

What Good Is Community Greening?

**Research Supports All Those Common Sense Answers You've Been Using for Years  
-- but There Is Still More to Learn.**

By David Malakoff

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*You've spent an hour tending your tomato vines, but now its time to go to that meeting about the garden. They are threatening to take the garden away, to bulldoze the lot and erect an electric power substation where flowers now dance in the breeze and the neighbors gather to admire old Bill's pumpkins.*

At the meeting, everyone is polite and proper ( until...until that dour faced junior executive rises with her charts and graphs, and "proves" that your garden is more "valuable" to the community with a concrete slab and ten tons of machinery slapped on top of it. "Look," she says in her best this-is-between-you-and-me voice, "what good is that little patch of weeds and carrots anyway?"

Now you're angry. You jump to your feet and start to speak. "What good is our garden?," you ask in disbelief. "I'll tell you what good it is..." but after you've had your say (after you've talked about quality-of-life, commented on the pride and tranquility that has come from coaxing new life from the soil, and told the story of how the neighborhood really turned around after that trash-filled lot was transformed into a garden ( the junior executive only looks at you blankly. Those are nice stories, she says. Then, gesturing to her charts and graphs, she asks: But where are your facts and figures... where is your proof?"

What good is community greening? And how do you prove it? The answers to these basic questions seem obvious to most community greeners ( whether they are gardeners, tree planters, or open space advocates. They know from their own experience that plants are good for people and their communities. Proof? They've seen it with their own eyes. But, these days, speaking from experience often isn't enough to convince people that spending time and money on plants and green space is a good idea. Increasingly, politicians, developers, and taxpayers are demanding evidence - facts and figures - that greening is a good investment.

Luckily for community greeners, in recent years researchers have made some remarkable discoveries that powerfully demonstrate the benefits of greening. The discoveries come from a dizzying array of disciplines, ranging from psychology and economics to sociology and medicine. They confirm that people, even in this technological age, need plants for more than just food and need green space for more than just pleasure. In the

words of University of Michigan psychologist Stephen Kaplan, the studies prove that "Nature is not just `nice'... it is a vital ingredient in healthy human functioning."

But along with the discoveries has come a clearer understanding of how much we don't know about greening's benefits . "We know so little, understand even less," says Charles Lewis, a passionate greening advocate formerly with the Morton Arboretum in Lisle, Illinois. As a result of this knowledge gap, community greeners sometimes can be at a disadvantage when it comes time to build a case for their projects. While highway builders and developers can produce reams of data that demonstrate the social and economic benefits of their projects, greeners are often armed with little more than a heart-warming anecdote about cabbages sprouting amidst urban squalor. The lack of hard data on greening "can create the impression among decision-makers that there is an absence of tangible, credible evidence regarding the benefits," say Roger S. Ulrich and Russ Parsons of Texas A&M University. Unfortunately," these academics say, "intuitive arguments in favor of plants usually make little impression on financially-pressed local or state governments, or on developers concerned with the bottom line. Politicians, faced with urgent problems such as homelessness or drugs, may dismiss plants as unwarranted luxuries."

Greeners got a painful reminder of this fact of life in 1993, when Congress essentially eliminated funding for the U.S. Department of Agriculture's Urban Gardening Program, which helped over 150,000 low-income gardeners in 23 of the nation's cities. At the time, Morris Jenkins, coordinator of the Houston program, bemoaned the absence of more hard data on greening: "What many people need to see is some hard proof that these gardens make a difference," he told Community Greening Review in 1994. "Now, I know that these gardens make a difference... But we need to show other people research that validates these benefits."

### **People and Plant Interactions**

Luckily for greening advocates, today there is more evidence than ever before of the benefits of greening. Much of it comes from researchers who study what they dryly call "people-plant interactions." In fact, the Plant-People Council (PPC) (a networking effort established by horticulturists and the horticultural industry in 1990 to "increase people-plant interaction awareness" ( has assembled a computerized bibliography of over 1,200 articles on the subject. Many are scientific studies highlighting the individual and community benefits of plants and greening activities (studies that one researcher jokingly calls "the products of a Herculean task to prove the obvious: that plants are good for people."

