

Human Benefits of Green Spaces

Adapted from the lecture "The Healing Garden: Social Research" by Dr. Susan Barton, PLSC100: Plants and Human Culture. November 18, 2008.

Interaction with gardens and natural spaces offers a variety of mental, physical and social benefits for humans, ranging from stress reduction, quicker healing, and mitigation of Attention Deficit Disorder in children to decreasing crime and air pollution. Sustainable sites consider human energy and creativity as a renewable resource, recognizing the potential for healthy living and employment conditions. City planners, governments, and ordinary citizens are only just beginning to appreciate the tangible benefits of green spaces and take advantage of opportunities for improving quality of life in urbanized areas.

Mental Health Benefits

Martine Petelot, a member of small community garden on a vacant lot in a congested area of Paris, France, argues that interactions with green spaces are essential for mental well-being: "Our garden allows us to work the earth, to watch things grow," he says. "People need to scratch about in the soil, breathe in the scent of plants and flowers, let off steam and meet other people. For many, it's almost like therapy."

- **Stress and violence reduction.** Parks, garden spaces, street trees, and landscaped traffic islands provide more than a pretty panorama, effectively reducing the stress of our daily lives by invoking a feeling of tranquility. Studies have shown that stressed individuals feel better after exposure to natural scenes. Accordingly, green spaces also reduce instances of aggression and violence.
- **Improved concentration.** Scientists assert that green spaces increase our ability to concentrate, both on the tasks at hand and on our subconsciously-viewed surroundings. Voluntary attention, the exhausting focus required to ignore distractions and remain intensely devoted to work or study must be employed

A Case for Green Space

Frances Kuo of the University of Illinois conducted a study of 28 identical high-rise public housing projects. She found that people living near green spaces:

- Boasted a stronger sense of community
- Coped better with everyday stress and hardship
- Were less aggressive and less violent
- Performed better on tests of concentration
- Managed problems more effectively

throughout the traditional workday. Involuntary attention is the effortless and enjoyable awareness of sensory stimuli in the environment—a benefit that has been selected for throughout the course of human evolution. In the past, those who found nature effortlessly engaging were more likely to know where the berries were, more likely to find the critters, and more likely to escape predators. Focusing on natural scenes gives voluntary attention a rest and allows involuntary attention to take over and recharge the human psyche.

Physical Benefits

- **Enhanced health.** Studies throughout the world have proven the power of green spaces to improve human health. Cities with high numbers of parks battle obesity and diabetes. Recent studies in the Netherlands and Japan show that people with easy access to green space boasted better health and lower mortality rates. Even relatively passive contact with nature—such as viewing it from a window—lowers blood pressure and anxiety levels.
- **More rapid healing.** Texas A&M's Roger Ulrich examined exactly how window views from a hospital room effected recovery time in surgical patients. He matched patients with similar demographics and surgical procedures but different window views—one facing a brown brick wall of an adjacent building, and the other looking at a small stand of deciduous trees. Those looking at the trees had fewer negative nurses' evaluations and post-surgical complications, used weaker pain killers, and remained in the hospital a shorter time—by 8.5%—compared to patients looking at a building wall.
- **Improved environmental conditions.** City greenery cleans and cools the air for improved quality of life. A study in Chicago determined that the city's trees filtered 234 tons of particulate pollution and cleansed the air of 98 tons of nitrogen dioxide, 93 tons of sulfur dioxide, and 17 tons of carbon monoxide. Vegetated areas also provide relief from the "heat island effect" caused by the heat-trapping quality of asphalt, concrete, and building materials. Air under a tree's canopy can be as much as 5 – 10° F cooler compared to full sun, with the underlying pavement up to 36° F cooler.

Social Benefits

- **Crime reduction.** Most people assume that increased vegetation translates to an increase of crime by offering hiding places for criminals and their criminal acts (see box on next page). Open mowed areas are generally considered safest, while densely vegetated areas are the most feared.

Contrary to these common beliefs, maintained green spaces actually *reduce* crime. A study of 98 vegetated and un-vegetated apartment buildings in Chicago showed that vegetated spaces cut crime by half, in addition to inspiring pride for surroundings that translated into less litter and less graffiti. Besides mitigating psychological precursors to violence by reducing stress and anxiety, green spaces increase a neighborhood's

collective surveillance: Vegetated landscapes invite more people to use them, ensuring more eyes on the watch to prevent crime in outdoor spaces.

