes better health for people of all ages. In one study, in Tokyo, Japan, elderly people who had nearby parks, tree-lined streets, and space for taking walks showed higher longevity over the five-year study period.



Generally, studies show that adults and children prefer to visit and spend time in appealing places—those that are safe and include certain physical features, such as natural elements, good upkeep, unobstructed vistas, sidewalks and seating.

Stress Reduction—Stress is a leading contributor to chronic disease for people of all ages, and can trigger illnesses that lead to a shorter life. Early medical research on stress focused on the abrupt, infrequent changes that happen in life, such as death of a loved one or divorce. More recent research shows that low-grade, ever-present stressors, such as commuting and job pressures, initiate body responses that can lead to reduced immune function and a cascade of diseases. Chronic stress, with little opportunity



for recovery, can lead to unhealthy levels of psychological and physiological reaction.

Exposure to nearby nature has been shown to effectively reduce stress, particularly if initial stress levels are high. Stress recovery from nature encounters can happen in a matter of minutes, including improved measures of blood pressure and heart rate. Having nature near one's home is important. People exhibit lower stress levels with more frequent visits to green spaces, and if their visits are longer.

Mental Health and Function—Time spent within nature contributes to better mental health and improves one's capacity to be productive. Modern life often demands sustained focus on tasks,

and this effort can lead to cognitive overload, bringing on irritability, inability to function effectively, and physical decline. Brief experiences with—or even just views of—nearby nature help to restore the mind from mental fatigue. Mental restoration is gained from spending time in an urban green space, and longer visits improve the restorative effect. Improved attention effects have been found in college and high school students, children diagnosed with ADHD, and desk workers.

Walking in green settings within cities is also associated with reduced depression. One study, carried out by Stanford University researchers, found that a 90-minute walk in a natural setting decreased self-reported “rumination” (a pattern of negative thinking about one’s circumstances that heightens risk for depression and other mental illnesses) and indicators of brain activity that mark sadness and behavioral withdrawal. In contrast, a walk in a more “built” setting did not show positive effects. Providing well-marked trails and benches within parks and natural areas welcomes users and helps facilitate these mental and other health benefits.

Healing and Therapy—Nature experiences are also linked to healing and treatment of emotional and physical disabilities. Hospital patients with views of nature display less pain and have shorter hospitalizations, less anxiety, and higher hospital and room satisfaction. Guided participation in nature activities, such as horticulture therapy, is now regularly used in rehabilitation programs.

Nature-assisted therapies are gaining attention to supplement clinical and pharmaceutical treatments. Based on a decade of research in Japan showing the benefits of *Shinrin-yoku*, or forest bathing, cities are setting up forest therapy bases, and some are supported by medical clinics that provide check-ups. A variety of organizations offer outdoor experience programs for veterans to help them cope with PTSD. And several studies have found that elders with dementia and Alzheimers disease are less agitated, less depressed, and require fewer medications when they have access to a therapy garden.

Social Cohesion—Humans are a very social species! Many studies point to the importance of social linkages within a community to maintain the health of individuals and support community vitality. Social cohesion is formed by both casual and intentional interaction with other people, building interpersonal relationships and resulting supportive networks. The social capital that takes shape is a critical condition for a host of community benefits, and contributes to the development of resilient communities.

The presence of parks, green spaces or trees sets up environments where people can engage and interact. Views of green space are linked to greater perceptions of well-being, neighborhood satisfaction, and a greater sense of safety. Active participation in community greening and citizen science programs provides opportunities to develop social connections. Community greening programs, including vacant lot cleanup or shared community garden plots, are associated with reduced crime.

NATURE PLANNING AND DESIGN FOR HEALTH

Research from the social sciences, as well as widely recognized design practices, suggest how certain spatial arrangements in the outdoors can maximize human health and wellness. Here are some ideas:

Neighborhood Walkability—Natural areas and green spaces can serve as linkages that make a community more walkable. Two conditions are important: proximity and connectivity. Proximity refers to distances to and between one’s spatial goals, and connectivity refers to the ease of continuous movement from starting point to destination. Having green spaces or parks near every home is important; the CDC recommends no further than one-quarter mile. Connectivity involves the physical linkages that enable walkers to get to destinations (such as a store, transit station, work or school), as well as a series of spaces and routes that enable recreational walkers to move adequate distances in a safe way. Neighborhoods can do walkability assessments that trace walking opportunities and obstacles,

and that look at how parks and green space could support an active living network.