Obvious or not, these studies offer literally hundreds of answers to the question "What good is greening?" (from evidence that gardening can help you sleep better to the observation that street plantings reduce graffiti on nearby walls).

Diane Relf, a horticulture professor at Virginia Polytechnic Institute who coordinates the PC, notes that most of the people-plant research falls into several broad categories.

### **Background Theories**

One category is the study of "background theories", which try to explain the underlying reasons why people have positive responses to plants and green spaces. Texas A&M's Ulrich and Parsons, for example, theorize that people are overwhelmed by the noise, movement, and visual complexity of the modern world, and that quieter, less chaotic plant environments (such as a garden) reduce stress. This theory would explain why, when University of Michigan psychologist Rachel Kaplan surveyed members of the American Horticultural Society in 1983, over 80% ranked "peacefulness and tranquility" as one of the top benefits of gardening. Or why one community gardener in Dorchester, Massachusetts described his green plot as "a little island in the madness." Another theory, supported by research done by Ulrich and others, suggests that human evolutionary history explains why we like plants and green spaces. Our ancestors living on the broad African plains may have learned to associate trees and plants with food and water, creating positive feelings that we still carry today.

This idea is expanded by preeminent Harvard biologist Edward O. Wilson and Yale professor Stephen Kellert in their 1993 book *The Biophilia Hypothesis* (Island Press), which asserts that human evolutionary history has made a human connection with nature a necessity, not a luxury.

### **How Individuals Respond**

A second type of research into people-plant interactions has focused on how individuals respond to plants and green spaces. Among the many remarkable results of this research are findings by Ulrich and his colleagues that simply looking at a plant can reduce stress, fear, and anger, and lower blood pressure and muscle tension. Other studies have found that prison inmates in cells with windows overlooking greenery need less medical care and report fewer symptoms of stress, such as headaches. Other researchers, such as Mary Honeyman of the University of Illinois, have documented that people shown urban scenes with some vegetation recover more quickly from stress than people exposed to urban scenes without vegetation. In a conclusion likely to seem wildly understated to most community greeners, Honeyman concluded that "the introduction of green vegetation into the urban landscape may be of important psychological benefit to humans."

It appears that most Americans understand these psychological benefits. In a 1988 Gallup public opinion survey for the National Gardening Association, for example, 88% of those surveyed believed that trees and flowers were important "beyond their beauty or pleasing appearance." Stephen and Rachel Kaplan have also extensively studied how individuals respond to natural settings ( especially the role that nature can play in reducing mental fatigue and improving the ability of people to focus attention on important tasks, such as managing work and the stress of day-to-day life.

Among other things, the Kaplans believe that nature provides the fatigued human mind with a "restorative" change of pace. A visit to even a small garden, for example, can offer a person the feeling of "being away" from a stressful setting (such as work). Vegetated landscapes also appear to offer "fascination" (stimulus that evokes seemingly effortless mental activity), as opposed to the strenuous, focused mental activity often required for work tasks. At least one of Rachel Kaplan's studies, done in 1973, found that gardens were a good source of fascination.

Stephen Kaplan says that a 1990 study by Bernadine E. Cimprich highlights the restorative value of nature. Cimprich, a nurse working with cancer patients, noticed that seven patients with excellent medical prospects often reported a severe inability to focus and had difficulty in managing their lives after leaving the hospital. After testing, she found some breast cancer patients earned attentional capacity scores that placed them in a "brain damaged" category. Patients who agreed to regularly participate in restorative activities such as gardening, however, rapidly improved their scores. They also returned to work and their normal lives more quickly than patients who did not participate in restorative activities.

The Cimprich study, and others like it, says Stephen Kaplan, suggest that nature's restorative value is a key to healthy living for everyone, not just cancer patients. "It is unlikely that breast cancer patients are the only ones who suffer assaults on their attention or could benefit from systematic participation in restorative activities," he says.

To test that idea, the U.S. Forest Service's Human-Environment Research Laboratory is studying how the surrounding landscape, especially the presences of trees and grass, influences the functioning of low-income residents in three Chicago public housing projects. "Our work asks, can contact with nature provide similar benefits to residents of urban public housing?" says the University of Illinois' W.C. Sullivan, one of the researchers.