- **Increased workplace productivity.** In the business environment, green spaces improve productivity and morale among workers. Studies show that desk workers with a view of nature—either out a window, in a picture frame, or around them in the form of indoor plants—feel more relaxed overall, and those with no visibility of plants suffer the most stress and anxiety.
- **Safer driving.** Vegetated roadsides may also serve a social benefit by reducing fatigue, anger, aggression, fear and stress of automobile drivers. A study using videotapes to simulate differing levels of vegetation along roadside suggests that parkway design and roadside vegetation reduces frustration among drivers. (For information about Delaware's roadside vegetation program, consult the document "Enhancing Delaware Highways: Roadside Vegetation Concept and Planning Manual," available at http://www.deldot.gov/information/pubs_forms/manuals/edh/index.shtml.)
- **Economic stimulation.** In multiple studies conducted by Kathleen Wolf at the University of Washington's College of Forest Resources, street trees and other streetscapes in downtown shopping districts were rated as highly preferable in surveys conducted among visitors. Not only do street trees foster a community's sense of place, but well-maintained streetscapes raise opinions about the quality of goods and services offered. In landscaped shopping districts, surveyed consumers were willing to spend 9-12% more than they would spend in an un-landscaped district.
- **Positive effects on children.** A national movement called "No Child Left Inside" popularized by Richard Louv in his book, *Last Child in the Woods* speaks to the countless benefits natural spaces have on child development. One national study of 450 children with Attention-Deficit/Hyperactivity Disorder determined that exposure to natural environments alleviated symptoms of the condition. Another study shows that views of trees from the home improves self-discipline among inner city girls, including enhanced concentration, inhibition of impulsive behavior, and delay of gratification. After creative play in verdant settings, children overall demonstrate increased ability to concentrate, complete tasks, and follow directions.

Why don't most people realize benefits of interactions with plants?

The wealth of benefits provided by plants is not ingrained knowledge in modern day American culture. Humans often have difficulty in even seeing plants in their own environment, much less connecting plants to tangible benefits. As James Wandersee explains in "Toward a Theory of Plant Blindness,"

Only 0.0000016 of the data our eyes produce are considered consciously. It is assumed that the rest must somehow affect our thoughts feelings and actions and this means most of mental life must take place subconsciously. (2001)

For most people, plants are a part of the subconscious sector of mental life, perceived as the backdrop, not the actors in the playing out of our everyday lives.

Plant blindness aside, it remains difficult for humans to clearly track the cause and effect between presence of plants and resulting benefits due to the cumulative nature of these benefits. Decreases in crime over time, overall improved concentration and speedier hospital recovery times are not easily recognized or quantified, and even less easily linked to surrounding landscapes. Further research and widespread education—especially of city planners and local governments—may serve as the best tool for helping us recognize the advantages of green spaces.

Minor investment, huge payoff

Due to widespread plant blindness, parks and other green spaces are usually considered luxuries, funded by leftover monies after buildings and hardscapes have been planned and built. However, as researcher Frances Kuo advocates, parks in cities represent a potential for a minor public investment with a huge payoff: "Parks help people take care of themselves," she asserts, "so cities don't have to spend as much on social, medical and safety services trying to fix their problems."

In other words, as Henry David Thoreau claims, a remedy we can never have enough of is a healthy dose of nature.

Evidence of Plant Benefit Blindness?

In 2006, the Project EverGreen Survey conducted interviews to judge public agreement to the following statements, all which are true:

"Psychologists have found that access to plants and green spaces provides a sense of rest and allows workers to be more productive."

35% agree, 55% disagree

"When landscaping is developed in a neighborhood, there is a decrease in vandalism."

30% agree, 70% disagree

"Improving landscaping can reduce energy costs"

30% agree, 70% disagree

Additional Resources

Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder by Richard Louv (Algonquin Books of Chapel Hill, 2005)

Human Dimensions of Urban Forestry and Urban Greening

www.cfr.washington.edu/research.envmind

"Paris Parks" by Jennifer Ackerman

<http://www7.nationalgeographic.com/ngm/0610/feature3/index.html>

"Toward a Theory of Plant Blindness" by James Wandersee

<http://www.botany.org/bsa/psb/2001/psb47-1.html#Toward%20a%20Theory%20of%20Plant>

"Trees are Worth Downtown's Investment" by Kathleen Wolf

<http://www.cfr.washington.edu/research.envmind/CityBiz/DowntownExchange.pdf>

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