Plant Selection and Placement—Within parks and open spaces, managers may create new plantings or restore existing vegetation. The goals for these improvements often range from aesthetics to environmental services; health outcomes could be added to the list. Depending on location and potential users, design can be deployed to reduce a specific health risk (skin cancer, obesity, asthma), encourage general wellness (such as reduced blood pressure, heart rate, and stress), or accomplish specific social or psychological objectives (improved cognition, sacred respite, greater social cohesion).

One possible goal could be to reduce asthma and other respiratory disorders. Plant selection and the location of plantings can make a difference. Some trees produce pollen that can trigger allergies and should be avoided near residential areas; alder is one example here in the Northwest. Of greater concern are the clouds of fine, invisible particulates that are produced by traffic and can cause respiratory irritation. Some communities are planting forest “green screens” along major roads to help trap the pollution. The Nature Conservancy’s recent “Planting Healthy Air” report provides other guidelines. (You can download it at <https://global.nature.org/content/healthyair>.)

Welcoming Spaces—At the most basic level, health benefits are the result of people being outdoors and enjoying nature experiences. Urban and restoration ecologists now understand that remarkably complex ecosystems can be sustained in cities. However, some highly functional natural systems or naturalistic landscapes may appear “messy” to the casual observer and are often unappreciated. The public may even regard natural landscapes as untended, neglected, or even intimidating. But several principles adapted from environmental psychology can help boost the perception of these landscapes as amenities and help people feel more comfortable in them.

First, naturalistic landscapes can be framed using so-called “cues to care.” Simple devices—familiar to many wildlife gardeners—such as a rudimentary fence, a mown edge, or a more tidy ornamental plant border indicate that an ecological planting is an intended management approach, rather than a neglected space. Such treatments can signal to a visitor that the green space is intended for public use and enjoyment.

Making Sense of It All—Second, we can design our natural landscapes to be more coherent. Landscape coherence is the notion that a space has an internal physical and visual connectedness and general predictability. There is a sense of relatedness across the elements within, suggested by repeated features or patterns, symmetries, or a series of focal points. Land and park managers can make places more coherent by using physical orientation aids, such as hierarchical trail systems and interpretive signage. A place that is coherent is innately understandable and holds a promise of easy wayfinding.

The degree of complexity in the landscape also is important. Complexity is the information richness of a space and influences our ability to understand it. This applies to literal, physical places as well as virtual spaces, such as websites. If a place has low visual complexity and is too readily understood, we find it boring. If a setting is too complex, we may find it uncomfortable or unwelcoming. High complexity, particularly when caused by multiple sensory inputs—busy visuals, too much noise, and confusing layouts—can be the cause of immediate frustration and agitation, and possibly longer-term stress and anxiety.

Mid-level complexity is often the most appealing, offering just the right amount of information to satisfy the desire to understand a place, as well as opportunities to uncover more information and engage in more experiences should we move further into it.

CO-DESIGN FOR CO-BENEFITS

As the Northwest population expands, there is an ever-growing need for people to have access

to the outdoors. And the health research shows that frequent, short-term experiences of nearby nature are essential. Yet, the acquisition of new land for parks or natural areas is difficult, often because the land is not available or the price is prohibitive.

A new strategy of land management is emerging that may help address these challenges. While traditional policies have often treated a green space either exclusively as a natural area or a people-oriented park, new programs focus on both maintaining naturalness and providing a satisfying nature encounter for people. This more integrated approach looks to optimize the co-benefits of ecosystems for plants, wildlife, and humans alike. A good local example is the recent creation of an ecologically sensitive raised boardwalk in Yesler Swamp at the University of Washington, which has made the enjoyment of this freshwater ecosystem more accessible to people, while helping reduce disturbance of native plantings and wildlife.

People-parks can be designed to contain more native plant communities, providing

habitat for wildlife and connecting city residents to their natural heritage. At the same time, urban natural areas can be designed or restored to be more welcoming and engaging to visitors and users. These activities generate many benefits, and this article outlines the necessity of considering human health, and how to create the places that encourage outdoor experiences. ♡

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