## **Plants and Communities**

The third category of research into people-plant interactions ( the category that has attracted the most interest from community greeners) involves the role that plants play in the development of healthy human communities. According to Relf, researchers have found that plants and greening activities play at least three distinct roles in community development. They:

- provide a more livable environment by controlling physical factors such as temperature, noise, and pollution;
- help create a community image that is perceived as positive by both residents and outsiders; and
- create opportunities for people to work together to improve communities in many ways

Relf and others note that these three factors translate directly into tangible economic and social benefits, such as reduced crime, higher property values in greened areas, nutritious food from community gardens, and increased business activity in attractive, green neighborhoods.

Anyone who has retreated from the hot asphalt of a city street to the shade of a nearby tree understands the importance that plants can play in regulating environmental conditions. But energy-saving shade is not the only benefit that plants offer, as a landmark 1994 study of Chicago's urban forest found: they also play a valuable role in reducing air pollution, controlling climate, and saving energy.

Such physical benefits may explain why a variety of psychological studies have found that plants help foster positive community images. In a 1985 study of apartment dwellers, for example, Stephen Kaplan found that "the most important factors in neighborhood satisfaction were the availability of nearby trees, well-landscaped grounds, places for taking walks, and opportunities to grow plants, were significantly related to the sense of community."

In light of the such findings, it is no surprise that people are willing to pay more, sometimes a lot more, to have plants in their surroundings. Several studies, for instance, have found that urban property values are higher near parks and greenbelts. In Salem, Oregon, for example, urban land next to a greenbelt was worth \$1,200 more per acre than urban land only 1,000 feet away. Similarly, other surveys found that home owners believe that a well-maintained landscape can increase the value of their homes by a whopping 15 percent, and that properties in New York City less than two blocks from a city park are more valuable than more distant properties. Another study of an Opryland hotel in Nashville, Tennessee revealed that people are willing to pay more for a room overlooking an indoor garden.

### **Building Communities**

The idea that greening activities create a friendlier, more cohesive community that is better able to tackle the many problems of modern life is hard to "prove," researchers say, because the evidence is often anecdotal, incomplete, or tantalizingly subtle. How exactly do you put a dollar value on a person's self-esteem or the fact that someone feels better about driving through your neighborhood?" asks Diane Relf. Nonetheless, she and other researchers say there is plenty of evidence that greening can help pull together and improve a community.

Mark Francis, a professor at the University of California at Davis (and a former board member of the American Community Gardening Association), has done extensive studies of the community benefits and perceptions of parks and gardens. Among other things, he found that gardens that are built and maintained by community residents have "unique social and economic benefits." "The spaces provide opportunities for neighborhood residents to develop and control part of their neighborhood, an advantage not afforded by traditional parks," he concluded after a 1987 study of park and garden users in

Sacramento, California. "Gardens are active places that people make themselves, use for work and socializing, and can 'love', he found.

Research by Jill Roper, a graduate student at Rutgers University, confirms that community gardens do get people talking to each other. Roper's interviews with participants in the New Brunswick Community Gardening Program in New Jersey revealed that having a garden significantly increased the frequency of interaction among the gardeners, even outside of the gardening season. "We didn't know many people in our garden until we started telling one another about how tasty our vegetables were," a gardener told another researcher, Ishwarbhai C. Patel, who runs urban gardening programs in New Jersey. Such interactions create a common ground on which neighbors, often isolated by walls or outlook, can build a shared feeling that they have power over their lives. A community activity such as gardening can be used to break the isolation, creating a sense of neighborliness among residents," says Charles Lewis. "Until this happens, there is no community, but rather separate people who happen to live in the same place."

### **"Greenlining"**

Research by [Marti Ross Bjornson](#), a graduate student at Northwestern University in Evanston, Illinois, suggests that these initial conversations can eventually lead to bigger things: an empowerment process she calls "greenlining". Like other researchers, Bjornson decided to look for greening-induced empowerment in inner-city neighborhoods, where, as Lewis puts it, "just as the light of a candle can be seen more clearly in a darkened room, so can the human benefits of plants be seen more easily in communities lacking in economic and social opportunity." After studying community gardening projects in inner-city Chicago, Bjornson coined the term "greenlining" to provide a stark contrast to "redlining", the term used to describe how banks and insurance agents often withhold services to low-income neighborhoods (the term literally comes from the bright red lines bankers drew on maps to outline the neighborhoods where they would not offer loans).

Bjornson notes that while redlining serves only to isolate the residents of these communities from the services provided by their business and government leaders, greenlining provides a new access route. By working together with greening advocates and their neighbors, "these formerly marginalized urban residents can gain access to public policy, economic resources, and social interaction..." The pathways to power, Bjornson says, can be relatively modest. Simply attending a community meeting on a garden project, for example, can introduce residents to non-profit and government officials they might never have known about and vice versa.

The process opens eyes on both sides," she says. "The simple act of starting a garden can teach previously powerless people how to get access to city hall, and it can change the perception of the people with power who are looking into the community for the first time." Greenlining, she says, also brings together two groups that might once have passed in the night: political activists and gardeners. "There are people who have political savvy, but don't see gardening as a valuable forum for social change," she explains. "Then there

are gardeners who don't really see a need for political activism until their garden is threatened." As an example, Bjornson tells the story of a Hispanic woman who became a community leader after she became involved in working out a complex land swap designed to protect her community garden. Bjornson concludes that "the simply human neighborly process of community gardening is ultimately a political activity." And she believes that greenlining could provide communities with "greater understanding and success than some other more costly, more displacing, more abrasive forms of community political action."

## **More Data**

While researchers have discovered much about the benefits of community greening over the last few decades, there is still much left to learn. I know there is a need for more hard data... I get letters all the time asking for it," says Richard Mattson, a Kansas State University professor who has overseen a number of important greening studies, including surveys sponsored in cooperation with the American Community Gardening Association (see 1994 Community Greening Review). "Now, I believe the data is out there. But there is the question of being able to find the time and money necessary to collect."

Finding that time and money is no small challenge for interested researchers. The federal government (primarily the U.S. Forest Service) has sponsored some research, often due to its interest in understanding how to better manage public lands. But unlike some areas of research, which have established industries eager to sponsor and then profit from studies, people-plant research has limited commercial appeal. Even the horticultural industry, which might have the most to gain from a fuller understanding of why people should want to buy plants, traditionally showed limited interest.

Researchers say that if they are to make progress on the long list of research topics awaiting study, they will need to attract far wider support. In 1992, for example, an ACGA panel identified more than a hundred different areas in need of research and documentation; ten items were deemed especially important research areas. Similarly, an academic panel coordinated by the PPC's Relf came up with an imposing list of research questions. A 1993 summary of the panel's work concluded that "research is essential to document scientifically the impacts plants have on health and well-being of individuals and communities in diverse settings and cultures."

While the panel considered studies into "human health and wellness" the highest priority, studies of "human interactions in urban areas" came next. The panel noted that the benefits of community gardening and greening "have not been documented scientifically, perhaps because research in this area is complex and potentially costly." Among the specific questions the panel proposed for study were:

- How can designs and gardening projects be made more relevant and meaningful by involving the participants?
- What are the benefits to communities of residential, institutional, and public open spaces?

- What human factors lead to successful community gardening projects?
- What are the effects of gardening projects on group behavior (e.g. reduced littering, social interactions, etc.)?
- How can we legitimize people-plant interaction research to enhance its credibility among other groups, including academics, health-care workers, and politicians?

Almost last, but not least, among the questions proposed for study was this important one: "Who is funding research in this area, and what are their goals for this type of funding?" There are indications that interest in answering this and the other important questions is rising. Relf, for one, reports that she is getting more inquiries from graduate students around the nation interested in doing research in the field. And Mattson, Novack, and other professors say they have graduate students ready, willing, and able to take on some of the mind-numbing work need to produce hard data. Until this data pours out of the academic pipeline, however, community greeners must rely on existing studies and the upbeat anecdote to win the hearts and minds of those who must fund and support community greening projects. As Relf puts it, "the relentless piling up of anecdotal data might just do the trick." And Mark Francis believes that "rigorously collected anecdotes can be seen as hard data, you need both qualitative and quantitative information." The real trick, "he says, "is to translate what we already know into public support. Let's let the stories people tell about the benefits of greening speak for themselves. They have a strong impact. And that is the thing that often makes the difference with decision-makers. It isn't always facts, politicians resonate with more than just data.

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